

## ANNEXURE E

### Addendum to Landscape Report by Jackie Amos Landscape Architect



DA 2012/11 Residential Subdivision  
Lot 2 DP 1119830, Alexandra Drive, Bellwood

a d d e n d u m   t o   l a n d s c a p e   r e p o r t  
prepared for Geoff Smyth Consulting

May 2012

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## Introduction

This addendum has been prepared for Geoff Smyth Consulting in response to a request for further information regarding DA 2012/11 Residential Subdivision Lot 2 DP 1119830, Alexandra Drive, Bellwood. That request was put forward by consultants engaged by Council to assess the application and prepare a report on Councils behalf to the Joint Regional Planning Panel who are the consent authority in this case.

The additional information being dealt with in this addendum relates to the Landscape Masterplan and includes:

1. An assessment of the identified conflict between the Landscape Masterplan proposals, the Ecological Assessment and the submitted Vegetation Management Plan (VMP).

Relevant conflicts include:

- The submitted Ecological report partly relies upon the revegetation of a 1ha area in the southern area of the site (adjacent to the SEPP14 wetland and the southern perimeter access road) as a mitigation/offset for the proposed removal of EEC and overall vegetation/habitat and this also forms part of a buffer to the wetlands.

The submitted Landscaping Masterplan proposes a community park in this location. As stated in the submitted VMP this effectively precludes the provision of the offset planting in this location as required in the ecological report and may require the offset to be provided off site.

- The VMP states that the landscaping schedule within the Landscape Masterplan contains unsuitable plant species that are known environmental weeds.

2. Additional landscaping details shall be provided as follows:

- a. Further to the submitted Landscape Masterplan, the location, species and mature height of all trees proposed in public streets and open space areas is required. This landscape detail shall include the entry treatments at the southern entrance of the estate and the proposed upgrading of the intersection of Alexandra Drive and Old Coast Road.
- b. A landscape plan and cross sections of the proposed upgrading of the existing Alexandra Drive streetscape further to page 19 Section 2.2.4 of the submitted Landscape Masterplan Report.
- c. As stated earlier under the heading Ecology, Landscaping and Vegetation Management Plan, the VMP states that the landscaping schedule within the Landscape Masterplan contains unsuitable plant species that are known environmental weeds. An amended planting schedule shall be provided.

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## References

## **1.0 assessment of the identified conflict between the Landscape Masterplan proposals, the Ecological Assessment and the submitted Vegetation Management Plan (VMP)**

### **1.1 review of mitigation/offset strategies included in the Ecological Report**

The Ecological Report is the "Flora and Fauna Assessment for the proposed subdivision of Lot 2 DP 1119830 Marshall Way & Alexandra Drive Bellwood" prepared in March 2010 by James Warren & Associates Pty Ltd. That report prescribes the following mitigation/offset measures to minimise impacts of the the proposed development on flora and fauna.

#### **With regard to impacts on threatened fauna**

Mitigation for the potential direct and indirect impacts of the development on flora and fauna includes the completion of a Vegetation Management Plan (VMP) for areas of retained vegetation. This is to enhance the site as a habitat for threatened fauna species. (James Warren & Associates, p14)

#### **With regard to koala habitat**

Small areas of potential koala habitat and food trees will be removed for the proposed development, however, 98% of suitable koala habitat on the site will be retained. The VMP should include the planting of koala food trees in any rehabilitation where appropriate. (James Warren & Associates, p17)

#### **With regards to Endangered Ecological Communities (EECs)**

Mitigation for the potential loss of EEC is the completion of a VMP for the areas of retained vegetation (i.e. land under Environmental Protection Zoning 7a and SEPP14 Wetlands). This will enhance the site as a habitat for the Endangered Ecological Communities Swamp Sclerophyll Forest and Swamp Oak Forest. (James Warren & Associates, p18)

#### **With regards to the conservation of existing wildlife corridor values**

Mitigation for the potential impact on existing wildlife corridors is the completion of a VMP for the area of retained vegetation occurring as a wide strip to the south and east of the residential layout. (James Warren & Associates, p19)

#### **With regards to the preservation and management of ecologically sensitive areas such as the riparian corridor and adjacent aquatic habitats including Bellwood and Swampy Creeks**

The SEPP14 wetland will be protected by the combination of a vegetative buffer (i.e. retained vegetation and rehabilitation) and strategies to maintain stormwater runoff quality through a Stormwater Management Plan. (James Warren & Associates, p21)

*A vegetative buffer of varying widths (i.e. 25m to 100m) will be maintained between the residential layout and the SEPP14 wetland. There are a number of sections of the SEPP14 Wetland that currently have no buffer or less than 25m. These areas will be revegetated. The objectives of the VMP should incorporate any strategies necessary to provide for the effective buffering to the SEPP 14 areas.* (James Warren & Associates, p21)

*The buffer to the SEPP14 areas will simultaneously provide a vegetative buffer to the creeks and their respective riparian zones.* (James Warren & Associates, p21)

#### **With regards to the impacts of any native vegetation clearing**

Mitigation for the removal of native vegetation includes the completion of a VMP for the areas of retained vegetation. The losses of intact areas of native vegetation will be < 0.33 ha. This loss is to be offset by the regeneration of almost 1 hectare of grassland with scattered trees in the south of the site. (James Warren & Associates, p25) At least 1 hectare of land will be replanted. (James Warren & Associates, p31)

## 1.2 review of revegetation strategies included in the Vegetation Management Plan

The Vegetation Management Plan, "Vegetation Management Plan Palmwoods Estate Lot 2 DP 1119830 Alexandra Drive, Nambucca Heads" was prepared in September 2010 by the Coffs Harbour Bushland Regeneration Group Pty Ltd (CHBRG). That VMP prescribes the following strategies relative to mitigation/offset planting.

*"Revegetation shall be required to offset the removal of any mature native tree species from the subject site. Revegetation shall assist in providing a buffer for existing native vegetation that is to be retained (EEC's and the SEPP14 Wetland). Offset plantings and buffers to EEC's and the SEPP14 Wetland are recommended in the Flora and Fauna Report (James Warren and Associates). (CHBRG, p10)*

*It is also recommended that only native local indigenous species are planted adjacent to existing bushland and that these species be those from the same vegetation community that they are adjoining. (CHBRG, p10)*

The VMP recognises that the "Flora and Fauna Assessment" by James Warren & Associates prescribes the SEPP 14 Wetland shall be protected by a vegetative buffer. The VMP notes the proposals for the Community Park, included in the Landscape Masterplan, reduce the potential to provide a buffer to the wetland at this location. (CHBRG, p14)

The VMP describes Zone 2 as an important buffer between the SEPP 14 Wetland and the proposed subdivision. It describes the southern portion of this zone as an area that has previously been disturbed but is now experiencing regrowth of Acacias and Eucalypts. (CHBRG, p16)

The VMP describes the revegetation to provide a buffer to the SEPP 14 Wetland to be located adjacent to the proposed perimeter road (approximately 5m in width) and in the regenerating area described above. This is the same location where the community park is proposed. The VMP describes that revegetation to these areas will involve the planting of 614 native indigenous tree/shrub species at 3 metre centres and provides a list of 26 species to be planted. (CHBRG, p17)

It is noted, the revegetation proposed by the VMP along the southern side of the perimeter road could potentially jeopardise the Asset Protection Zone as required by the Bushfire Risk Management Plan. These areas instead would be maintained grassed road verges. Sections 1.3 and 1.4 illustrate the 1 hectare of revegetation can be achieved without revegetating these areas.

### 1.3 Can the community park and revegetation co-exist?

The community park plan has been amended to incorporate/reflect the strategies for mitigation/offset planting established in the "Flora and Fauna Assessment" and the "Vegetation Management Plan". Figure 1 provides an amended layout to the community park plan. This layout reduces the extent of park facilities and dedicates the southern portion of the park to revegetation. The revegetation area shown in the park slightly overlaps the line of existing vegetation to allow for plantings at any locations where weeds may have infiltrated the existing vegetation. This revegetation equates to 10,400 square metres of revegetation planting which is just over 1 hectare. The following summary indicates that the amended park layout can successfully incorporate the mitigation/offset strategies as required by the 'Flora and Fauna Assessment' and "Vegetation Management Plan".

**1. incorporate koala food trees in rehabilitation areas**

*The revegetation area to the southern portion of the community park can incorporate koala food trees.*

**2. protect the SEPP14 Wetland with a vegetated buffer comprised of retained and rehabilitated vegetation. Revegetate areas where there are no or <25m buffers.**

*The revegetation areas to the southern portion of the community park will provide an increased buffer to the SEPP 14 Wetland. At its narrowest this buffer will be 33 metres and at its widest the buffer will be 68 metres.*

**3. Offset the removal of native vegetation with 1 hectare of regeneration planting.**

**The planting is to be at the location of the community park.**

*Both the community park and revegetation can co-exist at the same location. The park facilities have been consolidated and the southern extent of the park has been dedicated to revegetation planting. At the same time, any existing regenerating Acacia and Eucalypts can be retained in this area and incorporated into the revegetation zone. The revegetation zone equates to 10, 400 square metres and provides at least the hectare of revegetation planting specified in the "Flora and Fauna Assessment".*

*In addition to the revegetation area, the same species could be incorporated within the park area to provide additional habitat trees. It will also be possible to retain clumps of existing regenerating vegetation i.e. Acacias and Eucalypts within the park area where they are not affected by earthworks.*

**4. Native local indigenous species should be planted adjacent to existing bushland and that these species be those from the same vegetation community that they are adjoining.**

*The revegetation to the park will incorporate the species prescribed by the VMP. The park garden and tree planting could incorporate the same species.*

**5. Revegetation will involve the planting of 614 native indigenous tree/shrub species at 3m centre.**

*The revegetation to the park can incorporate these plant numbers and the park garden and tree planting can incorporate additional numbers of these species.*



## 1.4 amended Community Park plan and associated strategies



Figure 1 - Community Park Plan amended to include 1 hectare of revegetation planting

scale 1:1000





The original Landscape Masterplan included a range of proposals for the community park. It is proposed, the amended park layout, can retain most of those strategies. Community facilities will be consolidated in the northern part of the park, whilst the southern portion will be dedicated to 1 hectare of revegetation planting. In addition, clumps of existing Acacias and Eucalpts can be retained in appropriate locations within the park. It is also proposed planting within the park area will use revegetation species.

It is proposed the community park can still incorporate picnic and BBQ facilities, paths, a planted drainage swale and a childrens playground. A path will separate the community facilities from the revegetation area. The new layout retains some grassed areas and opportunities to incorporate public artworks within the park. The new layout removes the proposed native botanic garden, however, it may be possible that this could be incorporated elsewhere in the park.

The revegetation area will create an increased vegetated buffer to the SEPP14 Wetland and will restrict potential pedestrian access into the native vegetation.

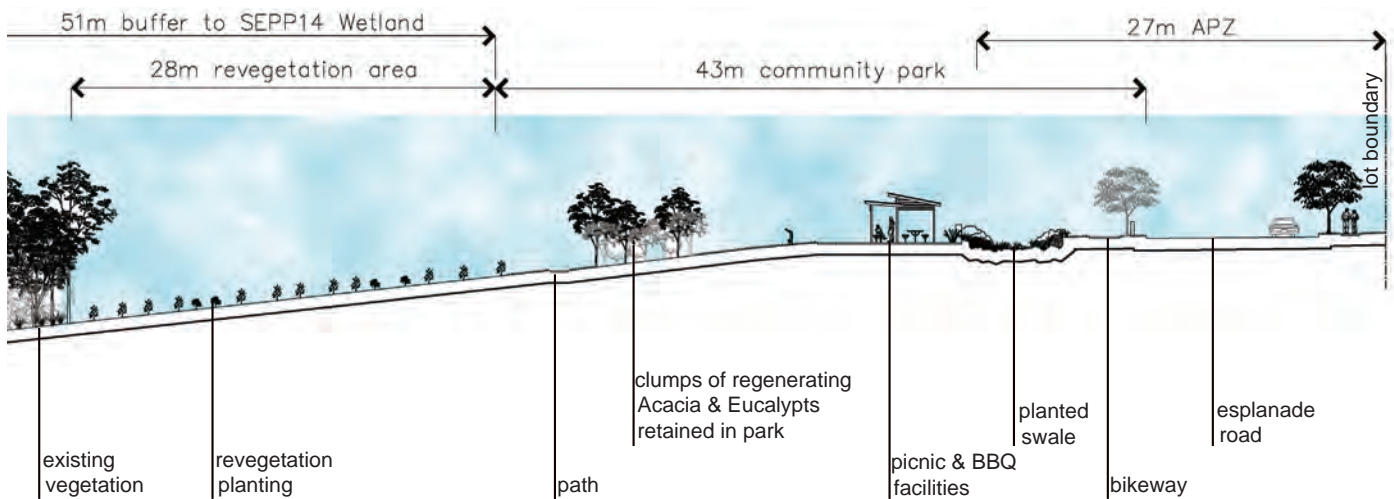


Figure 2 - Community Park cross-section scale 1:500

## 1.5 amended Plant Schedule with removal of environmental weeds

The plant schedule has been amended to remove the environmental weeds as identified by the VMP and to include some revegetation species specified by the VMP for use in the community park.

PROPOSED PLANT SPECIES							
	denotes plant species specified by the Vegetation Management Plan for revegetation to the SEPP14 Wetland buffer						
Code	Botanical Name	Common Name	Ht x Width	streetscape	parkland	buffer planting northern boundary	stormwater
<b>Trees/Palms</b>							
ACM smi	<i>Acmena smithii</i>	Lilly Pilly	12m x 6m	roads 7 & 12		x	
ALP exc	<i>Alphitonia excelsa</i>	Red Ash	8m x 4m			x	
ALL lit	<i>Allocasuarina littoralis</i>	Black she-oak	8m x 5m		x	x	
ALL tor	<i>Allocasuarina torulosa</i>	Forest Oak	15m x 8m	roads 1 & 2 (bushland side of road)	x		
ANG cos	<i>Angophora costata</i>	Smooth-barked Apple	20m x 10m	roads 1 & 2 (bushland side of road)	x		
ARC cun	<i>Archontophoenix cunninghamiana</i>	Bangalow Palm	20m x 2.5m		x		
BAU var	<i>Bauhinia variegata</i>	Butterfly Bush	8m x 6m	road 9			
BRA ace	<i>Brachychiton acerifolius</i>	Flame Tree	15m x 8m	road 11		x	
CAE fer	<i>Caesalpinia ferrea</i>	Leopard Tree	10m x 5m	road 4			
CAL ser	<i>Callicoma serratifolia</i>	Callicoma	20m x 8m		x		
CAS gla	<i>Casuarina glauca</i>	Swamp Oak	12m x 6m		x	x	x
COM bar	<i>Commersonia bartramia</i>	Brown Kurranjong	12m x 8m		x		
COR int	<i>Corymbia intermedia</i>	Pink Bloodwood	30m x 10m		x		
CRY mic	<i>Cryptocarya microneura</i>	Murrogun	20m x 8m		x		
CUP ana	<i>Cupaniopsis anacardioides</i>	Tuckeroo	12m x 8m	roads 1 & 2			
ELA ret	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	8m x 6m	road 5	x	x	
ELA eum	<i>Elaeocarpus eumundi</i>	Eumundi Quandong	8m x 4m	road 3			
END sie	<i>Endiandra sieberi</i>	Hard Corkwood	20m x 10m		x		
EUC gum	<i>Eucalyptus gummifera</i>	Red Bloodwood	30m x 10m		x		
EUC mic	<i>Eucalyptus microcorys</i>	Tallowood	30m x 10m		x		
EUC sid	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	40m x 15m		x		
FIC cor	<i>Ficus coronata</i>	Creek Sandpaper Fig	15m x 10m		x		x
FIC obl	<i>Ficus obliqua</i>	Small-leaved Fig	40m x 20m		x		
FIC rub	<i>Ficus rubiginosa</i>	Port Jackson Fig	25m x 20m		x		
GLO fer	<i>Glochidion ferdinandi</i>	Cheese Tree	8m x 5m	roads 1 & 2 (bushland side of road)	x	x	
GUI sem	<i>Guioa semigaluca</i>	Guioa	10m x 5m	road 8	x	x	
HAR pen	<i>Harpullia pendula</i>	Tulipwood	10m x 4m	roads 1 & 2			
HYM fla	<i>Hymenosporum flavum</i>	Native Frangipani	10m x 5m		x	x	
LEP pol	<i>Leptospermum polygalifolium</i>	Yellow Tea Tree	5m x 3m		x		
LIV aus	<i>Livistona australis</i>	Cabbage Palm	25m x 3m		x		
LOP con	<i>Lophostemon confertus</i>	Brush Box	30m x 8m	roads 3 & 13			
MEL aze	<i>Melia azedarach</i>	White Cedar	12m x 8m		x		
MEL qui	<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark	25m x 20m		x		
MIC cha	<i>Michelia champaca</i>	Golden Champaca	10m x 5m	road 14			
NEM squ	<i>Nematolepis squamea</i>	Satinwood	12m x 6m		x		
Oma pop	<i>Omalanthus populifolius</i>	Bleeding Heart	8m x 3m			x	
RHO rub	<i>Rhodamnia rubescens</i>	Scrub Turpentine	10m x 4m		x		
RHO psi	<i>Rhodomyrtus psidioides</i>	Native Guava	12mx 6m		x		
SYN glo	<i>Syncarpia glomulifera</i>	Turpentine	20m x 8m	roads 1 & 2 (bushland side of road)	x		
SYN gla	<i>Synoum glandulosum</i>	Scentless Rosewood	7m x 5m		x		
SYZ lue	<i>Syzygium luehmannii</i>	Riberry	15m x 8m	road 16	x		
SYZ ole	<i>Syzygium oleosum</i>	Blue Lilly Pilly	10m x 5m	roads 6, 10 & 15	x	x	
TRI lau	<i>Tristaniopsis laurina</i>	Water Gum	15m x 6m		x		
WAT flo	<i>Waterhousea floribunda</i>	Weeping Lilly Pilly	10m x 8m			x	

Code	Botanical Name	Common Name	Height x Width	streetscape	parkland	buffer planting northern boundary	stormwater
<b>Shrubs</b>							
ACA fim	Acacia fimbriata	Fringed Wattle	7m x 6m		x	x	
ACA dwa	Acacia fimbriata dwarf	Dwarf Fringed Wattle	2.5m x 2.5m		x	x	
ACA flo	Acacia floribunda	Gossamer Wattle	6m x 3m		x		
ACA lon	Acacia longifolia	Sydney Golden Wattle	4m x 3m		x		
ALP cae	Alpinia caerulea	Native Ginger	3m x 2m		x		
AUS ino	Austromyrtus "Blushing Beauty"	Austromyrtus	1m x 1.5m		x		
BAC myr	Backhousia myrtifolia	Grey Myrtle	7m x 3m		x	x	
CAL sal	Callistemon salignus	Willow Bottlebrush	7m x 3m		x	x	
CAL vim	Callistemon viminalis	Weeping Bottlebrush	7m x 3m		x	x	x
CAM sas	Camellia sasanqua	Camellia	5m x 3m		x		
CER gum	Ceratopetalum gummiferum	Christmas Bush	6m x 3m		x		
COR str	Cordyline stricta	Cordyline	5m x 2.5m		x		
DOD tri	Dodonaea triquetra	Large Hop-bush	3m x 3m		x		
GRE ban	Grevillea banksii	Banks Grevillea	3m x 2m		x	x	
GRE hon	Grevillea "Honey Gem"	Grevillea	3m x 3m		x	x	
GRE mis	Grevillea "Misty Pink"	Grevillea	3m x 2m		x	x	
GRE moo	Grevillea "Moonlight"	Grevillea	3mx 3m		x	x	
GRE ora	Grevillea "Orange Marmalade"	Grevillea	3m x 3m		x	x	
GRE syl	Grevillea "Sylvia"	Grevillea	3m x 3m		x		
HOV pur	Hovea purpurea	Hovea	3m x 2m		x		
JAC sco	Jacksonia scoparia	Dogwood	3m x 2m		x		
LEP pet	Leptospermum petersonii	Lemon Scented Teatree	5m x 3m		x	x	
MEL lin	Melaleuca linariifolia	Snow in Summer	6m x 3m		x	x	
MET col	Metrosideros collina "Thomasii"	NZ Christmas Bush	6m x 3m		x		
PHO ten	Phormium tenax	NZ flax	2m x 1.5m		x		
PHO rob	Photinia robusta	Photinia	4m x 2m		x		
PUL lin	Pultenaea linophylla	Pultenaea			x		
SYZ aus	Syzygium australe	Brush Cherry	8m x 5m		x	x	
SYZ AS	Syzygium "Aussie Southern"	Lilly Pilly cultivar	3m x 2m		x	x	
SYZ cas	Syzygium "Cascade"	Lilly Pilly cultivar	2m x 1.5m		x		
SYZ ele	Syzygium "Elegance"	Scrub Cherry	1.5m x 1.5m		x		
SYZ res	Syzygium "Resilience"	Lilly Pilly cultivar	2m x 1.5m		x		
XAN sp.	Xanthorrhoea sp.	Grass Tree	2.5m x 2.5m		x		
Code	Botanical Name	Common Name	Height x Width	streetscape	parkland	buffer planting northern boundary	stormwater
<b>Groundcovers &amp; Vines</b>							
ACM all	Acmena "Allyn Magic"	Allyn Magic Lilly Pilly			x		
ALO bri	Alocasia brisbanensis	Cunjevoi					x
ASP aus	Asplenium australasicum	Bird's Nest Fern			x		
DIA cae	Dianella caerulea	Flax Lily			x	x	x
DIA sil	Dianella "Silver Streak"	Flax Lily cultivar			x		
GAH cla	Gahnia clarkei	Tall Saw Sedge					x
GRE roy	Grevillea "Royal Mantle"	Grevillea			x		
HIB den	Hibbertia dentata	Twining guinea flower			x		
HIB sca	Hibbertia scandens	Snake Vine			x		
LIR EG	Liriope Evergreen Giant	Giant Mondo			x		
LOM hys	Lomandra hystrix	Spiny Mat Rush			x		x
LOM lon	Lomandra longifolia	Mat Rush			x	x	x
LOM tan	Lomandra Tanika	Mat Rush cultivar			x		
PAN pan	Pandorea pandorana	Wonga Vine			x		
PHI lan	Philydrium lanuginosum	Frogsmouth					x
THE aus	Themeda australis	Kangaroo Grass			x		
TRA jas	Trachelospermum jasminoides	Star Jasmine			x		

## 2.0 Additional landscaping details

### 2.1 the location, species and mature height of all trees proposed in public streets and open space areas

The plant schedule has been amended to provide the location, species and mature height of all trees proposed in public streets and open space areas.

PROPOSED PLANT SPECIES							
	denotes plant species specified by the Vegetation Management Plan for revegetation to the SEPP14 Wetland buffer						
Code	Botanical Name	Common Name	Ht x Width	streetscape	parkland	buffer planting northern boundary	stormwater
<b>Trees/Palms</b>							
ACM smi	Acmena smithii	Lilly Pilly	12m x 6m	roads 7 & 12		x	
ALP exc	Alphitonia excelsa	Red Ash	8m x 4m			x	
ALL lit	Allocasuarina littoralis	Black she-oak	8m x 5m		x	x	
ALL tor	Allocasuarina torulosa	Forest Oak	15m x 8m	roads 1 & 2 (bushland side of road)	x		
ANG cos	Angophora costata	Smooth-barked Apple	20m x 10m	roads 1 & 2 (bushland side of road)	x		
ARC cun	Archontophoenix cunninghamiana	Bangalow Palm	20m x 2.5m		x		
BAU var	Bauhinia variegata	Butterfly Bush	8m x 6m	road 9			
BRA ace	Brachychiton acerifolius	Flame Tree	15m x 8m	road 11		x	
CAE fer	Caesalpinia ferrea	Leopard Tree	10m x 5m	road 4			
CAL ser	Callicoma serratifolia	Callicoma	20m x 8m		x		
CAS gla	Casuarina glauca	Swamp Oak	12m x 6m		x	x	x
COM bar	Commersonia bartramia	Brown Kurranjong	12m x 8m		x		
COR int	Corymbia intermedia	Pink Bloodwood	30m x 10m		x		
CRY mic	Cryptocarya microneura	Murrogun	20m x 8m		x		
CUP ana	Cupaniopsis anacardioides	Tuckeroo	12m x 8m	roads 1 & 2			
ELA ret	Elaeocarpus reticulatus	Blueberry Ash	8m x 6m	road 5	x	x	
ELA eum	Elaeocarpus eumundi	Eumundi Quandong	8m x 4m	road 3			
END sie	Endiandra sieberi	Hard Corkwood	20m x 10m		x		
EUC gum	Eucalyptus gummifera	Red Bloodwood	30m x 10m		x		
EUC mic	Eucalyptus microcorys	Tallowood	30m x 10m		x		
EUC sid	Eucalyptus siderophloia	Northern Grey Ironbark	40m x 15m		x		
FIC cor	Ficus coronata	Creek Sandpaper Fig	15m x 10m		x		x
FIC obl	Ficus obliqua	Small-leaved Fig	40m x 20m		x		
FIC rub	Ficus rubiginosa	Port Jackson Fig	25m x 20m		x		
GLO fer	Glochidion ferdinandi	Cheese Tree	8m x 5m	roads 1 & 2 (bushland side of road)	x	x	
GUI sem	Guioa semigaluca	Guioa	10m x 5m	road 8	x	x	
HAR pen	Harpullia pendula	Tulipwood	10m x 4m	roads 1 & 2			
HYM fla	Hymenosporum flavum	Native Frangipani	10m x 5m		x	x	
LEP pol	Leptospermum polygalifolium	Yellow Tea Tree	5m x 3m		x		
LIV aus	Livistona australis	Cabbage Palm	25m x 3m		x		
LOP con	Lophostemon confertus	Brush Box	30m x 8m	roads 3 & 13			
MEL aze	Melia azedarach	White Cedar	12m x 8m		x		
MEL qui	Melaleuca quinquenervia	Broad-leaved Paperbark	25m x 20m		x		
MIC cha	Michelia champaca	Golden Champaca	10m x 5m	road 14			
NEM squ	Nematolepis squamea	Satinwood	12m x 6m		x		
Oma pop	Omalanthus populifolius	Bleeding Heart	8m x 3m			x	
RHO rub	Rhodamnia rubescens	Scrub Turpentine	10m x 4m		x		
RHO psi	Rhodomyrtus psidioides	Native Guava	12mx 6m		x		
SYN glo	Syncarpia glomulifera	Turpentine	20m x 8m	roads 1 & 2 (bushland side of road)	x		
SYN gla	Synoum glandulosum	Scentless Rosewood	7m x 5m		x		
SYZ lue	Syzygium luehmannii	Riberry	15m x 8m	road 16	x		
SYZ ole	Syzygium oleosum	Blue Lily Pilly	10m x 5m	roads 6, 10 & 15	x	x	
TRI lau	Tristaniaopsis laurina	Water Gum	15m x 6m		x		
WAT flo	Waterhousea floribunda	Weeping Lilly Pilly	10m x 8m			x	



It is proposed that street trees will be planted at 1 tree per lot frontage with the street tree generally located in the middle of the frontage to allow for potential driveway crossings. For tree planting to the bushland side of the perimeter road, it is proposed that trees will be planted at 12 metre centres. Park trees will be planted to provide shade and amenity to park settings. Tree planting to the Community Park will allow at least 5m between driplines in order to maintain the Asset Protection Zone.

It is proposed that two Eucalypts identified for removal at the intersection of Old Coast Road and Alexandra Drive are replaced with new plantings of *Eucalyptus pilularis* (Blackbutt). Five new street trees have been proposed for the Alexandra Drive streetscape upgrade and the suggested species is *Elaeocarpus reticulatus* (Blueberry Ash). It is proposed that the Community Park incorporates tree species that are included in the revegetation area at the southern extent of that park. The Plant Schedule on the preceeding page indicates what those species are.

## 2.2 landscape detail for the entry treatment at the southern entrance in the estate

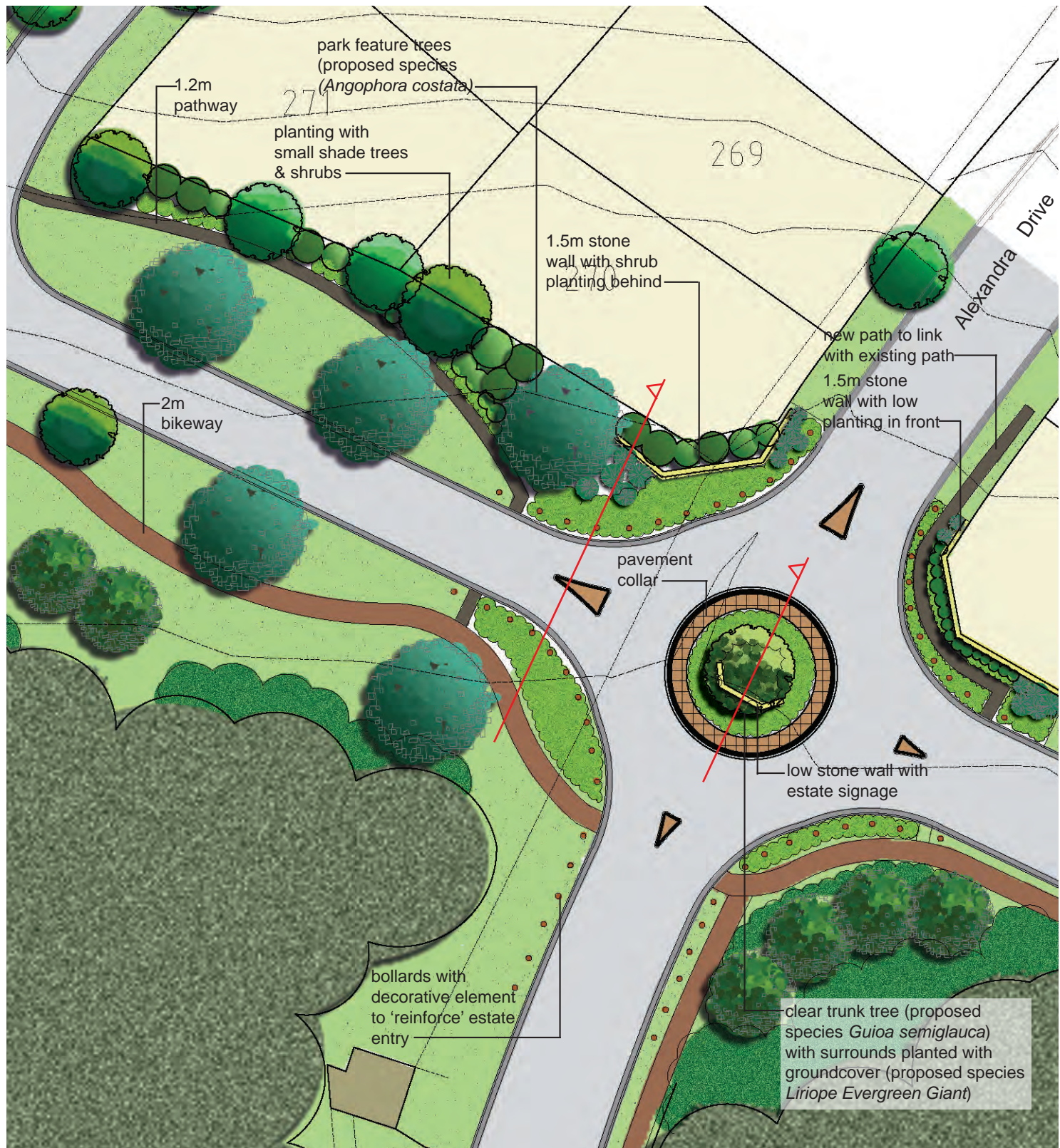


Figure 3 - Southern Entry Landscape Plan scale 1:500





The 'southern entry' landscape will introduce the main part of the estate and establish a landscape character to the development. It is proposed the southern entry to the estate be via an extension of Marshall Way at Bellwood. The existing vegetation along Swampy Creek will provide an attractive natural setting to the entry. The entry landscape would include a roundabout planted with a feature tree and groundcover planting, stone walling and planting. The reserve located to the west of the entry would also be landscaped to enhance the visual amenity of the entry with feature tree planting and gardens.



example of clear trunk tree with low planting to roundabout



example of decorative bollard



example of signage wall incorporating stone & planting

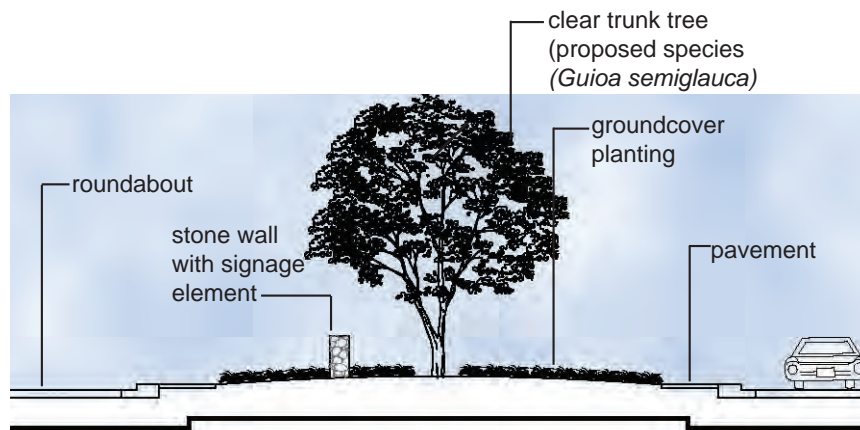


Figure 4 - Southern Entry Roundabout Cross-section scale 1:200

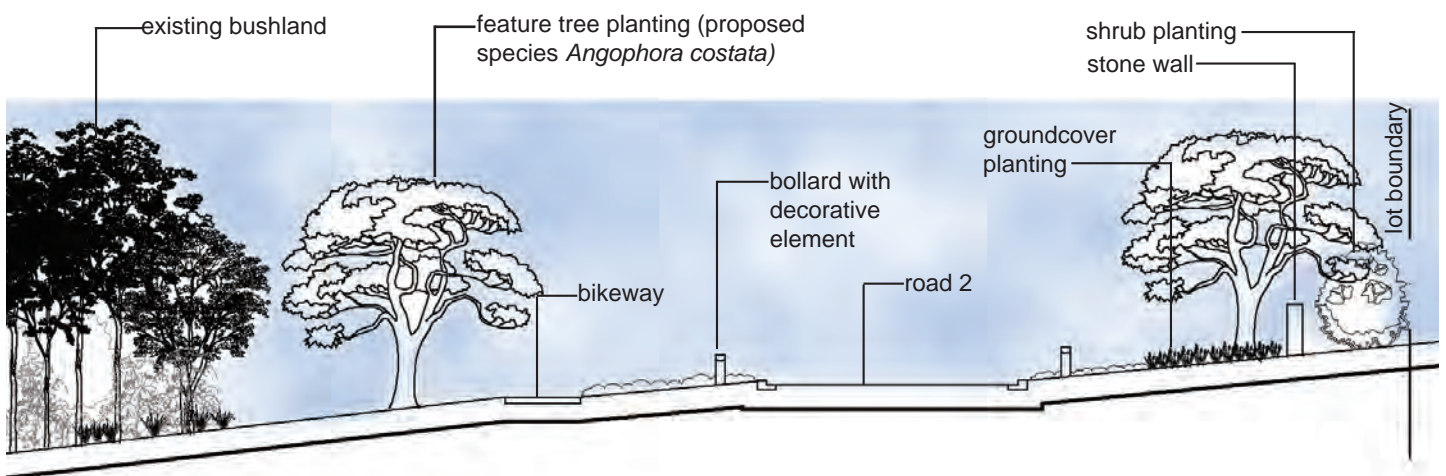


Figure 5 - Southern Entry Park Cross-section scale 1:250



2.3 landscape detail for the proposed upgrading of the intersection of Alexandra Drive and Old Coast Road

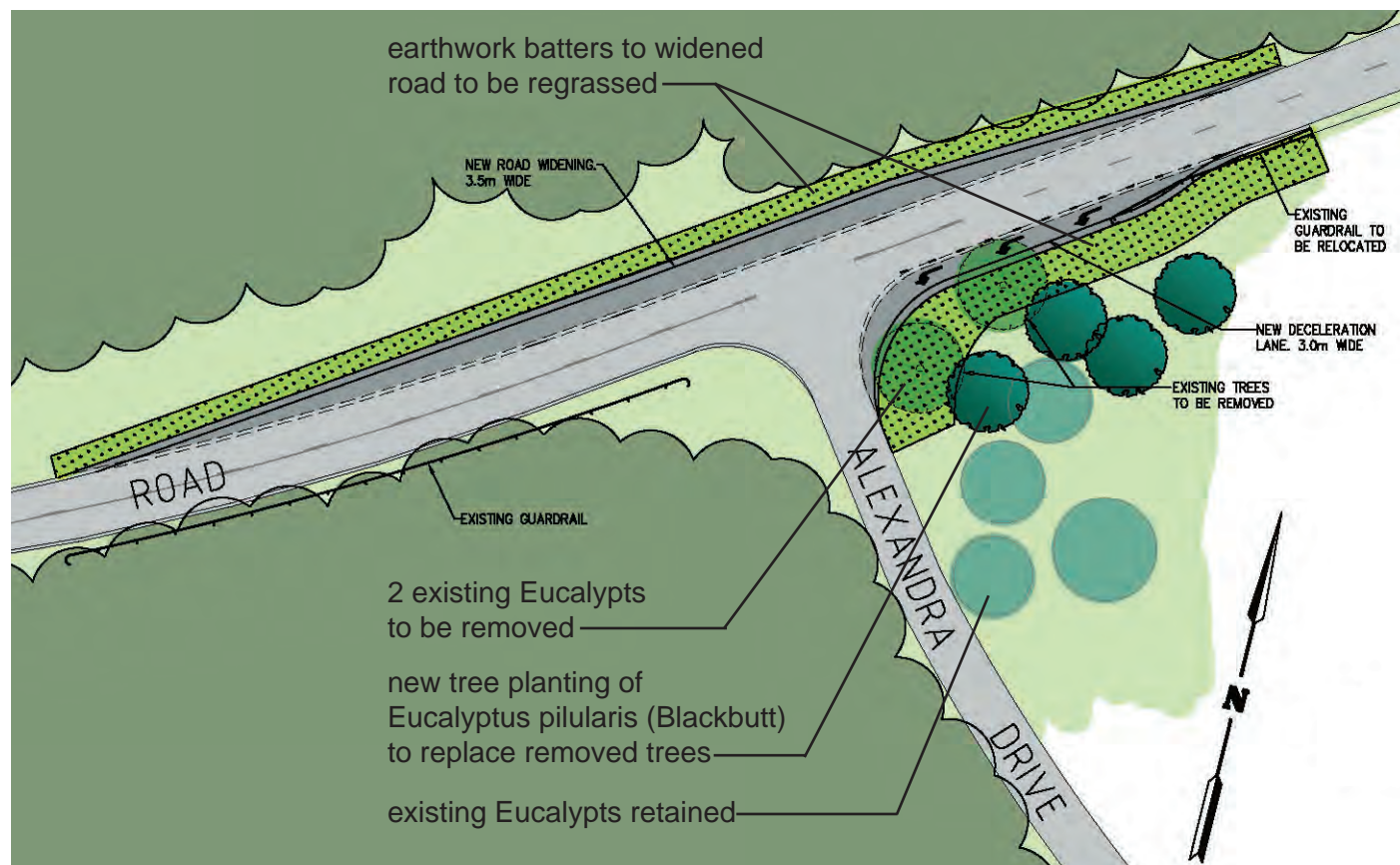


Figure 6 - Alexandra Drive and Old Coast Road intersection scale 1:1000



existing intersection of Old Coast Road & Alexandra Drive

## 2.4 landscape plan and cross sections of the proposed upgrading of the existing Alexandra Drive streetscape

existing grassed road verge that is well maintained by residents. It is proposed this road reserve is retained as is.

existing grassed road verge with concrete path. It is proposed this road reserve is retained as is.

existing centre median with palms and an understorey of shrubs & groundcovers. It is proposed the palms are retained, but the understorey (some of which has become 'woody') is replaced with new topsoil, groundcover planting and mulch. Proposed species are *Liriope Evergreen Giant* and *Liriope Stripey White*.

existing roundabout with Eucalypts and understorey planting. It is proposed to rejuvenate the roundabout the trees are retained, but the groundcover is removed and replaced with new topsoil, groundcover plants and mulch. Proposed species is *Anigozanthos spp.* (Kangaroo Paw).

existing grassed road verge. It is proposed 5 street trees are added to this verge as part of proposed upgrades. Proposed species *Elaeocarpus reticulatus* (Blueberry Ash)

existing grassed road verge with a concrete path and pockets of planting. It is proposed this road reserve is retained as is.

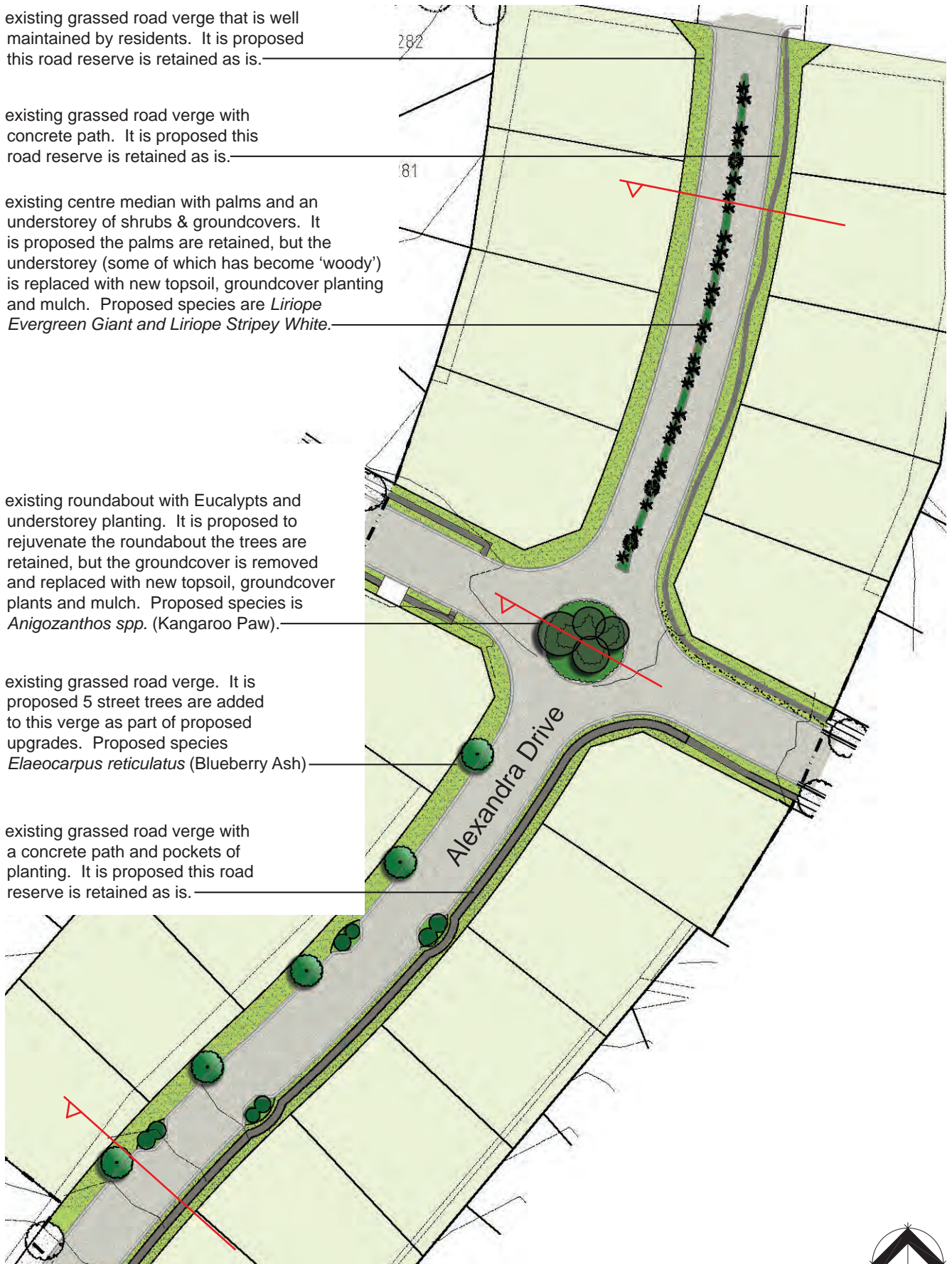


Figure 7 - Alexandra Drive plan scale 1:1000



The new development will be accessed from Alexandra Drive. Alexandra Drive, at this location, includes the existing development of Palmwoods Gardens. This streetscape is already well maintained by residents. Some upgrades have been proposed to add to the visual amenity of this street and enhance the street both for existing residents and the future residents of the proposed development. Proposed upgrades include:

- replacing the understorey planting to the central median with new groundcover planting;
- replacing the understorey planting to the roundabout with new groundcover planting;
- installing new street trees along the western side of Alexandra Drive south of the existing roundabout.



southern end of Alexandra Drive



existing Alexandra Drive centre median



existing Alexandra Drive roundabout



Alexandra Drive viewed from the entry to Palmwoods Gardens

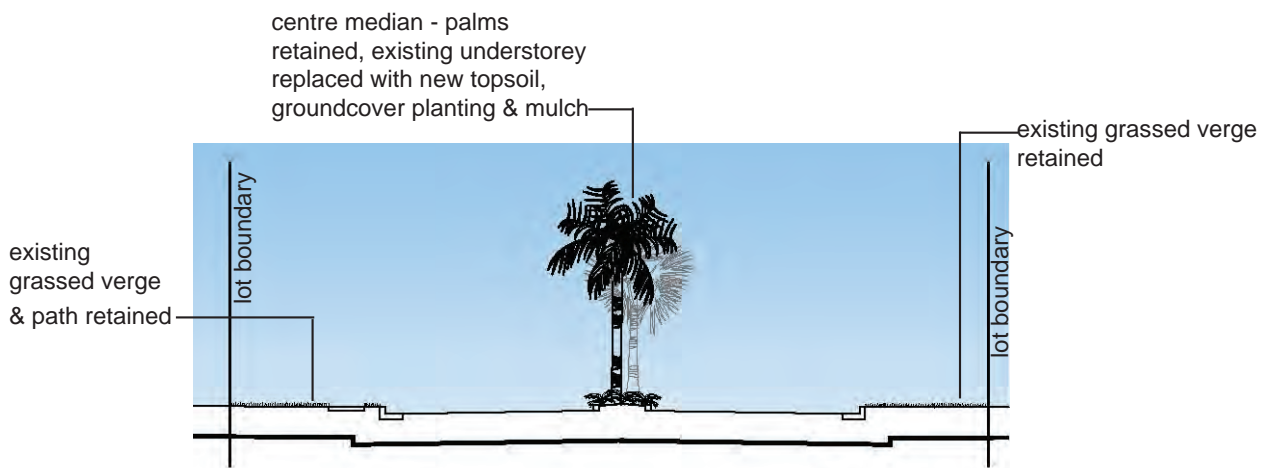


Figure 8 - Alexandra Drive (northern end) scale 1:200

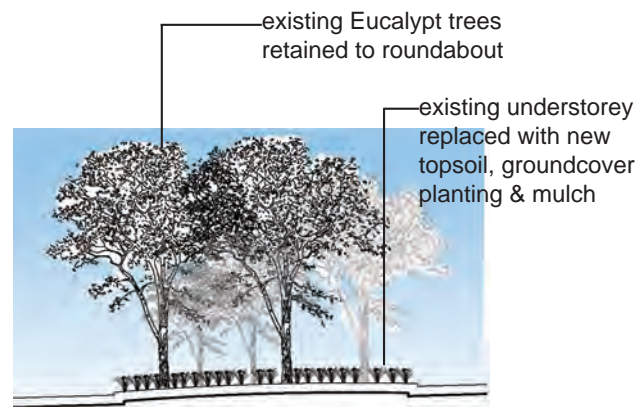


Figure 9 - Alexandra Drive roundabout  
scale 1:200

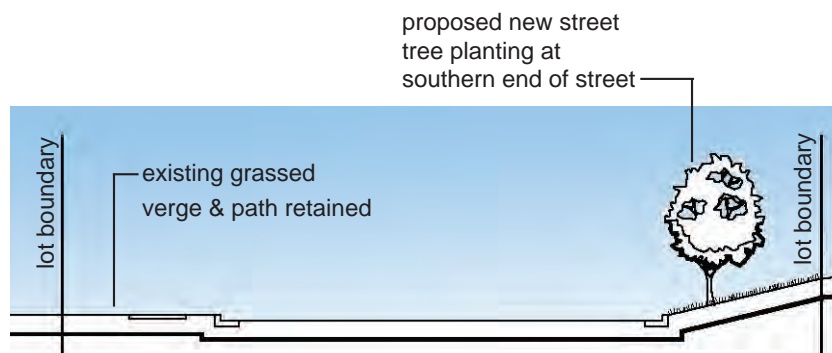


Figure 10 - Alexandra Drive (southern end) scale 1:200



## 2.5 an amended plant schedule with known environmental weeds removed

The plant schedule has been amended to remove the environmental weeds as identified by the VMP and to include some revegetation species specified by the VMP for use in the community park.

PROPOSED PLANT SPECIES							
	denotes plant species specified by the Vegetation Management Plan for revegetation to the SEPP14 Wetland buffer						
Code	Botanical Name	Common Name	Ht x Width	streetscape	parkland	buffer planting northern boundary	stormwater
<b>Trees/Palms</b>							
ACM smi	Acmena smithii	Lilly Pilly	12m x 6m	roads 7 & 12		x	
ALP exc	Alphitonia excelsa	Red Ash	8m x 4m			x	
ALL lit	Allocasuarina littoralis	Black she-oak	8m x 5m		x	x	
ALL tor	Allocasuarina torulosa	Forest Oak	15m x 8m	roads 1 & 2 (bushland side of road)	x		
ANG cos	Angophora costata	Smooth-barked Apple	20m x 10m	roads 1 & 2 (bushland side of road)	x		
ARC cun	Archontophoenix cunninghamiana	Bangalow Palm	20m x 2.5m		x		
BAU var	Bauhinia variegata	Butterfly Bush	8m x 6m	road 9			
BRA ace	Brachychiton acerifolius	Flame Tree	15m x 8m	road 11		x	
CAE fer	Caesalpinia ferrea	Leopard Tree	10m x 5m	road 4			
CAL ser	Callicoma serratifolia	Callicoma	20m x 8m		x		
CAS gla	Casuarina glauca	Swamp Oak	12m x 6m		x	x	x
COM bar	Commersonia bartramia	Brown Kurranjong	12m x 8m		x		
COR int	Corymbia intermedia	Pink Bloodwood	30m x 10m		x		
CRY mic	Cryptocarya microneura	Murrogun	20m x 8m		x		
CUP ana	Cupaniopsis anacardioides	Tuckeroo	12m x 8m	roads 1 & 2			
ELA ret	Elaeocarpus reticulatus	Blueberry Ash	8m x 6m	road 5	x	x	
ELA eum	Elaeocarpus eumundi	Eumundi Quandong	8m x 4m	road 3			
END sie	Endiandra sieberi	Hard Corkwood	20m x 10m		x		
EUC gum	Eucalyptus gummifera	Red Bloodwood	30m x 10m		x		
EUC mic	Eucalyptus microcorys	Tallowood	30m x 10m		x		
EUC sid	Eucalyptus siderophloia	Northern Grey Ironbark	40m x 15m		x		
FIC cor	Ficus coronata	Creek Sandpaper Fig	15m x 10m		x		x
FIC obl	Ficus obliqua	Small-leaved Fig	40m x 20m		x		
FIC rub	Ficus rubiginosa	Port Jackson Fig	25m x 20m		x		
GLO fer	Glochidion ferdinandi	Cheese Tree	8m x 5m	roads 1 & 2 (bushland side of road)	x	x	
GUI sem	Guioa semigaluca	Guioa	10m x 5m	road 8	x	x	
HAR pen	Harpullia pendula	Tulipwood	10m x 4m	roads 1 & 2			
HYM fla	Hymenosporum flavum	Native Frangipani	10m x 5m		x	x	
LEP pol	Leptospermum polygalifolium	Yellow Tea Tree	5m x 3m		x		
LIV aus	Livistona australis	Cabbage Palm	25m x 3m		x		
LOP con	Lophostemon confertus	Brush Box	30m x 8m	roads 3 & 13			
MEL aze	Melia azedarach	White Cedar	12m x 8m		x		
MEL qui	Melaleuca quinquenervia	Broad-leaved Paperbark	25m x 20m		x		
MIC cha	Michelia champaca	Golden Champaca	10m x 5m	road 14			
NEM squ	Nematolepis squamea	Satinwood	12m x 6m		x		
Oma pop	Omalanthus populifolius	Bleeding Heart	8m x 3m			x	
RHO rub	Rhodamnia rubescens	Scrub Turpentine	10m x 4m		x		
RHO psi	Rhodomyrtus psidioides	Native Guava	12mx 6m		x		
SYN glo	Syncarpia glomulifera	Turpentine	20m x 8m	roads 1 & 2 (bushland side of road)	x		
SYN gla	Synoum glandulosum	Scentless Rosewood	7m x 5m		x		
SYZ lue	Syzygium luehmannii	Riberry	15m x 8m	road 16	x		
SYZ ole	Syzygium oleosum	Blue Lily Pilly	10m x 5m	roads 6, 10 & 15	x	x	
TRI lau	Tristania laurina	Water Gum	15m x 6m		x		
WAT flo	Waterhousea floribunda	Weeping Lilly Pilly	10m x 8m			x	

Code	Botanical Name	Common Name	Height x Width	streetscape	parkland	buffer planting northern boundary	stormwater
<b>Shrubs</b>							
ACA fim	Acacia fimbriata	Fringed Wattle	7m x 6m		x	x	
ACA dwa	Acacia fimbriata dwarf	Dwarf Fringed Wattle	2.5m x 2.5m		x	x	
ACA flo	Acacia floribunda	Gossamer Wattle	6m x 3m		x		
ACA lon	Acacia longifolia	Sydney Golden Wattle	4m x 3m		x		
ALP cae	Alpinia caerulea	Native Ginger	3m x 2m		x		
AUS ino	Austromyrtus "Blushing Beauty"	Austromyrtus	1m x 1.5m		x		
BAC myr	Backhousia myrtifolia	Grey Myrtle	7m x 3m		x	x	
CAL sal	Callistemon salignus	Willow Bottlebrush	7m x 3m		x	x	
CAL vim	Callistemon viminalis	Weeping Bottlebrush	7m x 3m		x	x	x
CAM sas	Camellia sasanqua	Camellia	5m x 3m		x		
CER gum	Ceratopetalum gummiferum	Christmas Bush	6m x 3m		x		
COR str	Cordyline stricta	Cordyline	5m x 2.5m		x		
DOD tri	Dodonaea triquetra	Large Hop-bush	3m x 3m		x		
GRE ban	Grevillea banksii	Banks Grevillea	3m x 2m		x	x	
GRE hon	Grevillea "Honey Gem"	Grevillea	3m x 3m		x	x	
GRE mis	Grevillea "Misty Pink"	Grevillea	3m x 2m		x	x	
GRE moo	Grevillea "Moonlight"	Grevillea	3mx 3m		x	x	
GRE ora	Grevillea "Orange Marmalade"	Grevillea	3m x 3m		x	x	
GRE syl	Grevillea "Sylvia"	Grevillea	3m x 3m		x		
HOV pur	Hovea purpurea	Hovea	3m x 2m		x		
JAC sco	Jacksonia scoparia	Dogwood	3m x 2m		x		
LEP pet	Leptospermum petersonii	Lemon Scented Teatree	5m x 3m		x	x	
MEL lin	Melaleuca linariifolia	Snow in Summer	6m x 3m		x	x	
MET col	Metrosideros collina "Thomasii"	NZ Christmas Bush	6m x 3m		x		
PHO ten	Phormium tenax	NZ flax	2m x 1.5m		x		
PHO rob	Photinia robusta	Photinia	4m x 2m		x		
PUL lin	Pultenaea linophylla	Pultenaea			x		
SYZ aus	Syzygium australe	Brush Cherry	8m x 5m		x	x	
SYZ AS	Syzygium "Aussie Southern"	Lilly Pilly cultivar	3m x 2m		x	x	
SYZ cas	Syzygium "Cascade"	Lilly Pilly cultivar	2m x 1.5m		x		
SYZ ele	Syzygium "Elegance"	Scrub Cherry	1.5m x 1.5m		x		
SYZ res	Syzygium "Resilience"	Lilly Pilly cultivar	2m x 1.5m		x		
XAN sp.	Xanthorrhoea sp.	Grass Tree	2.5m x 2.5m		x		
Code	Botanical Name	Common Name	Height x Width	streetscape	parkland	buffer planting northern boundary	stormwater
<b>Groundcovers &amp; Vines</b>							
ACM all	Acmena "Allyn Magic"	Allyn Magic Lilly Pilly			x		
ALO bri	Alocasia brisbanensis	Cunjevoi					x
ASP aus	Asplenium australasicum	Bird's Nest Fern			x		
DIA cae	Dianella caerulea	Flax Lily			x	x	x
DIA sil	Dianella "Silver Streak"	Flax Lily cultivar			x		
GAH cla	Gahnia clarkei	Tall Saw Sedge					x
GRE roy	Grevillea "Royal Mantle"	Grevillea			x		
HIB den	Hibbertia dentata	Twining guinea flower			x		
HIB sca	Hibbertia scandens	Snake Vine			x		
LIR EG	Liriope Evergreen Giant	Giant Mondo			x		
LOM hys	Lomandra hystrix	Spiny Mat Rush			x		x
LOM lon	Lomandra longifolia	Mat Rush			x	x	x
LOM tan	Lomandra Tanika	Mat Rush cultivar			x		
PAN pan	Pandorea pandorana	Wonga Vine			x		
PHI lan	Philydrium lanuginosum	Frogsmouth					x
THE aus	Themeda australis	Kangaroo Grass			x		
TRA jas	Trachelospermum jasminoides	Star Jasmine			x		

## References

James Warren & Associates Pty Ltd, March 2010, *Flora and Fauna Assessment for the Proposed Subdivision of Lot 2 DP 1119830 Marshall Way & Alexandra Drive Bellwood*", James Warren & Associates Pty Ltd, Fortitude Valley QLD.

Coffs Harbour Bushland Regeneration Group Pty Ltd, September 2010, *Vegetation Management Plan Palmwoods Estate Lot 2 DP 1119830 Alexandra Drive, Nambucca Heads*, Coffs Harbour Bushland Regeneration Group Pty Ltd, Coffs Harbour NSW.

Bushfiresafe (Aust) Pty Ltd, January 2012, *Bushfire Risk Management Plan for residential subdivision of Palmwood Estate, Lot 2 DP 1119830, Nambucca Heads*, Bushfiresafe (Aust) Pty Ltd, Maclean NSW.

## ANNEXURE F

### Addendum to Ecological Assessment by James Warren & Associates



**Advice to the Minister for Sustainability, Environment, Water, Population and Communities from the Threatened Species Scientific Committee (the Committee) on an Amendment to the List of Threatened Ecological Communities under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)**

**1 Name of the ecological community**

**Lowland Rainforest of Subtropical Australia**

The ecological community was nominated as Lowland Subtropical Rainforest on Basalt and Alluvium in North East NSW and South East Queensland. The Committee has determined the name of the ecological community to be **Lowland Rainforest of Subtropical Australia**. In the new name „Subtropical“ has been used to describe the climatic zone where the ecological community generally occurs within eastern Australia, rather than the specific type of rainforest that comprises the ecological community.

Throughout this document the Lowland Rainforest of Subtropical Australia is often abbreviated to the „Lowland Rainforest“ or „the ecological community“.

Much of the **Lowland Rainforest of Subtropical Australia** ecological community is listed as endangered in New South Wales as „Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions“ and „Lowland Rainforest on floodplain in the NSW North Coast Bioregion“ (DECC, 1999, 2006); and as „of concern“ or „endangered“ under a number of Regional Ecosystems in Queensland (for more detail, see Section 6. National Context – *Relationships to State-listed ecological communities and state vegetation classifications*, below).

**2. Public Consultation**

A technical workshop with experts on the ecological community was held in June 2010. The nomination and a technical report, based on the workshop outcomes, were made available for public exhibition and comment for a minimum 30 business days. The Committee has had regard to all public and expert comment that was relevant to the consideration of the ecological community.

**3. Summary of conservation assessment by the Committee**

The Committee provides the following assessment of the appropriateness of the ecological community's inclusion in the EPBC Act list of threatened ecological communities.

The Committee judges that the ecological community has been demonstrated to have met sufficient elements of:

Criterion 1 to make it **eligible** for listing as **endangered**,

Criterion 2 to make it **eligible** for listing as **critically endangered**,

Criterion 3 to make it **eligible** for listing as **endangered**; and

Criterion 4 to make it **eligible** for listing as **endangered**.

The highest category for which the ecological community is **eligible** to be listed is **critically endangered**.

## 4. Description

### *Location*

The ecological community primarily occurs from Maryborough in Queensland to the Clarence River (near Grafton) in New South Wales (NSW). The ecological community also includes isolated areas between the Clarence River and Hunter River such as the Bellinger and Hastings valleys. The ecological community occurs in the following Interim Biogeographic Regionalisation for Australia Version 6.1 (IBRA) Bioregions: South Eastern Queensland Bioregion and NSW North Coast Bioregion.

### *Physical environment*

The ecological community occurs on basalt and alluvial soils, including sand and old or elevated alluvial soils as well as floodplain alluvia. It also occurs occasionally on enriched rhyolitic soils and basaltically enriched metasediments. Lowland Rainforest mostly occurs in areas <300 m above sea level. Aspect can result in the ecological community being found at >300 m altitude on north-facing slopes, but typically 300 m defines the extent of the lowlands. In addition, Lowland Rainforest typically occurs in areas with high annual rainfall (>1300 mm).

The physical environment where the ecological community occurs is differentiated from the EPBC listed Littoral Rainforest and Coastal Vine Thickets of Eastern Australia ecological community (hereafter referred to as Littoral Rainforest) by the level of coastal or estuarine influence (such as windshear). Lowland Rainforest typically occurs more than 2 km from the coast, however, it can (and does) intergrade with Littoral Rainforest in some coastal areas.

### *Vegetation structure*

The ecological community is generally a moderately tall ( $\geq 20$  m) to tall ( $\geq 30$  m) closed forest (canopy cover  $\geq 70\%$ ). Tree species with compound leaves are common and leaves are relatively large (notophyll to mesophyll). Typically there is a relatively low abundance of species from the genera *Eucalyptus*, *Melaleuca* and *Casuarina*. Buttresses are common as is an abundance and diversity of vines.

Lowland Rainforest has the most diverse tree flora of any vegetation type in NSW (Floyd, 1990a) and the species composition of the canopy varies between local stands and between regions (Keith, 2004). The ecological community typically has high species richness ( $\geq 30$  woody species from [Appendix A](#)). The canopy comprises a range of tree species but in some areas a particular species may dominate e.g. palm forest, usually dominated by *Archontophoenix cunninghamiana* (bangalow palm) or *Livistona australis* (cabbage palm); and riparian areas dominated by *Syzygium floribundum* (syn. *Waterhousea floribunda*) (weeping satinash/weeping lilly pilly).

The canopy is often multilayered consisting of an upper, discontinuous layer of emergents, over the main canopy and subcanopy. Below the canopy is an understorey of sparse shrubs and seedlings.

The upper, discontinuous layer includes **canopy emergents** that may be 40–50 m tall and have large spreading crowns. This layer is composed of species such as *Araucaria cunninghamii* (hoop pine), *Ficus* spp. (figs), *Lophostemon confertus* (brushbox), and in some sites, *Eucalyptus* spp.. Typically non-rainforest species such as eucalypts and brushbox comprise <30% of canopy emergents.

The **canopy/subcanopy layer** contains a diverse range of species. Representative species include: hoop pine, figs, *Argyrodendron trifoliolatum*/*Heritiera trifoliolata* (white booyong), *Castanospermum australe* (black bean), *Cryptocarya obovata* (white walnut, pepperberry),

*Dendrocnide excelsa* (giant stinging tree), *Diploglottis australis* (native tamarind), *Dysoxylum fraserianum* (rosewood), *Dysoxylum mollissimum* (red bean), *Elattostachys nervosa* (green tamarind), *Endiandra pubens* (hairy walnut), *Flindersia schottiana* (bumpy ash, cudgerie, silver ash), *Gmelina leichhardtii* (white beech), *Neolitsea australiensis* (bolly gum), *Neolitsea dealbata* (white bolly gum), *Sloanea australis* (maiden's blush), *Sloanea woollsii* (yellow carabeen), *Toona ciliata* (red cedar), and epiphytes such as *Platyserium* spp. and *Asplenium australasicum* (bird's nest fern).

In areas where the canopy is lower (<25 m) due to coastal or estuarine influences the Littoral Rainforest ecological community typically replaces the Lowland Rainforest ecological community.

The **understorey** contains a sparse layer of species such as *Cordyline stricta* (narrow-leaved palm lily), *Linospadix monostachya* (walking stick palm), *Neolitsea dealbata* (white bolly gum), *Notelaea johnsonii* (veinless mock olive), *Pittosporum multiflorum* (orange thorn), *Triunia youngiana* (native honey-suckle bush), *Wilkiea austroqueenslandica* (smooth wilkiea) and *Wilkiea huegeliana* (veiny wilkiea) as well as seedlings of a variety of canopy species. A variety of vines may be present such as *Calamus muelleri* (lawyer vine), *Cissus antarctica* (native grape vine, water vine), *Cissus hypoglauca* (giant water vine), *Dioscorea transversa* (native yam), *Flagellaria indica* (whip vine), *Morinda jasminoides* (sweet morinda), *Pandorea floribunda* (wonga wonga vine) and *Smilax australis* (sarsaparilla). Ferns such as *Adiantum hispidulum* (rough maidenhair fern), *Doodia aspera* (rasp fern), *Lastreopsis decomposita* (trim shield fern) and *Lastreopsis marginans* (bordered shield fern, glossy shield fern) may also be present.

### **Fauna**

The diversity of rainforest plants and the high nutritional content of their fruits and leaves provide the foundation for the high diversity of animals in the ecological community. This is a direct reflection of the high nutrient soils and moist environment occupied by this rainforest type. Remnants and regenerating patches of Lowland Rainforest provide important habitat and food resources for a range of fauna. In turn the Lowland Rainforest flora also relies on the native fauna for pollination and seed dispersal.

Lowland Rainforest is characterised by a high proportion of frugivorous birds, epiphyte and litter foraging vertebrates, micro- and mega-chiropteran bats, and a broad range of invertebrate groups associated with the decomposition cycle (such as insects and snails).

Vertebrate species that commonly occur in Lowland Rainforest are listed in Table 1.

Table 1. Vertebrate species that commonly occur in Lowland Rainforest of Subtropical Australia ecological community.

<b>Frogs</b>	
<i>Lechriodus fletcheri</i> *	Fletcher's frog
<i>Litoria chloris</i>	red-eyed tree frog
<i>Mixophyes iteratus</i> *	giant barred frog
<b>Reptiles</b>	
<i>Bellatorias major</i>	land mullet
<i>Cacophis krefftii</i>	dwarf crowned snake
<i>Hypsilurus spinipes</i>	southern forest dragon
<i>Ophioscincus truncatus</i>	yellow-bellied legless-skink
<i>Saltuarius swaini</i>	southern leaf-tailed gecko
<i>Saproscincus challengeri</i> *	orange-tailed shadeskink
<b>Birds</b>	
<i>Carterornis leucotis</i>	white-eared monarch
<i>Colluricincla megarrhyncha</i>	little shrike-thrush
<i>Coracina lineata</i> *	barred cuckoo-shrike
<i>Orthonyx temminckii</i>	Australian logrunner
<i>Pitta versicolor</i>	noisy pitta
<i>Podargus ocellatus</i> *	marbled frogmouth
<i>Ptilinopus magnificus</i> *	wompoo fruit-dove
<i>Ptilinopus regina</i> *	rose-crowned fruit-dove
<i>Sericulus chrysocephalus</i>	regent bowerbird
<i>Sphecotheres vieilloti</i>	Australasian figbird
<i>Symposiachrus trivirgatus</i>	spectacled monarch
<i>Tregellasia capito</i>	pale-yellow robin
<i>Turnix melanogaster</i> *	black-breasted button-quail
<b>Mammals</b>	
<i>Antechinus subtropicus</i>	subtropical antechinus
<i>Melomys cervinipes</i>	fawn-footed melomys
<i>Nyctimene robinsoni</i> *	eastern tube-nosed bat
<i>Nyctophilus bifax</i> *	eastern long-eared bat
<i>Pteropus alecto</i>	black flying-fox
<i>Thylogale stigmatica</i> *	red-legged pademelon

Lowland Rainforest has an influx of birds in the cooler months (mainly April to September) from higher altitudes (Holmes, 1987; Osborne, 1991). These species include the regent bowerbird, *Acanthorhynchus tenuirostris* (eastern spinebill), *Columba leucomela* (white-

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\* Threatened species (see: Appendix D)



headed pigeon), *Dicrurus bracteatus* (spangled drongo), *Gerygone mouki* (brown gerygone), *Lopholaimus antarcticus* (topknot pigeon), *Petroica rosea* (rose robin), *Pachycephala pectoralis* (golden whistler), *Ptilonorhynchus violaceus* (satin bowerbird), *Rhipidura albiscapa* (grey fantail), and *Zoothera lunulata* (Bassian thrush). Frugivorous species present throughout the year include the Australasian figbird, wompoo fruit-dove, *Ailuroedus crassirostris* (green catbird), *Alisterus scapularis* (Australian king-parrot), *Lalage leucomela* (varied triller), *Macropygia amboinensis* (brown cuckoo-dove), *Meliphaga lewinii* (Lewin's honeyeater) and *Strepera graculina* (pied currawong) (Holmes, 1987).

The relationships between the Lowland Rainforest ecological community and associated fauna is emphasised by the distributional limits of some vertebrate species aligning with the distributional limit of the ecological community. The rose-crowned fruit-dove (Vulnerable in NSW), although widely distributed in subtropical rainforest, reaches its southern breeding limit in the lower Clarence Valley and does not occur regularly south of the Hunter River (NSW Scientific Committee, 2008). The southern limit of the marbled frogmouth, white-eared monarch and eastern tube-nosed bat also align with the southern limit of the ecological community (Milledge pers. comm. 2010).

The northern limits of distribution of some other rainforest vertebrates align with the northern limit of the ecological community. These include the green catbird, southern forest dragon, *Hoplocephalus stephensii* (Stephen's banded snake), *Ptiloris paradiseus* (paradise riflebird), *Saproscincus rosei* (Rose's shadescink) and *Thylogale thetis* (red-necked pademelon) (Milledge pers. comm. 2010).

Several other rainforest vertebrates are also endemic to the latitudinal extent of the ecological community but also extend to higher elevations. These include the subtropical antechinus, *Menura alberti* (Albert's lyrebird) and *Philoria loveridgei* (Loveridge's frog) (Milledge pers. comm. 2010).

## **5. Key Diagnostic Characteristics and Condition Thresholds**

It is recognised that many examples of the ecological community now occur in a degraded or disturbed state. In some cases, the degradation is irreversible, or the potential for rehabilitation is limited or impractical. For example, areas previously dominated by Lowland Rainforest that are now permanently converted to cropland or development are unlikely to be rehabilitated back to a condition that reaches the „Description“ requirements.

National listing focuses legal protection on patches of the ecological community that are most functional, relatively natural (as defined by the „Description“) and in relatively good condition. Condition thresholds help identify both the ecological community and ecological function using a set of criteria that assist in indicating when the EPBC Act is likely to apply to an ecological community. They provide guidance for when a patch of a threatened ecological community retains sufficient conservation values to be considered as a Matter of National Environmental Significance\*, as defined under the EPBC Act. This means that the referral, assessment and compliance provisions of the EPBC Act are focussed on the most valuable elements of Australia's natural environment, while heavily degraded or modified patches will be largely excluded.

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\* For more information on Matters of National Environmental Significance see:  
[www.environment.gov.au/epbc/protect/index.html](http://www.environment.gov.au/epbc/protect/index.html)

Although very degraded or modified patches are not protected as the ecological community listed under the EPBC Act, it is recognised that patches that do not meet the condition thresholds may still retain important natural values and may have the potential to be rehabilitated to a point where they meet the condition thresholds. Therefore, these patches should not be excluded from recovery and other management actions.

Condition thresholds are determined in consultation with experts on the particular ecological community. They include a range of criteria such as: diversity of native species present; vegetation structure and cover attributes; level of weed invasion; patch size; and proximity to other native vegetation remnants.

***The key diagnostic characteristics of the listed ecological community are:***

- Distribution of the ecological community is primarily in the NSW North Coast and South Eastern Queensland bioregions, according to Interim Biogeographic Regionalisation for Australia (IBRA) version 6.1 (2004).
- The ecological community occurs on: soils derived from basalt or alluvium; or enriched rhyolitic soils; or basaltically enriched metasediments.
- The ecological community generally occurs at an altitude less than 300 m above sea level.
- The ecological community typically occurs in areas with high annual rainfall (>1300mm).
- The ecological community is typically more than 2 km inland from the coast.
- The structure of the ecological community is typically a tall (20 m–30 m) closed forest, often with multiple canopy layers.
- Patches of the ecological community typically have high species richness (at least 30 woody species from Appendix A).

### Condition thresholds:

The listed **Lowland Rainforest of Subtropical Australia** ecological community comprises those patches that meet the key diagnostic characteristics (above) and the **condition thresholds** (below).

Patch Type (evidence of remnant vegetation & regeneration status)	A  Natural remnant evident by the persistence of mature residual trees from <u>Appendix B</u> .  <b>AND</b>	B  Some residual trees from <u>Appendix B</u> are present plus evidence of either; natural regeneration * <sup>1</sup>  <b>AND/OR</b> regeneration with active management * <sup>2</sup>  <b>AND</b>	C  A non-remnant patch that has recovered through a) natural regeneration * <sup>1</sup>  <b>AND/OR</b> b) supplementary planting that has stature and quality that is reflective of the „Description“ * <sup>3</sup>  <b>AND</b>
Patch Size (excludes buffer zone)	≥ 0.1 ha <b>AND</b>	≥ 1 ha <b>AND</b>	≥ 2 ha <b>AND</b>
Canopy Cover (over entire patch)* <sup>4</sup>	Emergent/canopy/subcanopy* <sup>4</sup> cover is ≥ 70% <b>AND</b>		
Species Richness (over entire patch)	contains ≥ 40 native woody species * <sup>5</sup> from Appendix A <b>AND</b>	contains ≥ 30 native woody species * <sup>5</sup> from Appendix A <b>AND</b>	
Percent of total vegetation cover that is native * <sup>6</sup> (use sample plot)	≥70% of vegetation * <sup>6</sup> is native	≥50% of vegetation * <sup>6</sup> is native	
<b>Notes:</b>  * <sup>1</sup> Evidence of natural regeneration is shown by the presence of seedlings of a range of native species that did not originate through deliberate plantings.  * <sup>2</sup> A patch that is <b>actively managed</b> has regular (e.g. every 1–2 years) on the ground human regenerative activity such as weed control or supplementary plantings.  * <sup>3</sup> Closed canopy, 20–30 m tall, of representative species (e.g. white booyong, hoop pine, figs, brush box, yellow carabeen, red cedar, rosewood, white beech)  * <sup>4</sup> Canopy cover (projective foliage cover) is estimated over the entire patch. When assessing the ecological community, the canopy includes the emergents and subcanopy (everything above 10 m tall). Canopy/sub-canopy includes all trees and vines (native and non-native).  * <sup>5</sup> Woody species are trees, shrubs or vines that contain wood or wood fibres that consist mainly of hard lignified tissues. Excluded from woody species are graminoids, other herbs and non-woody vines.  * <sup>6</sup> Total vegetation cover includes emergents/canopy/subcanopy and understorey and ground layers.			

A **patch** is defined as a discrete and continuous area of the ecological community. However, a patch may include small-scale disturbances, such as tracks or breaks, watercourses or small-scale variations in vegetation that do not significantly alter its overall functionality (functionality here refers to processes such as the movement of wildlife and pollinators, the dispersal of plant propagules, activities of seed and plant predators and many others).

Patches of Lowland Rainforest that remain today and meet the condition thresholds (above) are typically in varying states of condition as a result of landuse history in the area. A **natural remnant** is a patch of native vegetation that remains after the surrounding area has been cleared or modified (patch type **A**). It contains **persistent residual**/mature trees of which many, but not all, pre-date clearing. A natural remnant is a largely undisturbed patch of native vegetation that has a high species richness with relatively little weed infestation. The second patch type (**B**) recognised in the condition thresholds has some residual/mature trees (not necessarily original/pre-clearing) and there is evidence **of natural regeneration and/or active management**. The third patch type (**C**) reflects the ability of this ecological community to regenerate in some circumstances, either naturally or through human intervention. There may not be any mature/large trees but it must be 2 ha or more in size and regeneration is evident. **Regeneration (natural or through supplementary planting)** must be of stature and quality that reflects the „Description“ of the ecological community (i.e. tall, closed forest with representative species composition and species diversity, as well as a relatively low weed component in all layers). It is likely that a patch may be comprised of a combination of these patch types such as a small natural remnant surrounded by regeneration.

The **sampling protocol** involves developing a quick/simple map of the vegetation condition, diversity, landscape qualities and management history (where possible) of the site. For sites  $\leq 2$  ha evaluate the entire site for canopy cover and species richness. For sites  $>2$  ha use **sample plots** of 50 × 20 m to obtain a representative sample of the site including any different patch types. An appropriate sampling strategy should be used that captures the diversity of the site and recognises any variation e.g. due to topography.

The Lowland Rainforest ecological community has a relatively high potential for rehabilitation and natural **regeneration**. Rainforests are dynamic communities that can regenerate naturally following disturbance and structural damage. Some rainforest species store viable seed in the soil (although viability varies between species) but more commonly rainforest species rely on rapid germination and seedlings in the understorey<sup>1</sup> (Big Scrub Rainforest Landcare Group, 2005). As canopy gaps appear, the availability of light removes any suppression to seedling growth. The inclusion of patches of natural and managed regeneration (with  $\geq 30$  species from Appendix A) as part of the ecological community is due to the particular ability of this ecological community to regenerate. Degraded patches that are actively managed (i.e. weeds removed and/or supplementary planting) are capable of re-establishing an area and supporting a basic ecologically functional state.

In addition to the patch a minimum **buffer zone** that extends 50 m beyond the trunks of the outermost trees in the patch is defined to assist in the preservation of the patch. Fifty metres is the maximum likely height of a tree in the ecological community. The 50 m buffer zone will encompass an area large enough to protect the root zone of edge trees. The buffer zone will also help protect the ecological community from spraydrift (fertiliser, pesticide or herbicide sprayed in adjacent land) and other threats.

The purpose of the buffer zone is to protect and manage the patch and to help avoid potential significant impacts\* to the ecological community. Its purpose is not specifically to extend the patch through regeneration, although this would be beneficial.

If the use of an area (e.g. grazing land) that adjoins a patch of the ecological community is going to be intensified (e.g. intensified grazing or changed to cropping) then approval under

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<sup>1</sup> It is not uncommon for seedlings within this ecological community to be suppressed in the understorey.

\* For more information on Matters of National Environmental Significance see:  
[www.environment.gov.au/epbc/protect/index.html](http://www.environment.gov.au/epbc/protect/index.html)



the EPBC Act may be required. Changes in land-use to the land that falls within the buffer zone must not have a significant impact on the ecological community, but there are exemptions for continuing use\*.

### ***Surrounding environmental and landscape context***

The condition thresholds outlined above are the minimum level at which patches are to be considered under the EPBC Act for actions that may require referral to the Australian Government. These thresholds do not represent the ideal state of the ecological community. Patches that are larger, more species rich and less disturbed are likely to provide greater biodiversity value. Additionally, patches that are spatially linked, whether ecologically or by proximity, are particularly important as wildlife habitat and to the viability of those patches of the ecological community into the future.

Therefore, in the context of actions that may have „significant impacts“ and require approval under the EPBC Act, it is important to consider the environment surrounding patches that meet the condition thresholds. Some patches that meet the condition thresholds occur in isolation and require protection, as well as priority actions, to link them with other patches. Other patches that are interconnected to similar native vegetation associations that may not, in their current state, meet the condition thresholds have additional conservation value. In these instances, the following indicators should be considered when assessing the impacts of actions or proposed actions under the EPBC Act, or when considering recovery, management and funding priorities for a particular patch:

- Large size and/or a large area to boundary ratio – larger area/boundary ratios are less exposed and more resilient to edge effect disturbances such as weed invasion and other human impacts;
- Evidence of recruitment of key native plant species or the presence of a range of age cohorts (including through successful assisted regeneration);
- Good faunal habitat as indicated by patches containing mature (persistent residual) trees, logs, watercourses, diversity of landscape, contribution to movement corridors;
- High species richness, as shown by the variety of native species;
- Presence of listed threatened species;
- Areas of minimal weeds and feral animals, or where these can be managed;
- Connectivity to other native vegetation remnants or restoration works. In particular, a patch in an important position between (or linking) other patches in the landscape; and/or,
- Patches that occur in areas where the ecological community has been most heavily cleared and degraded, or that are at the natural edge of its range.

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\* For more information on Matters of National Environmental Significance see:  
[www.environment.gov.au/epbc/protect/index.html](http://www.environment.gov.au/epbc/protect/index.html)

## 6. National Context

The area where Lowland Rainforest occurs has significant biodiversity values. It is located in the McPherson Macleay Overlap, contains the Big Scrub rainforest, supports World Heritage Rainforest and includes the Border Ranges which is one of Australia's National Biodiversity Hotspots.

The core of the Lowland Rainforest ecological community is in the Big Scrub region near Lismore. This lowland area has been heavily cleared due to its highly fertile basalt soils. The ecological community also extends to the north and the south and includes lowland areas mainly on fertile basalt soils but also some areas on enriched sand, rhyolite and basalt enriched metasediments. Floristically, the ecological community also centres around the core area of the Big Scrub. Rainforests of this region are characterised by the following species; white booyong, black bean, native tamarind, white bolly gum, pepperberry, figs, red cedar and bangalow palm. However, the outlying patches of the ecological community (in areas such as the Bellinger and Hunter valleys) intergrade with drier rainforests and include the following species: hoop pine; whalebone tree; silky oak; and, small-leaved tuckeroo. The ecological community is generally not described as dry rainforest but may include intergrades with dry rainforest and other rainforest types that meet the key diagnostic characteristics and condition thresholds.

### ***Distribution***

The ecological community primarily occurs from Maryborough in Queensland to the Clarence River (near Grafton) in NSW. The ecological community also includes isolated areas between the Clarence River and Hunter River such as the Bellinger and Hastings valleys. The ecological community occurs in the following IBRA Bioregions (V. 6.1): SE Qld Bioregion and NSW North Coast Bioregion.

The ecological community is known to occur in the following Natural Resource Management (NRM) and Catchment Management Authority (CMA) regions: SE Queensland Catchments, Burnett Mary Regional Group, Northern Rivers and Hunter-Central Rivers.

The latitudinal distribution of the ecological community is confined by recognised dry corridors in both the north and the south. A low rainfall corridor associated with the absence of subcoastal highlands, which in the humid areas ensure orographic rainfall eastwards, occurs north of Gladstone to Rockhampton (Webb and Tracey, 1981; Adam, 1992). The Hunter Valley also acts as a dry corridor south to the Hawkesbury sandstone around Sydney. These corridors separate the Lowland Rainforest ecological community from more tropical rainforest in the north and the transitional rainforests in the south.

The ecological community does not include the rainforest on Queensland's sand islands such as Fraser Island as the rainforests on these islands have a closer affinity to Littoral Rainforest. However, it does occur on alluvial sands accumulated from terrestrial sources elsewhere.

The ecological community does not include rainforest found further south, such as in the Illawarra region. Rainforests in the Illawarra region generally occur at higher altitudes (Mills, 1987) and are characterised by different species. With increasing altitude rainforest also become less diverse and structurally simpler (Adam, 1992). The Illawarra is beyond the southern limits of Floyd's (1990a) *Argyrodendron trifoliolatum* alliance which is typical in the Lowland Rainforest ecological community. The Illawarra region is the northern limit to many southern cool temperate rainforest species. Many of the species common in the Lowland Rainforest ecological community are not found in the Illawarra as they do not survive the lower temperatures (Mills, 1987).

The Macpherson Macleay Overlap spans the Queensland NSW border, from the Macpherson Ranges in the north to the Macleay River in the south (Webb and Tracey, 1981). Much of the rainforest in the Overlap is part of the Mount Warning shield which extends between Beenleigh on the northern edge of the shield and the Richmond River on the southern edge. The Overlap region has a high diversity and a large area of Lowland Rainforest, including the Big Scrub (Webb and Tracey, 1981). The rainforests of the Mount Warning shield are particularly important for conservation of both rare plants and species of ecological significance. Twenty-three rainforest plant species are endemic to the Border lowlands and adjacent low ranges and approximately 200 rainforest species are either at their northern or southern limits on the Mount Warning shield (Lott and Duggin, 1993).

### ***Similar ecological communities***

**Littoral Rainforest** and Lowland Rainforest have some overlap in species composition. Littoral Rainforest typically has lower stature than Lowland Rainforest due to maritime influences including windshear. Species diversity and the abundance of vines, buttresses, ground ferns and epiphytes are lower in Littoral Rainforest. In some circumstances there are also more sclerophyllous species such as *Eucalyptus*, *Corymbia* and *Banksia* as well as salt tolerant species.

The major canopy species in Littoral Rainforest are: *Podocarpus elatus* (plum pine, brown pine), *Ficus obliqua* (small-leaved fig), *F. macrophylla* (Moreton Bay fig), *Drypetes deplanchei* (yellow tulip, grey boxwood), *Cryptocarya triplinervis* var. *tripplinervis* (brown laurel, three-veined cryptocarya), *Cupaniopsis anacardioides* (tuckeroo), *Acmena hemilampra* (*Syzygium hemilamprum* – broad-leaved lilly pilly, blunt satinash), *Acmena smithii* (*Syzygium smithii* – lilly pilly, lillipilly satinash), *Lophostemon confertus* (brushbox) and *Syzygium luehmannii* (riberry, cherry satinash) (Floyd, 1990a). These areas will usually also have salt tolerant species such as *Acronychia imperforata* (logan apple), *Alectryon coriaceus* (beach alectryon), *Cupaniopsis anacardioides* (coastal tuckeroo) and *Macaranga tanarius* (macaranga) present. The Listing Advice for Littoral Rainforest and Vine Thickets of Eastern Australia contains a more complete list of flora and fauna (TSSC, 2008).

**Wet sclerophyll forests** that occur adjacent to Lowland Rainforest are characterised by a tall, open, sclerophyllous tree canopy of *Eucalyptus grandis* (flooded gum), *E. microcorys* (tallowwood) and *E. pilularis* (blackbutt) and an understorey of soft-leaved, shrubs, ferns and herbs. Many understorey plants are rainforest species or have close rainforest relatives. This type of forest is often found at the margin of the Lowland Rainforest, usually on the more exposed and drier areas. Emergents such as *Eucalyptus saligna* (Sydney blue gum), *Lophostemon confertus* (brush box), *Syncarpia glomulifera* (turpentine) and *E. acmenoides* (white mahogany) occur more frequently than in Lowland Rainforest. Wet sclerophyll forest may have an understorey of rainforest species but the emergent, non-rainforest species of >30% (DECC, 2007) is greater than that found in Lowland Rainforest.

Wet sclerophyll forest relies on fire for regeneration of some species. The understorey of wet sclerophyll forest typically consists of palms in the poorly drained valley floors or small trees and shrubs such as *Elaeocarpus reticulatus* (blueberry ash), *Brachychiton acerifolius* (flame tree) and *Backhousia myrtifolia* (grey myrtle) in the better drained areas (DECCW, 2005).

**Dry rainforests** that occur adjacent to Lowland Rainforest tend to have no palms and fewer fern and herbs species than Lowland Rainforest, but more shrubs and vines in the understorey (Keith, 2004). Dry rainforests occur where the soil moisture and nutrients are less than areas that support Lowland Rainforest. Typically these rainforests occur in rough terrain and rocky substrates (Keith, 2004) and at higher altitudes than Lowland Rainforest. Dry rainforest is characterised by canopy species such as *Alectryon subcinereus* (wild quince), *Backhousia sciadophora* (shatterwood) and *Brachychiton discolor* (lacebark tree) (Keith, 2004).

***Relationships to State-listed ecological communities and state vegetation classifications***

All or part of the following equivalent state vegetation classifications and ecological communities are representative of the national Lowland Rainforest ecological community where the requirements of the Description, Key diagnostic characteristics and Condition thresholds are met. Lowland Rainforest is not limited to these state equivalents.

***Qld Regional Ecosystems:***

- 12.3.1 Complex to simple notophyll vine forest- Gallery rainforest (notophyll vine forest) on alluvial plains (endangered)
- 12.5.13 Microphyll to notophyll vine forest +/- *Araucaria cunninghamii* (endangered)
- 12.8.3 Complex notophyll vine forest – complex notophyll vine forest on Cainozoic igneous rocks (no concern)
- 12.8.4 Complex notophyll vine forest with *Araucaria* spp. on Cainozoic igneous rocks (no concern)
- 12.8.13 Araucarian complex microphyll vine forest on Cainozoic igneous rocks (of concern)
- 12.11.1 Simple notophyll vine forest often with abundant *Archontophoenix cunninghamiana* (“gully vine forest”) on metamorphics +/- interbedded volcanics (no concern)
- 12.11.10 Notophyll vine forest +/- *Araucaria cunninghamii* on metamorphics +/- interbedded volcanics (no concern)
- 12.12.1 Simple notophyll vine forest usually with abundant *Archontophoenix cunninghamiana* (“gully vine forest”) on Mesozoic to Proterozoic igneous rocks (of concern)
- 12.12.16 Notophyll vine forest on Mesozoic to Proterozoic igneous rocks (no concern)

***New South Wales***

Ecological Communities listed under the NSW *Threatened Species Conservation Act 1995*:

- Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions (Endangered)
- Lowland Rainforest on floodplain in the NSW North Coast Bioregion (Endangered)



### ***Relationships to other vegetation classifications***

The ecological community corresponds, entirely or in part, to the following vegetation classifications:

*National Vegetation Information System (NVIS) (v. 3.1):*

- Major Vegetation Group (MVG) 1: Rainforest and vine thickets
- Major Vegetation Subgroup (MVS) 2: Tropical or subtropical rainforest

*Webb (1968):*

- Rainforest of Provinces A1 and A2 – Southern Queensland and New South Wales
- Rainforest of Provinces C1 – coastal lowlands and adjacent ranges of southern Queensland for just north of Brisbane to Mackay (with extensions north and south)

*Keith (2004):*

- Subtropical Rainforests
- Northern Warm Temperate Rainforests

*Floyd (1990b):*

- *Argyrodendron trifoliolatum* Alliance  
Suballiance 1: *Argyrodendron trifoliolatum*  
Suballiance 2: *Toona – Flindersia*  
Suballiance 3: *Cryptocarya obovata – Dendrocnide excelsa – Ficus spp – Araucaria.*  
Suballiance 4: *Elaeocarpus grandis,*  
Suballiance 5: *Castanospermum australe – Dysoxylum muelleri*  
Suballiance 6: *Archontophoenix – Livistona*
- *Dendrocnide excelsa – Ficus spp.* Alliance  
Suballiance 15: *Ficus spp. – Dysoxylum fraserianum – Toona – Dendrocnide*  
*Drypetes australasica – Araucaria cunninghamii* Alliance  
Suballiance 21: *Araucaria cunninghamii*  
Suballiance 22: *Flindersia spp. – Araucaria*  
Suballiance 23: *Ficus – Streblus – Dendrocnide – Cassine,*
- *Castanospermum – Waterhousea floribunda* Alliance  
Suballiance 24: *Castanospermum – Grevillea robusta*  
Suballiance 25: *Streblus – Austromyrtus*  
Suballiance 26: *Waterhousea floribunda – Tristaniopsis laurina*
- *Ceratopetalum apetalum* Alliance  
Suballiance 33: *Ceratopetalum/Schizomeria Argyrodendron/Sloanea*

## ***Heritage***

In 1986 a number of rainforest reserves located on the Great Escarpment of eastern NSW, known as the Australian East Coast Sub-tropical and Temperate Rainforest Parks were inscribed on the World Heritage list for their outstanding natural universal values:

- as an outstanding example representing major stages of the earth's evolutionary history;
- as an outstanding example representing significant ongoing geological processes and biological evolution; and
- containing important and significant habitats for the *in situ* conservation of biological diversity.

Large extensions, including reserves in south-east Queensland, were listed in 1994. In 2007 the World Heritage Committee agreed to the new title of the ***Gondwana Rainforests of Australia*** (DEWHA, 2010a). The listing of Gondwana Rainforests includes 42 separate reserves located between Newcastle and Brisbane with only areas of reserved Crown land included (DEWHA, 2010a).

There is some overlap of the World Heritage listing of Gondwana Rainforests of Australia and the Lowland Rainforest of Subtropical Australia ecological community listing. Areas in reserves such as Main Range National Park, Border Ranges National Park, Lamington National Park and Nightcap National Park are included in the World Heritage listing and also contain significant patches of the ecological community. However, there are also numerous smaller patches of the ecological community which lie outside reserves, and therefore the World Heritage listing. These smaller areas make up a significant number of the remaining patches of the ecological community. They are also valuable stepping-stones and corridors between the larger rainforest reserves, yet they have continued to be susceptible to a number of threats as they have had little or no protection.

## **7. Relevant Biology and Ecology**

The protection of ecological communities or species alone will not be effective unless the ecological processes that sustain them are maintained (Bennett et al., 2009). Many types of ecological processes sustain biodiversity. These include climate processes, primary productivity, hydrological processes, formation of biophysical habitats, interactions between species, movement of organisms and natural disturbance regimes (Bennett et al., 2009).

Movement of organisms within and between ecological communities occur at different spatial and temporal scales depending on size, behaviour and ecology of the species concerned (Bennett et al., 2009). Movements of animals may occur: i) on a daily basis for activities such as foraging, avoiding predators, or for social interactions; ii) to allow individuals to track resources that vary irregularly in space and time; iii) to undertake large-scale seasonal migrations; iv) to access resources at different life-cycle stages, such as moving to or from breeding sites; and v) for newly independent individuals to disperse and establish in a new location. Movements fulfil a variety of roles that contribute to the survival and successful reproduction of individuals and persistence of populations. Movements by organisms also are critical to interspecific interactions such as mutualisms (pollination, seed dispersal), predation, parasitism and competition, which influence the composition of communities (Bennett et al., 2009).

For the Lowland Rainforest ecological community, the movement of some vertebrate fauna is affected by the distance between remnants and consequently the dispersal of some plant

species is affected by the mobility of their animal dispersers. For example, plant species dispersed by native rats are likely to be limited by distances between remnants greater than 0.5 km, whereas plants that rely on flying mammal dispersers such as *Pteropus poliocephalus* (grey-headed flying-fox) that have been shown to disperse seeds of rainforest plants up to 40 km from foraging sites to their daytime camps (Eby, 1989, 1991, 1995) can cope with greater distances between patches of Lowland Rainforest.

Bird species that may have the greatest potential to disperse a large volume and wide variety of plants, including large-seeded plants, tend to be less abundant outside of extensive forests (Moran et al., 2004b). This also suggests that the extent to which dispersal of certain plant species is limited in fragmented Lowland Rainforest (Moran et al., 2004b) is affected by the plant's dispersal mechanism. In some cases these birds are being replaced by smaller bird species that do not disperse the same suite of large seeded plant species (such as species from Lauraceae, Elaeocarpaceae and Sapotaceae families). This means that fewer seedlings of such plant species will be recruited to many rainforest regrowth or remnant patches (Moran et al., 2004a). The smaller bird species that have been observed to be increasing such as the silvereye (Moran et al., 2004b) are also associated with the dispersal of weed species that are common in the fragmented landscape.

The fruits of most rainforest plants are dispersed by animals, particularly birds and bats, but also possums, small mammals, lizards and ants. Somewhat paradoxically, seed predation by insects and rodents, and the browsing of seedlings by herbivores from caterpillars to wallabies, are together thought to play a major role in maintaining the diversity of rainforest plants, by limiting the competitive dominance of species (Big Scrub Rainforest Landcare Group, 2005). On the forest floor worms, mites and a myriad of invertebrates, aided by the raking of lyre-birds, brush turkeys, logrunners and other animals, help to decompose the leaf litter, fallen logs and other refuse of the forest, and promote the recycling of nutrients (Big Scrub Rainforest Landcare Group, 2005). While fleshy fruits sustain a wide range of vertebrate species, the foliage of rainforest trees supports a vast diversity of invertebrate species (Keith, 2004).

Natural regenerative capacity relies not only on seed sources and dispersal but also on pollination. Although some species utilise vertebrate pollinators (e.g. black bean), insects are the dominant pollinators in lowland rainforest (Williams and Adams, 1998). Effective pollination by generalist insect pollinators is most likely to occur within 50 m and unlikely beyond 100 m (Big Scrub Rainforest Landcare Group, 2005). While canopy trees can benefit from a wide range of different pollinators, there is growing awareness that understorey species such as small trees, shrubs, herbs and epiphytes rely on specialist pollinators (Williams and Adams, 1998). Clearing the understorey and increasing fragmentation are therefore more likely to impact acutely on regenerative processes. However, the indirect impacts of loss of pollinators are unlikely to be immediately noticed, and without close monitoring of recruitment may remain masked by current species assemblages. It may take decades to realise the lack of recruitment of key species that support specialist pollinators (Big Scrub Rainforest Landcare Group, 2005). Where individual species are part of a sequential flowering season for local pollinators, their loss may affect the dynamics of the entire remnant patch and possibly further afield (Big Scrub Rainforest Landcare Group, 2005).

The fragmentation of the Lowland Rainforest ecological community, and consequently the habitat for local flora and fauna, has impacted on the ecological processes and the species composition of flora and fauna in the fragmented landscape.

### ***Listed threatened species***

A total of 63 plant species and 42 animal species are listed as threatened under national or state legislation at 31 January 2011. This includes:

- 34 flora species listed under the Commonwealth *EPBC Act 1999*
- 12 fauna species listed under the Commonwealth *EPBC Act 1999*
- 52 flora species listed under the NSW *Threatened Species Conservation Act 1995*
- 34 fauna species listed under the NSW *Threatened Species Conservation Act 1995*
- 37 flora species listed under the Queensland *Nature Conservation Act 1992*
- 24 fauna species listed under the Queensland *Nature Conservation Act 1992*

A list of all threatened species associated with Lowland Rainforest is at [Appendix D](#).

### **8. Description of Threats**

The main ongoing threats to the Lowland Rainforest ecological community are:

- land clearing;
- impacts associated with fragmentation of remnants;
- weeds; and,
- private native forestry.

### ***Land Use History***

Prior to European settlement, virtually the whole of the north coast of NSW was forested. It formed part of a continuum of forest stretching along most of the coast of NSW and southern Queensland. In areas of high rainfall and better soils, the predominant forest type was subtropical rainforest (Big Scrub Rainforest Landcare Group, 2005). Lowland Rainforest of the Big Scrub area near Lismore originally covered 750 square kilometres, and was the most extensive Lowland Rainforest in south-eastern Australia.

In the pre-European landscape, rainforest patches were set within a matrix of more open forest and woodland (dominated by *Eucalyptus* and *Acacia* spp.) from which they differ both structurally and floristically (Webb, 1968; Floyd, 1990a; Neilan et al., 2006). It is likely that the Lowland Rainforest ecological community would have lined the major rivers on the floodplains above the reaches of tidal influence (Keith and Scott, 2005). It would also have spread across elevated flats where moisture and soil nutrients were in abundance, particularly on the Tweed, which receives more rainfall than any of the other major floodplains (Keith and Scott, 2005).

It is thought that the Indigenous people of NSW used Lowland Rainforest seasonally for food and raw materials such as macadamia nuts, figs, wild grapes, yams, cunjevoi roots, the heart of bangalow and cabbage palms, black bean seeds, brush turkeys, bandicoots, pademelons and small wallabies (Keith, 2004; Big Scrub Rainforest Landcare Group, 2005). The fibre from the bark of *Dendrocnide excelsa* (giant stinging tree) was used to make nets for fishing and hunting (Keith, 2004).

Lowland Rainforest provided one of the world's most prized cabinet timbers to early European settlers. *Toona ciliata* (red cedar) was in huge demand as a cabinet timber within Australia and overseas. When the red cedar resource was exhausted, the loggers turned their



attention to *Gmelina leichhardtii* (white beech) and *Araucaria cunninghamii* (hoop pine) (Keith, 2004).

Farming on the newly cleared land took over as the major land use in the 1880s (Keith, 2004). By the twentieth century, most Lowland Rainforest had been cleared for agriculture (Keith, 2004). Today Lowland Rainforest is reduced to scattered remnants, many only a few hectares in size, such as Davis Scrub and Booyong Flora Reserve. Larger stands survive on the Border and Nightcap ranges and in World Heritage areas (Keith, 2004).

In addition to timber, early settlers used Lowland Rainforest for hunting. Pigeons and turkeys were hunted as one of the few sources of fresh meat, and pademelons, possums and water rats were a source of hides (Frith, 1977).

Since much of Lowland Rainforest has been cleared, regrowth dominated by camphor laurel (*Cinnamomum camphora*) has become common on former agricultural land (Frith, 1977; Neilan et al., 2006).

### ***Land Clearing***

Land clearing continues to threaten floodplain vegetation, as rural enterprises and hobby farms expand into the upper reaches of the floodplains (Keith and Scott, 2005). The density of isolated trees continues to decline through senescence without replacement and with the conversion of grazing properties to cropping (Keith and Scott, 2005).

Ongoing incremental clearing of vegetation for agricultural activities (in particular macadamias and fruit crops), horticultural industry (and the subsequent introduction of new potential weeds), hobby farming, peri-urban and rural residential development (including vegetation removal for bush fire protection), and private native forestry are further adding to isolation and fragmentation of Lowland Rainforest remnants.

### ***Weeds and feral animals***

Weeds compete with native species in the ecological community for space, light, water and nutrients. They also suppress and out-compete mid-storey and canopy trees. Weeds are a major threat to the long-term viability and survival of the majority of Big Scrub remnants and many Lowland Rainforest remnants elsewhere.

Key Threatening Processes (KTPs) listed under the NSW *Threatened Species Conservation Act 1995* and the EPBC Act impact the fauna of Lowland Rainforest. For instance, the *Invasion and establishment of Cane Toad (Bufo marinus)* and *Predation by European Red Fox (Vulpes vulpes)* both have widespread impacts throughout the distribution of Lowland Rainforest. The most serious impact of these KTPs is in small remnants and the edges of larger remnants. All vertebrates are impacted with small frogs, reptiles and mammals preyed upon by the cane toad and larger predatory species poisoned when cane toads are ingested. Cane toads shelter and forage in small remnants and edges, particularly if there is suitable adjacent breeding habitat such as farm dams. The red fox also has dens in small remnants of Lowland Rainforest and forages through these and along the edges of large patches taking a range of reptiles, birds and small mammals.

Introduced mammals found in remnants of Lowland Rainforest include: black rat (*Rattus rattus*), house mouse (*Mus musculus*), hare (*Lepus capensis*), rabbit (*Oryctolagus cuniculus*), wild dog (*Canis familiaris*), European red fox (*Vulpes vulpes*) and cat (*Felis catus*). Small remnants are particularly vulnerable to feral animals (Lott and Duggin, 1993).

The significance of the threat posed by weeds is reflected by the listing of *The invasion and establishment of exotic vines and scramblers* as a Key Threatening Process under the NSW *Threatened Species Conservation Act 1995* and the *Loss and degradation of native plant and*

*animal habitat by invasion of escaped garden plants, including aquatic plants* as a Key Threatening Process under the EPBC Act.

Numerous weeds affect remnants of the Lowland Rainforest ecological community. They compete with native species for space, light and other resources but they also provide resources to other plants and animals in the ecological community. Woody weeds such as camphor laurel and tobacco bush (*Solanum mauritianum*) shade and inhibit the growth of other plants including detrimental weeds such as cat's claw creeper (*Macfadyena unguis-cati*), madeira vine (*Anredera cordifolia*), morning glory (*Ipomoea* spp.), wandering jew (*Tradescantia fluminensis*), climbing asparagus (*Asparagus plumosus*), ochna (*Ochna serrulata*) and small-leaved privet (*Ligustrum sinense*). Woody weeds can also provide an improved microclimate for rainforest seedlings to grow (Big Scrub Rainforest Landcare Group, 2008). Birds and other animals use the weeds for food and shelter, e.g. *Psophodes olivaceus* (eastern whipbird) uses lantana (*Lantana camara*) for nesting from winter to spring and numerous butterflies feed on its flowers (Big Scrub Rainforest Landcare Group, 2008).

#### Camphor laurel (*Cinnamomum camphora*)

Camphor laurel is a fast-growing woody weed that can colonise and reforest cleared ex-rainforest land. Camphor laurel dominates many abandoned pastures and edges and dominates the canopy of many regrowth patches where it shades out and competes with other vegetation. The species is known to exclude native rainforest species from establishing (by competing for space and resources) and to retard the growth of some rainforest species in its vicinity (Big Scrub Rainforest Landcare Group, 2008).

Camphor laurel is considered to be an undesirable invasive plant in productive agricultural lands and some types of native forest, but it also provides food resources and other habitat (including stepping-stones) for rainforest wildlife, and hence may contribute to regional conservation (Date et al., 1996; Neilan et al., 2006). Neilan et al. (2006) also suggest that camphor laurel facilitates the recruitment of native rainforest plants into abandoned farmland. Camphor laurel can successfully recruit in pasture and, if grazing pressure is reduced, grow rapidly amongst grasses to form a regrowth patch. Once established, camphor laurel regrowth develops a relatively complex forest structure. The moderately dense canopy cover and litter layer create shade and other physical conditions which suppress the growth of pasture grasses and herbaceous weeds, but are suitable for the germination and growth of native rainforest plants (Neilan et al., 2006). There is potential for camphor laurel stands to develop into transitional communities between abandoned pasture and regrowth rainforest (Big Scrub Rainforest Landcare Group, 2005).

It is therefore important to consider the role camphor laurel plays as a transitional ecological community when planning weed management strategies in Lowland Rainforest patches. In some areas where it dominates, camphor laurel is regarded as a rainforest type (DECCW, 2010) as it provides an important seasonal resource (Neilan et al., 2006; DECCW, 2010). However, in areas where it is not dominant and is still actively taking over areas of native vegetation such as patches of the Lowland Rainforest ecological community, it should be considered an invasive species and prevented from establishing (DECCW, 2010).

#### ***Private Native Forestry***

Private native forestry is intended to be the sustainable use of native vegetation on privately-owned land in NSW for obtaining forest products including sawlogs, veneer logs, poles, girders, piles and pulp logs. Although it is excluded from vegetation patches that meet certain rainforest definitional criteria, the implementation of this management practice is threatening remnants of the Lowland Rainforest ecological community in NSW, particularly smaller remnants.

Private native forestry is excluded from areas of old growth forest and rainforest where rainforest is defined as tree-dominated vegetation where the tree stratum (over 3 m in height) has rainforest species making up 50% or more of the crown cover, except where non rainforest emergent species (including brushbox and turpentine) occur and exceed 30% or more of the upper stratum crown cover (DECC, 2007). Rainforest includes all areas of rainforest mappable at a 1:25 000 scale. Rainforest also includes areas exceeding 0.5 hectares occurring as isolated clumps or lineal strips of rainforest trees (DECC, 2007).

Private native forestry may also occur in endangered ecological communities listed under the NSW *Threatened Species Conservation Act 1995*, as part of an approved Ecological Harvesting Plan approved by the Director General of the NSW Department of Environment (DECC, 2007).

### ***Native Forest and Horticulture Plantations***

The proposal to replace stands of camphor laurel with short rotation eucalypt plantations reduces the food and habitat resources for rainforest fauna (Neilan et al., 2006). Eucalypt plantations near Lowland Rainforest remnants also increase fire risks in the ecological community (Neilan et al., 2006).

The increase in herbicide, pesticide and fertiliser use near remnants as a result of the shift from, for example, dairy farming to more intensive tropical fruit cultivation (such as avocados and macadamia plantations) potentially poses a threat to the Lowland Rainforest ecological community (Gilmour and Helman, 1991; Lott and Duggin, 1993). The impact of invading edge and weed species is also likely to be increased with this change in landuse (Gilmour and Helman, 1991). The proximity of remnants to macadamia plantations has resulted in introduced black rats becoming a pest. The impact of this species on native rodents is not known within the ecological community (Lott and Duggin, 1993) but it is likely to be negative.

### ***Grazing***

Some remnants of Lowland Rainforest are grazed by domestic stock. Cattle often damage or destroy the understorey and native ground covers and remove naturally regenerating seedlings. In doing so, they alter the species composition of Lowland Rainforest, damage the vegetation and degrade land by causing soil compaction and erosion problems.

### ***Pathogens***

Myrtle rust (*Uredo rangelii*) is part of the group of fungi that includes guava rust and eucalyptus rust (Carnegie et al., 2010). It originated in South America but was first identified in Australia in a nursery on the Central Coast of NSW in April 2010. Myrtle rust affects plants in the Myrtaceae family, including native species found in the Lowland Rainforest ecological community such as *Syzygium floribundum* (weeping lilly pilly). Plants affected by myrtle rust often suffer dieback. The rust can compromise the plants ability to thrive and reproduce and can cause the plant to eventually die. The fungus thrives in humid conditions so Lowland Rainforest is particularly susceptible to myrtle rust. Myrtle rust has spread throughout the range of Lowland Rainforest.

### ***Fragmentation***

Many patches of the ecological community now exist in very small remnants in areas where Lowland Rainforest was once widespread. Remnants are scattered through an open landscape that is largely agricultural (grazing) land. As the fragmentation of Lowland Rainforest continues, the viability of remnants as habitat for native plants and animals is threatened.

The effects of fragmentation on vertebrate fauna are better understood than effects on other groups. There is often a rapid loss of some fauna species and an increase in other species, particularly generalist species, following isolation. These ecological imbalances are likely to drive the loss of additional species in isolated patches. Thus, a Lowland Rainforest remnant may pass quickly through a series of unstable transient states until it reaches a biologically simplified equilibrium (Hunter, 1998). Fragmentation can affect invertebrate species dramatically as they are short-lived and sensitive to fine-scale environmental variation (Hunter, 1998).

Fragmentation increases the competition for resources such as food and shelter as these become more and more limiting as remnants get smaller in size (Hunter, 1998). Bird species that facilitate dispersal of a large volume and variety of plants, tend to be less abundant in fragmented forests (Moran et al., 2004b). This suggests that dispersal of certain plant species is limited in fragmented Lowland Rainforest (Moran et al., 2004b; Neilan et al., 2006).

The fragmentation of the Lowland Rainforest in the Big Scrub area has resulted in the loss of birds such as the *Atrichornis rufescens* (rufous scrub-bird) and *Dasyornis brachypterus* (eastern bristlebird) (Hunter, 1998; DECC, 2005). It has also been suggested to have caused the local extinction of *Maccullochella ikei* (Clarence River cod) due to major changes in watercourses (Hunter, 1998). The fragmentation of Lowland Rainforests has also been a major factor in the decline and near extinction of Coxen's fig parrot (Hunter, 1998).

Rainforest trees are often long-lived and may respond slowly to fragmentation. Some species may be functionally extinct in remnants before they have actually disappeared. Co-evolved pollinators or seed dispersers may have disappeared. However, for many species there may be gene flow between remnants because of movement of pollinators and seed dispersers. Remnants may therefore contribute to the genetic connectivity of a larger metapopulation and act as stepping-stones (Hunter, 1998).

### ***Edge effects***

Fragmentation and the creation of patches with long edges results in physical and biotic changes which have major impacts on the ecology of the remnant. The edges of a remnant are subject to physical effects which include elevated wind turbulence and incursion, temperature variability, lateral light penetration and reduced humidity (Hunter, 1998). These changes in the physical environment of Lowland Rainforest have consequences for the plants and animals which inhabit the remnant. The species diversity of some generalist species increases near edges and some specialist rainforest species are generally uncommon near edges (Hunter, 1998). Predation on nesting birds and seeds may increase near edges and in fragments due to an influx of generalist predators from the surrounding matrix which influence the success of regeneration within remnants. Increased windshear forces may cause an increase in the frequency of treefall gaps (Hunter, 1998).

### ***Climate Change***

The effects of climate change, increased human population numbers and associated human disturbances will impact on Lowland Rainforest. Climate change predictions for northern NSW and south-east Queensland indicate a shift to warmer minimum and maximum temperatures, more extreme fire event days, fewer but more intense extreme weather events such as storms with destructive winds and sea level rise (DECC, 2009). Many faunal species are expected to migrate to cooler, higher elevations. Adequate corridors of suitable vegetation will be needed to facilitate this movement. Less mobile species will be more significantly impacted by climate change (Blyth, 1991; Westoby and Burgman, 2006).

Habitat loss and fragmentation present increasingly serious problems in the context of global climate change, as smaller patches of ecological communities will be less resilient and



isolated ecological communities will have difficulty shifting their ranges to track changing environments. A potential solution is to provide *structural connectivity* i.e. elements of the landscape (typically some form of native vegetation) that physically link isolated patches of habitat. These linkages will allow individuals and/or their genes to disperse between multiple small patches, allowing these subpopulations to collectively function as larger, more resilient metapopulations (Doerr et al., 2010).

The effect of changing climate on Australian landscapes is likely to be significant because extensive land clearing and post European settlement have left fragmented remnants of native vegetation within a matrix dominated by agricultural production (Doerr et al., 2010).

### ***Fire***

Unlike most other vegetation types in Australia, rainforest is not adapted to fire (Floyd, 1990a). Fire is an important factor in limiting rainforest boundaries (Bowman, 2000). Rainforest species are capable of colonising eucalypt forests and grasslands but are only likely to survive to maturity if fire is excluded until the rainforest species have formed a closed community (Bowman, 2000). However, most rainforest species can regenerate after a single fire (Bowman, 2000). It is therefore, the frequency of fires that is critical.

Weeds can substantially change fuel characteristics at rainforest boundaries (Bowman, 2000). Therefore, Lowland Rainforest remnants with a high woody weed component, or surrounded by land with a high woody weed component, are more susceptible to the impacts of fire.

## **9. How judged by the Committee in relation to the EPBC Act criteria.**

### ***Criterion 1 - Decline in geographic distribution***

#### **New South Wales**

The area of all rainforest in NSW has been reduced by about 90% since European settlement (Floyd, 1990a; Gilmour and Helman, 1991). The core area of Lowland Rainforest in the Big Scrub has been reduced from 75 000 ha to <750 ha (<1% remaining) (Floyd, 1990a; Gilmour and Helman, 1991; Big Scrub Rainforest Landcare Group, 2005). This trend has been shown to apply to the entire geographic extent of the ecological community. Detailed analysis of the NSW mapping undertaken by Flint and Cerese (unpublished) has determined that the Lowland Rainforest ecological community in NSW has been reduced from 187 280 ha to 11 170 ha. Over 94% of the ecological community has been cleared.

The current extent of Lowland Rainforest within protected areas is 1 988 ha (Flint and Cerese, unpublished). This is across 41 different national parks or reserves, however the majority is within Nightcap National Park (525 ha), Border Ranges National Park (283 ha), Mooball National Park (203 ha), Mt Jerusalem National Park (143 ha) and Inner Pocket Nature Reserve (104 ha).

#### **Queensland**

There are eight Queensland Regional Ecosystems (REs) that are considered to contain Lowland Rainforest. These are: 12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.11.1, 12.11.10, 12.12.1 and 12.12.16. The remaining extent of these REs (at an altitude <300 m above sea level) ranges from 5% to >70% of that likely to exist prior to European settlement (McDonald pers. comm. 2010). However, these regional ecosystems are substantially broader than the Lowland Rainforest ecological community. Not all areas mapped as the REs will match the „description“, „key diagnostic characteristics“ and „condition thresholds“ that define the national Lowland Rainforest ecological community.

Flint and Cerese (unpublished) assessed the extent of the Lowland Rainforest ecological community in Queensland prior to European settlement to be 8 840 ha. The extent remaining today is estimated at 2 910 ha.

The extent within protected areas is 643 ha. The largest occurrences in protected areas are in Springbrook National Park (approx. 260 ha), Lamington National Park (approx. 100 ha), Kondalilla National Park (approx. 95 ha) and the Glass House Mountains National Park (approx. 70 ha).

### **Total**

The pre-European extent of the Lowland Rainforest ecological community is estimated to be 196 110 ha. The current extent is estimated to be 14 080 ha. These results indicate that there is only 7.2 % of the ecological community remaining across its range and that more than 92% of the community has been cleared since European occupation of Australia.

The estimates of decline do not take into consideration the condition of remnants. It is likely that the extent of Lowland Rainforest that remain in good condition, and meet the condition thresholds, is lower than indicated above. The Committee considers that the ecological community has undergone a **severe** decline in geographic distribution. Therefore, the ecological community has been demonstrated to have met the relevant elements of Criterion 1 to make it **eligible** for listing as **endangered**.

### ***Criterion 2 - Small geographic distribution coupled with demonstrable threat***

As detailed in Section 8 – „Description of Threats“, the Lowland Rainforest ecological community is subject to several ongoing demonstrable threats. Key threats include ongoing vegetation clearance, impacts associated with fragmentation of remnants and weed invasion.

The purpose of this criterion is to recognise that an ecological community with a distribution that is currently small has an inherently higher risk of extinction if it is subject to a threatening process. Thresholds to identify terrestrial vegetation communities with small distributions are typically based on three indicative measures. These are the area of occupancy, total extent of occurrence and patch size (indicative of fragmentation). If any of the three measures is demonstrated to apply to the ecological community it is considered to have a small geographic distribution.

The distribution of Lowland Rainforest occurs over a large area of eastern Australia from Maryborough in Queensland to the Hunter River in NSW. Neither the total area of occupancy or the total extent of occurrence of this ecological community are restricted. However, within its distribution it occurs in a range of patch sizes. Of the 2 683 mapped patches, 88.7% were less than 10 ha in size and only 16 patches exceed 100 ha. The average patch size for Lowland Rainforest is 5.4 ha. The fragmentation of this ecological community makes it very vulnerable to the ongoing threats such as the impacts of edge effects, limitations to dispersal mechanisms and increased vulnerability to the potential impacts of climate change.

The Committee considers that the ecological community has a **very restricted** distribution, as evidenced by highly fragmented remnants with the majority (>88%) of patches being a very small size, typically less than 10 ha. There is also clear evidence that the ecological community is subject to a range of ongoing threats that could cause it to be lost in the immediate future. Therefore, the ecological community has been demonstrated to have met the relevant elements of Criterion 2 to make it **eligible** for listing as **critically endangered**.

### ***Criterion 3 - Loss or decline of functionally important species***

The relationship between species is important for maintaining ecosystem function in the Lowland Rainforest ecological community. Frugivorous birds and mammals are important for seed dispersal of key plant species such as fig trees, quandongs, pepperberry and walnuts.

Frugivorous birds such as Coxen's fig-parrot are among other functionally important animals such as the grey-headed flying-fox that are threatened. A decline in numbers is evident in the list of over 40 animal species, which can be found in the ecological community, that are listed as threatened under national or state threatened species legislation.

The grey-headed flying-fox (Vulnerable – EPBC & NSW), is an important seed disperser for a number of Lowland Rainforest plants. Seed dispersal within and between Lowland Rainforest remnants is needed to maintain forest dynamics (Moran et al., 2004b). The grey-headed flying-fox is a key disperser likely to disperse seeds large distances. In the increasingly fragmented landscape, the functional role of this vulnerable species is increasingly important for the survival of the Lowland Rainforest ecological community.

Research has shown that the abundance of frugivorous birds (wompoo, superb and rose-crowned fruit-doves) has significantly reduced in remnants compared to extensive forest (Moran et al., 2004a,b; Neilan et al., 2006). This suggests that the birds have a minimum habitat requirement and that suitable food resources and habitat are absent or in very low abundance in pioneer vegetation and some smaller patches (Moran et al., 2004a).

It seems likely that the reduced numbers of functionally important frugivorous birds in fragmented and disturbed habitats would change the composition and rate of seed dispersal in these habitats. In addition, there is an increase in smaller birds (varied triller and the silvereye) that are likely to feed on small-seeded sugary fruits in regrowth compared to remnants and extensive forest (Moran et al., 2004b). These birds are often associated with the consumption of the seeds and fruits of introduced weeds which are typically found in abundance in fragmented parts of the landscape (Moran et al., 2004b). Although subsequent seedling germination and plant establishment, growth and reproduction are affected by a number of biotic and abiotic factors, initial seed input to a site is essential, especially in a cleared landscape.

It has been demonstrated that there is a severe change in the composition of the functionally important bird species found in the fragmented Lowland Rainforest ecological community (Moran et al., 2004a,b; Neilan et al., 2006) and, in turn, a change in the composition of plant species with a likely decrease in native species and increase in introduced species (Moran et al., 2004b). The ability of the ecological community to restore relatively quickly (with human intervention) does allow the community to re-establish a rainforest-like state and provide habitat for some rainforest dependant biota but it does not enable the ecological community to regenerate to its original state, including the restoration of all functionally important bird populations. Complete regeneration of Lowland Rainforest may take more than 44 years (Kariuki and Kooyman, 2005) and possibly as long as 800 years (Hopkins, 1990) and is unlikely in the **near future** (Summerbell, 1991; Kanowski et al., 2009). Therefore, the ecological community has been demonstrated to have met the relevant elements of Criterion 3 to make it **eligible** for listing under this criterion as **endangered**.

#### ***Criterion 4 - Reduction in community integrity***

##### Reduction in integrity through the loss of key vegetative components

In many remaining areas the species composition of the ecological community has changed. Introduced species such as camphor laurel can dominate many patches of Lowland Rainforest, out-competing native vegetation and in some cases, reducing the integrity of a patch so much that it is no longer considered part of the ecological community. The grazing of domestic animals such as cattle in patches of Lowland Rainforest also reduces the ability of native plant species to regenerate.

The size of individual remnants has been shown to affect species diversity in the Big Scrub area (Lott and Duggin, 1993). Smaller remnants (<10 ha) characteristically have a lower species diversity. Small remnants are also prone to chance removal of diagnostic tree species through clearing and its subsequent effects and invasion by other species (Lott and Duggin, 1993).

Lowland Rainforest also supports a number of rare and/or threatened plants species such as *Davidsonia jerseyana* (Davidson's plum) (Endangered-EPBC, Endangered-NSW). Many Lowland Rainforest remnants (>80%) are not protected in national parks (Flint and Cerase, unpublished) despite their importance in the conservation of these rare and/or threatened flora and their role in the maintenance of community integrity.

##### Reduction in integrity through loss of key faunal components

The number of frugivorous birds in subtropical Australia has decreased following extensive clearing of rainforests especially in lowland areas (Date et al., 1991; Moran et al., 2004a). Frugivorous birds play an important role in the ecological community as they are highly mobile and are among the most likely to carry plant seeds across cleared land. Seed dispersal within and between Lowland Rainforest remnants is needed to maintain forest dynamics.

Big Scrub data (Lott and Duggin, 1993) indicates that the size of a remnant affects its ability to support mammals. Remnants less than 20 ha in size did not contain *Rattus fuscipes* (bush rat). Similarly, *Antechinus stuartii* (brown antechinus, Stuart's antechinus) is only found in one remnant outside the Nightcap National Park/Whian Whian area (Lott and Duggin, 1993). Predation by cats and dogs may have eliminated these species from the smaller remnants, however, the presence of a dense groundcover has also been found to be important for these native mammal species (Lott and Duggin, 1993). *Thylogale thetis* (red-necked pademelon) is also absent in smaller Big Scrub remnants. The known small size of the home range of these mammal species suggests that they should be able to survive in many of the smaller remnants. The fact that they are absent indicates that other factors such as the availability of food and shelter, and predation reduce the integrity of the ecological community to a level that prevents pademelons and rodents from inhabiting the smaller remnants.

The Lowland Rainforest ecological community is habitat for over 40 animal species listed as threatened at the national or state level. It can be inferred that the decline in the abundance of these species indicates a decline in the quality of habitat the ecological community is providing as well as indicating a reduction in ecological processes reliant on the interaction of plant and animal species within the ecological community.

### Reduction in integrity through weed invasion

The ecological community is threatened by more than 130 weed species (Big Scrub Rainforest Landcare Group, 2005). These weeds compete with native species for space, light and resources. Lantana is also known to smother native species and the toxicity of camphor laurel is thought to inhibit the growth of some native species (Big Scrub Rainforest Landcare Group, 2005). Although the regeneration of the ecological community is possible if weeds are removed, it has been shown that complete regeneration may take more than 44 years (Kariuki and Kooyman, 2005) and possibly as long as 800 years (Hopkins, 1990).

### Reduction in integrity through fragmentation and degradation of habitat

Extensive fragmentation of the ecological community into isolated and disconnected remnants has ecological implications. Fragments with a high edge to area ratio are more susceptible to disturbances and adverse influences from the surrounding agricultural landscape, such as weeds and spray drift. Disconnected remnants can also affect the dispersal and movement of wildlife and plant propagules. Small remnants may also prove to be less suitable habitat for some native species e.g. bush rat, Stuart's antechinus and red-necked pademelon.

Despite the negative impacts of the fragmentation of the ecological community, it is important to highlight the significance of small and/or isolated patches. Some isolated remnants are too small to support all rainforest dependant species together but the occurrence of rainforest dependant species in scattered locations throughout the Big Scrub (despite the long periods of isolation) indicates that they are important stepping-stones between larger remnants providing supplementary food and allowing bird movement and therefore seed dispersal within and between remnants (Lott and Duggin, 1993; Moran et al., 2004a,b).

### Summary

The Committee considers that the Lowland Rainforest ecological community has undergone a **severe** reduction in its ecological integrity across most of its distribution, demonstrated by several indicators of severe degradation and disruption of important ecological processes. There is a high incidence of weeds in the ecological community and key floral and faunal components have declined. The ecological community currently exists in a highly fragmented state which has the capacity to exacerbate the impacts from ongoing threats and disturbance. It is unlikely that the ecological community will recover its full ecological integrity in the **near future**, even with positive human intervention. Therefore the ecological community is **eligible** for listing as **endangered** under this criterion.

### ***Criterion 5 - Rate of continuing detrimental change***

The Lowland Rainforest ecological community has undergone a severe decline in geographic distribution that has resulted in the remaining Lowland Rainforest being highly fragmented and vulnerable to disturbance. Exposure to an altered physical environment (light, temperature and wind) particularly on edges has continued detrimental effects on the ecological community. Disturbance of the canopy in Lowland Rainforest often promotes the growth of alien vines (that smother native trees and further disrupt the canopy) and alien groundcovers (that suppress the regeneration of other rainforest plants) (Kanowski et al., 2009). The impact of exotic weeds in this community is increased with increasing fragmentation and smaller patch sizes. The ability of the fragmented ecological community to support native flora and fauna and important ecological processes such as seed dispersal and pollination has also been reduced (Moran et al., 2004b; Big Scrub Rainforest Landcare Group, 2005).



The detrimental change occurring in this ecological community has been demonstrated by the number of threatened species associated with the ecological community, the severe decline in its geographic distribution and the disruption of ecological processes that has occurred. There is an indication that decline in the condition of Lowland Rainforest remnants is continuing and that a significant investment in ongoing maintenance, in the form of weed control and in some cases supplementary planting, is required to avoid a further increase in the rate of continuing detrimental change. However, data on the rate of change are not available to support this, therefore the ecological community is **not eligible** for listing under Criterion 5.

***Criterion 6 - Quantitative analysis showing probability of extinction***

There are no quantitative data available to assess the ecological community under this criterion. Therefore, it is **not eligible** for listing under this criterion.

## 10. Conclusion

### *Conservation status*

This advice follows the assessment of information to include the Lowland Rainforest of Subtropical Australia ecological community in the list of threatened ecological communities referred to in Section 181 of the EPBC Act. The Lowland Rainforest of Subtropical Australia ecological community meets:

- Criterion 1 as **endangered** because its decline in geographic distribution is severe; and
- Criterion 2 as **critically endangered** because its geographic distribution is very restricted and the nature of its distribution makes it likely that the action of a threatening process could cause it to be lost in the immediate future;
- Criterion 3 as **endangered** because the decline of functionally important species is severe and restoration is unlikely to be possible in the near future;
- Criterion 4 as **endangered** because the ecological community has undergone a severe reduction in community integrity such that regeneration is unlikely within the near future.

The highest category for which the ecological community is **eligible** to be listed is **critically endangered**.

### *Recovery Plan*

Due to a number of existing management plans relevant to the ecological community, the Committee considers that a recovery plan specific to the Lowland Rainforest of Subtropical Australia ecological community is a low priority. In particular, management actions relevant to the ecological community can be found in the Northern Rivers Regional Biodiversity Management Plan (DEWHA, 2010b).

## 11. Recommendations

The Committee recommends that:

- i. The list referred to in section 181 of the EPBC Act be amended by **including** in the list in the **critically endangered** category:

### **Lowland Rainforest of Subtropical Australia;**

- ii. The Minister decides not to have a recovery plan for this ecological community.
- iii. The Minister provides the following reasons for his decision not to have a recovery plan:

A recovery plan is not required at this time. The planning, implementation and coordination of recovery actions does not involve complexity beyond that which can be managed through existing management plans and processes. A conservation advice is also available that details the priority recovery actions required for this ecological community.

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## ANNEXURE G

### Addendum to Archeological Assessment by Archaeological Surveys & Reports Pty Ltd

**A record of the Aboriginal consultation:  
Proposed Residential Subdivision  
Lot 2, DP 1119830  
Alexandra Drive, BELLWOOD, NSW**

**John Appleton**

**ARCHAEOLOGICAL SURVEYS & REPORTS PTY LTD**

**JUNE 2012**

**Report No. 540/12**

**For  
GEOFF SMYTH CONSULTING**

**On behalf of**

**NAMBUCCA GARDENS ESTATE**



**This report has been compiled in 'Plain English',  
but presented in a format suitable for developing policies  
for the management of the cultural resources,  
and as a basis for scientific reference  
in future research studies.**

**Project No. 540/12**

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**ARCHAEOLOGICAL SURVEYS & REPORTS PTY LTD**

**ABORIGINAL CONSULTATION**  
**Lot 2, DP 1119830, Alexandra Drive**  
**BELLWOOD**

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**Geoff Smyth Consulting**  
**For**  
**NAMBUCCA GARDENS ESTATE**

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On behalf of:

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## **EXECUTIVE SUMMARY**

This addendum should be read in conjunction with a previous report,

The archaeological investigation for sites of Indigenous cultural significance within Lot 2, DP 1119830, Marshall Way & Alexandra Drive, Bellwood, annexed to the report prepared for Geoff Smyth Consulting on behalf of Nambucca Gardens Estate and prepared by Archaeological Surveys & Reports Pty Ltd, December 2009.

In March 2012 Archaeological Surveys & Reports Pty Ltd (ASR) received a letter from Geoff Smyth Consulting (GSC) advising that a Development Application (DA) on behalf of Nambucca Gardens Estate had been lodged with Nambucca Shire Council (Council) for a 346 residential lot subdivision of Lot 2 DP 1119830, Alexandra Drive, Bellwood. Subsequently independent consultants engaged by the Council had reviewed the DA and advised that the Aboriginal consultation that had taken place in 2009, no longer complied with the new consultation requirements for Aboriginal Archaeological Assessment, contained within NSW Department of Environment Climate Change & Water Guidelines (since replaced by Office of Environment & Heritage), *"Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010"*.

The letter went on to say, "The current Aboriginal Assessment has not demonstrated adequate consultation with relevant male Aboriginal elders and the Local Aboriginal Land Council".

GSC engaged ASR to address the issue of adequate Aboriginal consultation in compliance with *"Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010"*.

Accordingly on 2<sup>nd</sup> March 2012 ASR wrote to Office of the Secretary ALRA; National Native Title Tribunal; OE&H; Nambucca Shire Council; Northern Rivers CMA; Nambucca Heads LALC; NSW & ACT Registry; and NTSCorp requesting that they provide lists of all registered Aboriginal stakeholders for the Nambucca area. On the same date ASR placed advertisements in the "Nambucca Guardian News" (published on 8<sup>th</sup> March 2012) inviting all Aboriginal stakeholders with an interest in the project to register their interest. The only responses received were from NHLALC and Mr Merv Buchanan.

On 7<sup>th</sup> April 2012, ASR wrote to each of the 18 registered stakeholders, enclosing a full copy of the 2009 report, and inviting them to provide a written response to the report so that it could be

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attached as an addendum to the report in compliance with the guidelines for Aboriginal consultation. No responses were received.

On 22<sup>nd</sup> May ASR emailed Louise Robinson, CEO NHLALC, advising that some time had elapsed since the report had been sent to the stakeholders (the guidelines state there must be a minimum of 21 days that should be allowed for the stakeholders to respond), and requesting her to arrange a meeting of the community elders to discuss the issues.

Subsequently the meeting was held on 13<sup>th</sup> June at the Muurbay Language Centre. Louise had invited Mark Edwards; Victor Buchanan Snr; Merv Buchanan; Conway Edwards; Michael Jarrett, Gary Williams; Lustin Edwards; Dean Buchanan, Barry Buchanan, Terry Donovan and Larry Kelly to the meeting. However, other than Louise and Appleton (ASR) the only people to attend the meeting were Terry Donovan, Gary Williams and Michael Jarrett.

The conclusion of the three Aboriginal elders present was that there should be a “walk-over” of the proposed subdivision site with Mr Joe Saliba, Nambucca Gardens Estate, to discuss the issues. Louise said that she would arrange a date for the walkover with the other elders.

Subsequently Louise sent out invitations to the elders to attend the “walk-over” which was to take place at 2.30pm, on 20<sup>th</sup> June 2012. At the agreed time and place the following people assembled at the end of Marshall Way: Merv Buchanan; Gary Williams; Barry Phyball; Conway Edwards – NHLALC representative; and Joe Saliba – Nambucca Gardens Estate; Geoff Smyth of Geoff Smyth Consulting; Rob de Groot – de Groot & Benson P/L engineers engaged by Nambucca Gardens Estate; and John Appleton – ASR. The group waited until a few minutes before 3pm to allow others time to arrive, but when no-one else appeared they proceeded to discuss the issues.

The primary issue for the Aboriginal representatives was the proposed subdivision of the slopes immediately surrounding the existing buffer zone around the “Diamond Tree” and the proposed extension to Marshall Way linking the proposed subdivision on the northern slopes. While there were other issues of concern to the Aboriginal representatives they related to the future use of the Faringdon Playing Fields that is not part of the subdivision site.

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The Aboriginal representatives were concerned for development occurring too close to the 'Diamond Tree'. The meeting discussed an option allowing some development to proceed by way of allowing an extension to Alexandra Drive from the north to permit a row of residential lots on the western side of that road across land on the slopes surrounding the 'Diamond Tree' site. This option would require rear fencing or other screening of the lots and road from any view of the 'Diamond Tree' site.

The preferred option is for all of the residential land on the slopes surrounding the 'Diamond Tree' site and including any road link by way of an extension to Marshall Way or Alexandra Drive to be acquired by the NSW Office of Environment & Heritage for dedication as a buffer reserve to the 'Diamond Tree'. The Aboriginal representatives suggested that the Local Aboriginal Land Council may be able to contribute to the cost of acquisition.

It was explained to the Aboriginal representatives that the Marshall Way extension was proposed by the Council and while the connection offers a practical link to Bellwood & Nambucca Heads the proposed subdivision can have access limited to Alexandra Drive and to Nambucca Heads to the north.

ASR recommends that as a consequence of the field investigation of the site of the proposed subdivision of Lot 2, DP 1119830, and comprehensive consultation with the registered Aboriginal stakeholders and male elders of the Nambucca district Aboriginal Community, there are no grounds of an Aboriginal cultural nature that present a constraint to the proposed subdivision in principle; however the Aboriginal Elders have expressed concern as to the subdivision of the slopes immediately surrounding the reserve around the "Diamond Tree", and the proposed construction of a road extension to Marshall Way, and a bridge to carry the road over the creek.

By consensus the Aboriginal elders stated that their preferred option was for there to be no subdivision of those slopes around the "Diamond Tree" and that the road linking the proposed subdivision of the northern slopes and the bridge necessary to link that subdivision to Marshall Way should not go ahead. The meeting concluded that there were no other issues to address.

ASR recommends that the proponent should consider the preferred option of the Aboriginal stakeholders in its future plans for the subdivision of Lot 2, DP 1119839, Alexandra Drive, Bellwood. There are no archaeological constraints to the proposed subdivision.

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## 1. INTRODUCTION

This addendum should be read in conjunction with a previous report,

The archaeological investigation for sites of Indigenous cultural significance within Lot 2, DP 1119830, Alexandra Drive, Bellwood, annexed to the report prepared for Geoff Smyth Consulting on behalf of Nambucca Garden Estate and prepared by Archaeological Surveys & Reports Pty Ltd, December 2009.

In March 2012 Archaeological Surveys & Reports Pty Ltd (ASR) received a letter from Geoff Smyth Consulting (GSC) advising that a Development Application (DA) on behalf of Nambucca Gardens Estate had been lodged with Nambucca Shire Council (Council) for a 346 residential lot subdivision of Lot 2 DP 1119830, Alexandra Drive, Bellwood. Subsequently, independent consultants engaged by the Council had reviewed the DA and advised that the Aboriginal consultation that had taken place in 2009, no longer complied with the new consultation requirements for Aboriginal Archaeological Assessment, contained within NSW Department of Environment Climate Change & Water Guidelines (since replaced by Office of Environment & Heritage), *"Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010"*.

The letter went on to say, "The current Aboriginal Assessment has not demonstrated adequate consultation with relevant male Aboriginal elders and the Local Aboriginal Land Council".

GSC engaged ASR to address the issue of adequate Aboriginal consultation in compliance with *"Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010"*.

## 2. PREVIOUS CONSULTATION.

The residential subdivision of the subject land has been under consideration for some ten years during which time there have been various legislative changes to the requirements for a subdivision application in this coastal area. In particular, the Aboriginal consultation requirements have varied and several consultation procedures have been completed in respect to this site since 2002. The following is a summary of the consultation undertaken.



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## **2.1 Consultation in 2002**

In 2002 Archaeological Surveys & Reports Pty Ltd (ASR) was engaged by Faringdon Pty Ltd to undertake an archaeological investigation of Lot 101, DP 882258, Bellwood. In compliance with the guidelines and requirements for Aboriginal consultation applicable at that time, the field survey was undertaken with Mr Larry Kelly, ATSIC representative, Community Elder and Sites Officer for Nambucca Heads Local Aboriginal Land Council. Mr Kelly provided advice on the history of the “Diamond Tree”. In addition he advised that a burial had been disturbed further to the east down Swampy Creek and that he knew of no other Aboriginal sites in the area. Mr Kelly was not aware of the scarred tree found in the north west of the site (the tree had been scarred by the removal of bark with a steel axe, probably for the construction of a gunyah or shelter) [Appleton 2002]. Mr Kelly advised Appleton (ASR) that he would discuss the issue of the scarred tree with the other Elders. Subsequently ASR received a letter from Nambucca Heads LALC with the land council’s recommendations.

As a consequence of the investigation ASR recommended that the “gunyah” tree location should be set aside as a reserve within the subdivision to preserve the location from development, and Faringdon obliged by redesigning the conceptual layout of the proposed subdivision.

## **2.2 Consultation in 2009**

In 2005 the NSW Government introduced Part 3A to the Environmental Planning & Assessment Act 1979 that identified new procedures for development defined as ‘Major Projects’. The proposed subdivision was considered to be a Major Project to which Part 3A applied and required any application to address Environmental Assessment Requirements issued by the Director General of the Department of Planning as the consent authority was now the Minister for Planning.

Subsequently advertisements were placed in the “*Mid Coast Observer*” and “*Nambucca Guardian News*” in early June 2009, inviting all Aboriginal stakeholders with an interest in the project to register their interest. The only response to the advertisements was from Nambucca Heads LALC.

.....  
Also at the same time ASR wrote to the Office of the Registrar, ALRA asking for any information on the Aboriginal stakeholders with an interest in the area. ASR also wrote to Planning and Aboriginal Heritage – North East, DECC, and to Nambucca Shire Council requesting that they provide lists of registered stakeholders. As a consequence the following stakeholders were listed as interested stakeholders.

Nambucca Heads LALC  
Goori Broadcasters of Radio Nambucca Inc  
Gumbaynggirr Native Title Group  
Muurrbay Aboriginal Language and Cultural Co-operative Ltd  
Mimi Mothers Aboriginal Corporation  
Gumbaynggirr Elders  
Gumbaynggirr Nation  
Gumbaynggirr Warrior Elders of the Nambucca River  
Ngurrula Aboriginal Corporation  
Bowraville Aboriginal Lands Council  
Stuart Island Tribal Elders Corporation

Subsequently ASR wrote to each of the registered stakeholders (listed above) outlining the investigations that had taken place and advising them of the setting aside of the scarred tree location as a reserve. No response to the letter was received.

### **Consultation in December 2009**

The Director General's Environmental Assessment Requirements were formally issued on 4 November 2009 and required, among other things, the following:-

#### **8. Heritage and Archaeology**

8.1 Identify whether the site has significance to Aboriginal cultural heritage and nominate appropriate measures to preserve any significance. The assessment must address the information and consultation requirements of the draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DEC 2005) and *Interim Community Consultation Requirements for Applicants (DEC) 2004*. The EA should demonstrate that effective culturally appropriate community consultation with Aboriginal communities has been undertaken in assessment impacts, developing options and making final recommendation.

8.2 Identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area and describe strategies employed to avoid/minimize these impacts. If impacts on Aboriginal cultural values are proposed, an assessment of the regional significance of the values to be impacted, the extent to which these values are protected elsewhere in the landscape and consideration of the proposed impacts in the context of 'inter generational equity' should be undertaken.

Accordingly ASR was engaged to reassess the archaeological recommendation in consultation with all registered Aboriginal stakeholders in compliance with the new draft and interim guidelines.

In October 2009 the Department of Planning NSW (DoP) received an email from Louise Robinson setting out the concerns of the members of the land council.

As part of the Director-General's Environmental Assessment Requirements one of the issues to be addressed was the email sent by Nambucca Heads LALC to the DoP in October 2009.

The following is an extract from ASR report of December 2009:

"In November 2009 the proponent received the Director-General's Environmental Assessment Requirements which arose from the application for Part 3A approval.

One of the issues that were to be addressed was an email sent on 27<sup>th</sup> October 2009, to NSW Department of Planning from Louise Robinson, CEO, Nambucca Heads LALC, raising several issues of cultural concern. The issues can be categorised into three issues in-so-far-as they directly relate to the Project Site (the developers cannot be expected to address issues that are not directly related to the Project Site, such as burials along the creek banks, or sacred sites outside the Project Site):

1. The belief that the *Diamond Tree* will cause sickness (to Aboriginal residents in the proposed subdivision).
2. The claim that there are unlisted and unrecorded sites in the Project Site.
3. The desire for signage and the screening of men's sacred sites.

.....  
Subsequent to receiving a copy of the email on 10<sup>th</sup> November 2009, Appleton arranged a meeting with the community Elders to discuss the issues she had raised.

It was agreed that the Nambucca LALC would be responsible to ensure that the meeting was advertised. The date and time of the meeting was set down for 10.30am on 14<sup>th</sup> December 2009 at the Muurrbay Language Centre, Bellwood.

Two male Community Elders attended the meeting and the issues were discussed as follows.

**Issue 1: The *Diamond Tree* and its potential impact to residents of the proposed subdivision.**

Appleton suggested that Section 149 (2) of the Environmental Planning and Assessment Act 1979 (as amended) would address the issue of informing potential Aboriginal purchasers of residential blocks in the proposed subdivision.

Appleton explained that the issue of informing prospective purchasers of land in the proposed subdivision of the belief of the Aboriginal Community that Aboriginal people living within “*bull-roarer*” distance of the “*Diamond Tree*” would fall sick and that prospective Aboriginal purchasers should be made aware of the belief; and that the area was of high cultural significance to Aboriginal people, could be provided in the information contained in the Section 149 (2) Certificate as the recognised source of information that a prospective purchaser would obtain to purchasing a property when they made the title searches of the property as part of the Title Conveyancing process. Appleton suggested that the Elders might like to agree on the wording of the information that should be on the Section 149 (2) Certificate.

**Issue 2: The claim that there were unlisted and unrecorded sites in the Project Site.**

The land has been identified for residential subdivision since 1990 or earlier with investigations into Aboriginal archaeology of the subdivision area beginning in 2002. Since that time there have been no additional sites registered (on the AHIMS) site register.

The only burial site was mentioned some years ago and Appleton was told that skeletal material had been unearthed some years previously during earthworks near the creek further downstream

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from the proposed development – see Appo 1995 in Section 4, page 15. This issue could not be discussed as the two Aboriginal elders said there were not sufficient Elders present to discuss it.

### **Issue 3: The signage and screening of men's sacred sites.**

As to the "sacred sites" (men's sites) and the signage of these sites it is not possible to provide further clarification as there were insufficient elders present at the meeting to discuss the issue, the location and nature of those sites is not known. It should be noted that there were no unlisted sites ever recorded by the late Ray Kelly, a Knowledge Holder who spent many years as a Cultural Officer with NPWS, recording sites all over the northeast coast, hinterland and Northern Tablelands; sites including "sacred sites" and ceremonial sites, and places of 'men's business'. Having worked with Mr Kelly for a number of years Appleton found him to be a person who believed it was important to record all site types to ensure that development could be designed to mitigate damage to, or avoid sites altogether.

The two Elders then said that the matter could only be discussed when the other Elders were present. Appleton agreed to extend his stay in Nambucca until the afternoon and the Elders requested a new meeting at 2pm.

Appleton attended the 2pm meeting at the Muurrbay Language Centre, however, no others attended.

## **3 RECENT CONSULTATION**

### **3.1 Consultation on 14<sup>th</sup> June 2012**

In 2011 the NSW Government amended the requirements for projects under Part 3A of the Environmental Planning & Assessment Act 1979 and in July 2011 the subdivision was declared to be one that Part 3A no longer applied. On this basis the subdivision was now one for the Council to consider and for the consent authority to be the Joint Regional Planning Panel.

In 2010 new requirements for Aboriginal cultural heritage consultation were introduced.

.....  
In February 2012 Council engaged All About Planning Pty Ltd (AAP) to undertake an assessment of **“Development Application No. 2012/011, 346 Lot Residential Subdivision Plus Residue and Associated Works – Staged, Lot 2, DP 1119830 Alexandra Drive, Nambucca Heads”**. AAP subsequently informed the proponent that the Aboriginal consultation that had taken place in 2009 no longer met the requirements of **“Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010”**, and the “current Archaeological Assessment has not demonstrated adequate consultation with relevant male Aboriginal elders and the Local Aboriginal Land Council”.

The proponent’s representative, GSC, instructed ASR to address the issue.

Accordingly on 2<sup>nd</sup> March 2012 ASR wrote to Office of the Secretary ALRA; National Native Title Tribunal; OE&H; Nambucca Shire Council; Northern Rivers CMA; Nambucca Heads LALC; NSW & ACT Registry; and NTSCorp requesting that they provide lists of all registered Aboriginal stakeholders for the Nambucca area (a copy of the letter is included as **Appendix i**).

Subsequently the following stakeholders were identified:

Merv Buchanan  
Garby Elders  
Garlambirla Guuyu-girrwa Aboriginal Corporation  
Mudjay Elders  
Bagawa Birra Murri Aboriginal Corporation  
Yarrowarra Aboriginal Corporation  
Mimi Mothers Aboriginal Corporation  
Muurrbay Aboriginal Language & Cultural Co-operative Limited  
Gumbaynggirr Native Title Group  
Ciaron Dunn  
Gumbaynggirr Elders  
Ngurralla Aboriginal Corporation  
Uncle Thomas Kelly & Family  
DFTV Enterprises  
Nambucca Heads LALC  
Unkya LALC  
Stuart Island Tribal Elders Group  
Bowraville LALC

On the same date ASR placed advertisements in the “Nambucca Guardian News”(published on 8<sup>th</sup> March 2012) inviting all Aboriginal stakeholders with an interest in the project to register their interest (a copy of the advertisement is included as **Appendix ii**). The only responses received were from NHLALC and Mr Merv Buchanan.

On 7<sup>th</sup> April 2012, ASR wrote to each of the above stakeholders, enclosing a full copy of the 2009 report, and inviting them to provide a written response to the report so that it could be attached as an addendum to the report in compliance with the guidelines for Aboriginal consultation (a copy of the letter is included as **Appendix iii**). No responses were received.

The proponent’s representative, GSC instructed ASR to pursue further attempts to consult with the Aboriginal stakeholders.

On 22<sup>nd</sup> May ASR emailed Louise Robinson, CEO NHLALC, advising that some time had elapsed since the report had been sent to the stakeholders (the guidelines state there must be a minimum of 21 days that should be allowed for the stakeholders to respond), and requesting her to arrange a meeting of the community elders to discuss the issues.

On 28<sup>th</sup> May Louise responded and asked for a preferred date for the meeting. Because of previous commitments ASR proposed that the meeting should take place on “any day from 6<sup>th</sup> June to 14<sup>th</sup> June”. Louise proposed that to give her time to notify all those who she thought should be included in the meeting that it should be on 13<sup>th</sup> June. Subsequently the meeting was held on 13<sup>th</sup> June at the Muurbay Language Centre. Louise had invited Mark Edwards; Victor Buchanan Snr; Merv Buchanan; Conway Edwards; Michael Jarrett, Gary Williams; Lustin Edwards; Dean Buchanan, Barry Buchanan, Terry Donovan and Larry Kelly to the meeting.

However, other than Louise and Appleton (ASR) the only people to attend the meeting were Terry Donovan, Gary Williams and Michael Jarrett.

There was some discussion as to the cultural issues relating to the “Diamond Tree” and the proposed lots on the knoll on which the “Diamond Tree” occurs, and the location of the proposed bridge across the creek linking the proposed subdivision on the northern slopes to Marshall Way.

The conclusion of the three Aboriginal elders present was that there should be a “walk-over” of the proposed subdivision site with Mr Joe Saliba, Nambucca Gardens Estate, to discuss the issues. Louise said that she would arrange a date for the walkover with the other elders.



.....  
Subsequently Louise sent out invitations to the elders to attend the “walk-over” which was to take place at 2.30pm, on 20<sup>th</sup> June 2012.

### **3.2 Consultation on 20<sup>th</sup> June 2012**

On 20<sup>th</sup> June the following people assembled at the agreed meeting place at the end of Marshall Way: Merv Buchanan; Gary Williams; Barry Phyball; Conway Edwards – NHLALC representative; and Joe Saliba – Nambucca Gardens Estate; Geoff Smyth of Geoff Smyth Consulting; Rob de Groot – de Groot & Benson P/L engineer engaged by Nambucca Gardens Estate; and John Appleton – ASR. The group waited until a few minutes before 3pm to allow others time to arrive, but when no-one else appeared they proceeded to discuss the issues.

The primary issue for the Aboriginal representatives was the proposed subdivision of the slopes immediately surrounding the existing buffer zone around the “Diamond Tree” and the proposed linking the proposed subdivision on the northern slopes to Marshall Way. While there were other issues of concern to the Aboriginal representatives they related to the future use of the Faringdon Playing Fields that is not part of the subdivision land.

The Aboriginal representatives were concerned for development occurring too close to the ‘Diamond Tree’. The meeting discussed an option of allowing some development to proceed by way of allowing an extension to Alexandra Drive from the north to permit a row of residential lots on the western side of that road across land on the slopes surrounding the ‘Diamond Tree’ site. This option would require rear fencing or other screening of the lots and road from any view of the ‘Diamond Tree’ site.

The preferred option is for all of the residential land on the slopes surrounding the ‘Diamond Tree’ site and including any road link by way of an extension to Marshall Way or Alexandra Drive to be acquired by the NSW Office of Environment & Heritage for dedication as a buffer reserve to the ‘Diamond Tree’. The Aboriginal representatives suggested that the Local Aboriginal Land Council may be able to contribute to the cost of acquisition.

It was explained to the Aboriginal representatives that the Marshall Way extension was proposed by the Council and while the connection offers a practical link to Bellwood & Nambucca Heads

.....  
the proposed subdivision can have access limited to Alexandra Drive and to Nambucca Heads to the north.

## **4 CONCLUSION**

The archaeological investigations of the project site in 2002 and 2009 have resulted in a scarred tree and the 'diamond tree' being recorded. At no time during the investigation were any other sites found. Also, no additional sites were found in a search of the Aboriginal Heritage Information Management System (Site Register).

Mr Harry Buchanan a well respected initiated Elder and authority on the "Diamond Tree", and his colleague Terry Donovan together reported in 1976, "20 sites of historic or sacred significance" of which Mr Buchanan only made mention of the "Diamond Tree" and the burials of 2 tribal elders in a sand bank along Swamp Creek to the east of this subdivision site. Mr Kelly was told by Mr Russell Walker that the area had been farmed for 30 years. Mr Kelly wrote that, "...the old initiated men of 30 years ago most certainly would not have allowed the farming to proceed" (*if there had been any sacred sites*). (Kelly 24/8/90).

As a consequence of Aboriginal consultation in 2002, 2009, and 2012 (Appleton - ASR), there has been ample opportunity afforded the Aboriginal community to be involved in the consultation process. The relevant statutory consultation requirements applicable at the time have been adhered to in each consultation process that were relevant at the time.

As a result of the field investigation and after extensive consultation with Aboriginal stakeholders ASR concludes that there are no other sites within the footprint of the proposed subdivision other than the previously recorded scarred tree, the location of which is to be set aside as a reserve.

## **5 RECOMMENDATIONS**

ASR recommends that as a consequence of the field investigation of the site of the proposed subdivision of Lot 2, DP 1119830, and comprehensive consultation with the registered Aboriginal stakeholders and male elders of the Nambucca district Aboriginal Community, there are no

.....  
grounds of an Aboriginal cultural nature that present a constraint to the proposed subdivision in principle; however the Aboriginal Elders have expressed concern as to the subdivision of the slopes immediately surrounding the reserve around the "Diamond Tree", and the proposed construction of a road extension to Marshall Way.

By consensus the Aboriginal elders stated that their preferred option was for there to be no subdivision of those slopes around the "Diamond Tree" and that the road linking the proposed subdivision of the northern slopes to Marshall Way should not go ahead. The meeting concluded that there were no other issues to address.

ASR recommends that the proponent should consider the preferred option of the Aboriginal stakeholders in its future plans for the subdivision of Lot 2, DP 1119839, Alexandra Drive, Bellwood. There are no archaeological constraints to the proposed subdivision.

---

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## **Appendices**

**Appendix i – Letter to government departments and agencies, 2<sup>nd</sup> March 2012.**

**Appendix ii – Advertisement in the “Guardian News”, 8<sup>th</sup> March 2012**

**Appendix iii – Letter to stakeholders, 7<sup>th</sup> April 2012.**

[Appendix i – Letter to government departments and agencies, 2<sup>nd</sup> March 2012.](#)

**Archaeological  
Surveys  
&  
Reports  
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ABN 67 075 625 722

.....  
The Chairperson: Nambucca Heads LALC  
PO Box 358  
Nambucca Heads 2448

2<sup>nd</sup> March 2012

Dear Sir/Madam

Re: Archaeological assessment:  
Proposed subdivision, Alexandra Drive, Bellwood

In 2002 an archaeological investigation was undertaken for a proposed subdivision of Lot 101, DP 882258, Alexandra Drive, Bellwood with the Nambucca Heads LALC. Subsequently in the following years further consultation occurred with Aboriginal representatives with an interest in the project.


In February 2012 a Development Application for the proposed residential subdivision was lodged with Council; however, as a consequence of the introduction of "Aboriginal Cultural Heritage Consultation Requirements for Proponents, (OE&H) 2010" the proponents are now required to show evidence of consultation with all registered Aboriginal stakeholders. In accordance with the new guidelines all Aboriginal stakeholders with an interest in the area are invited to register their interest in the project.

We are now seeking information on any Aboriginal groups, stakeholders or traditional knowledge holders with an interest in the management of Indigenous heritage matters in the Nambucca/Bellwood area. Would you please provide contact details for any known Aboriginal groups with a cultural interest in this area. The nominated groups can then be included in the consultation process with regard to Indigenous heritage issues.

Regards



**Appendix ii – Advertisement in the “Guardian News”, 8<sup>th</sup> March 2012**

<b>500</b> four car alive	<b>BOX TRAILERS</b> Large range in stock from \$799. Immediate rego <b>Kempsey Caravan &amp; Trailer Centre 65621444</b> <b>NEW TRAILERS</b> 7x4 L/D \$800, 7x4 \$920, 7x5 \$1100, 8x5 \$1200 + rego 65627235 0448685469	<b>BOATS &amp; MARINE</b> PH 65668204 <b>'11 WAVERUNNER</b> FXSHO 300HP Jetski, does 80MPH, mods by dealership \$19500 0413149973 <b>BOAT &amp; PWC LICENCES</b> All in 1 Day-No Log Book Next Course Pt Macq. April 1 Australian Boating College Tel: 0424014560	<b>FRESH CUT GRASS</b> pasture hay stock up now for winter \$6 bale mulch hay \$4 can arrange deliv- ery 40+ 65674285	<b>BORDER COLLIE X</b> Kelpie pups, 2M, 4 F/M inc vacc & m/chip \$250 PH 0410566530	<b>FULLY</b> 1B/D ur 2 Hat lease 04
<b>RAIL ST '04</b> tras, 159K 1,000 ono	<b>CARAVANS, TRAILERS &amp; ACC</b> <b>BARGAIN</b> Brand new camper trailers, Oztrail top, 6x4 h/d trailer, with kitchen, incl. rego only \$3795. Ph 65621444 <b>CAMPER TRAILER 2011</b> Gulf King offroad, family size tent on bed & awning full annex 12mths rego as new \$6950 65631507	<b>PUBLIC NOTICES</b> <b>ABORIGINAL CONSULTATION:</b> <b>Alexandra Drive, BELLWOOD</b> In 2002 an archaeological investigation was undertaken for a proposed subdivision of Lot 101, DP 882258, Alexandra Drive, Bellwood with the Nambucca Heads LALC. Subsequently in the following years further consultation occurred with Aboriginal representatives with an interest in the project. In February 2012 a Development Application for the proposed residential subdivision was lodged with Council; however, as a consequence of the introduction of "Aboriginal Cultural Heritage Consultation Requirements for Proponents, (OE&H) 2010" the proponents are now required to show evidence of consultation with all registered Aboriginal stakeholders. In accordance with the new guidelines all Aboriginal stakeholders with an interest in the area are invited to register their interest in the project. Please register your interest within 14 days with: John Appleton, Archaeological Surveys & Reports Pty Ltd, Tel. 02 6772 6512; Fax. 02 6772 4567; Mob. 0428 651 789 email: japples@northnet.com.au	<b>LIVESTOCK</b> <b>AAA HORSE BUYER</b> John Scott, all types of horses, top money paid. 65615037 or 0417921723	<b>PUBLIC NOTICES</b> <b>PRIVACY POLICY</b> Rural Press Limited and its as- sociated entities (Rural Press) collect personal info- rmation in providing goods and services. 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Where Rural Press accepts an advertisement for publi- cation, it does so on the basis that the advertisement is the property of Rural Press, and Rural Press may, at its discretion, use the advertisement in any way, including publishing it in any other Rural Press publication or on any other media. The Advertiser agrees to transfer all rights, title, and interest in the advertisement to Rural Press upon acceptance for publication. 4. Where Rural Press accepts an advertisement for publi- cation, it does so on the basis that the advertisement is the property of Rural Press, and Rural Press may, at its discretion, use the advertisement in any way, including publishing it in any other Rural Press publication or on any other media. The Advertiser agrees to transfer all rights, title, and interest in the advertisement to Rural Press upon acceptance for publication. 5. 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<b>PUBLIC NOTICES</b>  <b>Health</b> Mid North Coast Local Health District <b>Public Notice</b> Members of the Public are invited to the					

**Appendix iii – Letter to stakeholders, 7<sup>th</sup> April 2012.**

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Email [japples@northnet.com.au](mailto:japples@northnet.com.au)

CEO/Chairperson/registered stakeholders

7<sup>th</sup> April 2012

Dear Sir/Madam

Re: Archaeological assessment:

Proposed subdivision, Marshall Way & Alexandra Drive, Bellwood

In 2002 an archaeological investigation was undertaken for a proposed subdivision of Lot 2, DP 1119830, Alexandra Drive, Bellwood with Nambucca Heads LALC. Subsequently in the following years further consultation occurred with Aboriginal representatives with an interest in the project.

In February 2012 a Development Application for the proposed residential subdivision was lodged with Council; however, as a consequence of the introduction of "Aboriginal Cultural Heritage Consultation Requirements for Proponents, (OE&H) 2010" the proponents are now required to show evidence of consultation with all registered Aboriginal stakeholders. In accordance with the new guidelines all Aboriginal stakeholders with an interest in the area were invited to register their interest in the project.

Consequently on 2<sup>nd</sup> March 2012 an advertisement was placed in the "Guardian News" inviting all Aboriginal stakeholders with an interest in the project to register their interest within 14 days (as per the new guidelines). On the same date I wrote to Secretary to the Registrar, ALRA; National Native Title Tribunal, South East & Central Registry; OE&H (formerly DECCW); Nambucca Shire Council; Northern Rivers Catchment Management Authority; Nambucca Heads LALC; NSW & ACT Registry; and NTSCorp; requesting that they provide me with a list of all registered Aboriginal stakeholders for the Nambucca area.

1



As a consequence eighteen stakeholders were identified, some of whom may not identify with Bellwood, however I am now required to send each of you a copy of the 2009 report for you to review and provide any comments of a cultural nature that are directly relevant to the proposed subdivision.

As I previously attempted to call a meeting of interested stakeholders without success and as I am well aware that there is strong opposition to the proposed subdivision on cultural grounds I do not consider that holding a meeting now would resolve the situation. So in order for you to express your comments this is to invite each of you with an interest in the project to provide a written response to the report so that I can attach them as an addendum to the report in compliance with the guidelines for Aboriginal consultation.

The guidelines state that you have a minimum of 21 days in which to respond.

Regards

Copies of this report were sent to the following registered stakeholders (in no particular order):

Merv Buchanan  
Garby Elders  
Garlambirla Guuyu-girrwa Aboriginal Corporation  
Mudjay Elders  
Bagawa Birra Murri Aboriginal Corporation  
Yarrowarra Aboriginal Corporation  
Mimi Mothers Aboriginal Corporation  
Muurrbay Aboriginal Language & Cultural Co-operative Limited  
Gumbaynggirr Native Title Group  
Ciaron Dunn  
Gumbaynggirr Elders  
Ngurrula Aboriginal Corporation  
Uncle Thomas Kelly & Family  
DFTV Enterprises  
Nambucca Heads LALC  
Unkya LALC  
Stuart Island Tribal Elders Group  
Bowraville LALC

# ANNEXURE H

## Socio-Economic Assessment by Keiley Hunter

# Socio-Economic Assessment

Nambucca Gardens Estate  
Staged Residential Subdivision  
Alexandra Drive, Bellwood

Prepared for: Geoff Smyth Consulting  
Date: June 2012

**Keiley Hunter**

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# Executive Summary

This addendum to the Socio-Economic Assessment (October 2010) was prepared for Geoff Smyth Consulting in response to a request for further information for the assessment of DA 2012/11 Residential Subdivision Lot 2 DP 119830, Alexandra Drive, Bellwood.

The additional information is required to address the following matters:

1. *A Social Profile of existing residents in the area and anticipated new residents.*
2. *Access to facilities and services by both existing and proposed new residents of the area.*
3. *The social costs and benefits of the future planned Link Road to both existing and proposed new residents*
4. *Whether there is a social need for the Link Rd with detailed justifications provided for the conclusions reached.*
5. *How to achieve a good level of connectivity between the proposed residential subdivision and existing facilities and services in the area.*
6. *Local bicycle and pedestrian network priorities for the new residential subdivision.*
7. *An Open Space and Needs Analysis for the proposed residential subdivision, including desired local park designs (younger or older children to predominate).*
8. *The need or otherwise for both the Faringdon Fields redevelopment and the proposed small pocket parks as detailed in the submitted Landscape Architects report/plans.*
9. *Social implications stemming from the cultural sensitivities of the local Aboriginal community about the Diamond Tree and the inability of women and children under Aboriginal cultural law to use Faringdon Fields and the surrounding area which are within hearing distance of a Bull Roarer.*
10. *An analysis of the proposed new community's need for community meeting space.*

The matters listed above are addressed in the following report.

It is considered that the proposed Nambucca Gardens Estate will contribute a much needed population base to stimulate the economic development of the Bellwood commercial precinct. This relationship is largely dependent on the construction of the 'link road' between Marshalls Way and Alexandra Drive.

The 'link road' passes close to an area of particular Aboriginal cultural sensitivity and it has been suggested during consultation with the Aboriginal community that this land should be acquired as a reserve by the relevant authorities. The creation of a reserve in this area may impact on Councils plans for the 'link road', permanently isolating the two areas. This would significantly reduce the viability of planned expansion of commercial services in the Bellwood area.

The connection to the Marshall Way 'link road' has been shown on the Landscape Master Plan for the Nambucca Gardens Estate, however it is not part of the proposed development. Although the preferred option of the developers is for this 'link road' to eventually be constructed, Nambucca Gardens Estate has access via Alexandra Drive and

Old Coast Road to the northern area Nambucca Heads and does not rely on the 'link road' for the development.

It is clear and well understood by all stakeholders to this development that the significance of the Aboriginal cultural items in this area is profound. This has implications regarding the use of the Faringdon Playing Fields and the 'link road' connection mentioned above.

The following report documents the additional information requested in order to complete the development assessment for this proposal. The social profile of the area is generally consistent with previous observations in that the area comprises a high proportion of older people and there is a low participation in the workforce.

The eventual population of the Nambucca Gardens Estate will not place an unreasonable burden on local community services and facilities, other than, the perpetual problem in regional areas of attracting sufficient private General Practitioners to service local areas.

One of the key housing issues for Nambucca and other regional areas is a lack of housing diversity. The overwhelming majority of housing stock in the Nambucca area comprises single dwellings of three or more bedrooms, whereas, the occupancy rate in Nambucca is only 2.36 persons per dwelling. There will be opportunities with the Nambucca Gardens Estate to consolidate lots for the provision of medium density housing in the future.

Overall the Nambucca Gardens Estate is well located in terms of connectivity with services. There are two schools and sporting fields located 2kms away in Centenary Drive and a full range of urban services in the Nambucca Heads CBD approximately 3.5 kms away from the site. A future connection via the Marshalls Way 'link road' to Bellwood would be beneficial in terms of increased connectivity and access to a wider range of services and the Pacific Highway south. However, this connection must be made in consideration of impacts to cultural sensitivities surrounding the Diamond Tree from any road connection that would cause overlooking of the area or bring people too close to the site.

# Introduction

## 1.1 Purpose

The purpose of a Social Impact Assessment is to predict the impact of a development or land use change and to recommend how any negative outcomes of that development may be mitigated, minimised or completely resolved.

The purpose of this addendum to the Nambucca Gardens Estate Socio-Economic Impact Assessment is to better understand how impacts from the proposed subdivision to create 346 residential lots will positively or negatively impact on the existing social structure of the surrounding area.

## 1.2 Consultation

This addendum was prepared following consultation with:

- Louise Robertson, CEO, Nambucca Heads Local Aboriginal Land Council
- Wayne Lowe, Manager Business Development, Nambucca Shire Council,
- Grant Nelson, Strategic Planner, Nambucca Shire Council
- John Appleton, Archaeological Surveys & Reports P/L
- Sergeant Wayne Sainsbury, NSW Police Force;
- Vicki Hernance, Aboriginal Community Development Officer, Nambucca Shire Council
- Tracy Mills, Bawrunge Aboriginal Medical Centre
- Kerry Lampe and Artie Snoek, Life Without Barriers
- Jackie Amos, Landscape Architect

## 1.3 Further Information

Should Council require any additional information, or wish to clarify any matter raised by this proposal, please contact **Keiley Hunter** on 0458 515963 or email [keileyh@bigpond.net.au](mailto:keileyh@bigpond.net.au).

## Social Profile

### 2.1 Introduction

A community profile was provided in Section 3 of the Nambucca Gardens Estate Socio-Economic Assessment (October 2010) based on Australian Bureau of Statistics (ABS) 2006 Census data. Currently, there is no 2011 Census data available, other than at a State or National level.

The following social profile updates the information previously provided. This section provides later profiling data for the whole of the Nambucca Local Government Area (LGA) followed by an analysis of Census 2006 data for the two census collection districts (CDs) immediately surrounding the site. Data sources include:

1. NSW Family & Community Services (Housing NSW) Housing Market Analysis 2011 (prepared using 2006 and 2001 census data).
2. NSW Family & Community Services (Housing NSW) 'Developing your own housing strategy' ([www.housing.nsw.gov.au/Centre+For+Affordable+Housing](http://www.housing.nsw.gov.au/Centre+For+Affordable+Housing)).
3. Nambucca Shire Council (NSC) Community Strategic Plan (Our Society and People) February 2011 based on 2006 census data
4. Local Government Area characteristics – using the Nambucca Community Strategic Plan – Our Society and People and Housing NSW Housing Market Analysis 2011 findings;
5. Bellwood area Census 2006 collection districts (CDs) located within and adjacent to the Nambucca Gardens Estate subdivision area.

### 2.2 NSC Community Strategic Plan – Our Society and People

Key findings for the Nambucca local government area (LGA) based on 2006 data are as follows. The full report is found at Appendix A.

#### Population

- The population of Nambucca LGA in 2006 was 17,991, predicted to rise to 27,934 people in 2051.
- Nambucca Shire Council predicts an annual growth rate of 1%.
- The median age for the population of Nambucca LGA is 46, compared to the median age for Australia of 37, and 43 for the Mid North Coast. There is a higher proportion of older people in Nambucca.

- There are a high proportion of older people in Nambucca – 22.6% of the population are 65 years or over compared to 13.35 for Australia.
- There are fewer ‘workforce’ aged people in Nambucca than the rest of Australia – 34.1% of the LGA population are aged 25 to 54 years compared to 42.2% for Australia.

#### **Population Groups**

- Children – a decreasing population.
- Significant number of one parent families - 32.1% couple families with children, 47.8% couple families without children, and 18.7% one parent families.
- People from culturally and linguistically diverse backgrounds – not a significant number of people; very varied population who tend to be long-term residents
- People with disabilities – results are affected by the age of the population generally – older population will yield a greater percentage of people with disabilities.
- Women – an ageing population and large number of widows.
- Young people – number remained similar over 20 years, however the proportion is decreasing.
- The Local Government and Shires Associations of NSW estimate that by 2018, around 6,400 or 1/3 of the Shire’s population will be aged 65 years or older and that 3,600 of this group will be 65-75 years of age.

#### **Indigenous Population**

- Aboriginal and Torres Strait Islander peoples – 5.7% of the LGA population compared to 2.3% for Australia.
- The median age of the indigenous population is 17 compared to 47 for the rest of Australia.
- Unemployment rate of 34.8%.
- Median individual income (for town of Nambucca) \$302 pw compared to \$642 pw for the total population of the Nambucca LGA.
- Indigenous people are under-represented in the 65+ age group.

#### **Older People**

- By 2021, the proportion of people aged over 65 in the Nambucca LGA will be 34% (one third of the population).
- Most seniors rely on a pension as their major source of income.
- Many seniors live alone.

#### **People with Disabilities**

- 7% of the LGA population reported (Census 2006) that they had a need for assistance due to profound disability.
- NSW Ageing, Disability and Home Care estimate that 22% of the population has a disability.
- Disability increases with an ageing population.



#### **People from Culturally Diverse Backgrounds**

- The vast majority (64%) of the LGA population who report being born overseas in the 2006 census were born in either the UK or New Zealand.
- There is a very small population of people who were born overseas in a non-English speaking country – 2.9%.

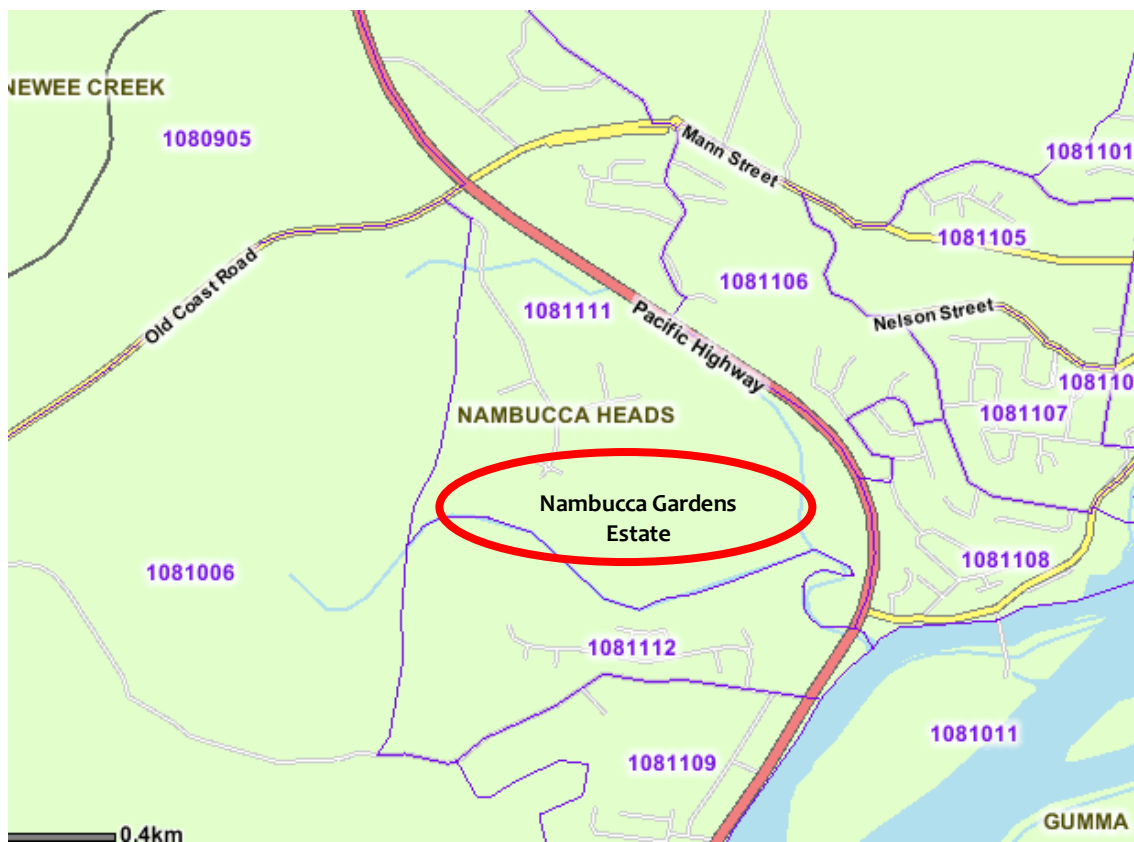
### **2.3 Local Social Profile**

The following social profile provides a general description of the social characteristics of the surrounding neighbourhoods who may be affected by the proposed subdivision. Basic Community Profile data from Census collection districts (CD) 1081111 and 1081112 (refer to Illustration 2.1 below) has been combined and analysed to provide a description of the social characteristics of the people of the surrounding area.

CD 1081111 comprises a 1.9 km<sup>2</sup> area of land to the north of the Nambucca Gardens Estate consisting of the 'Palmwoods' residential estate and a rural residential area off the northern end of Alexandra Drive. CD 108111 also includes industrial, recreational and residential land (off Centenary Parade) on the eastern side of the Pacific Highway north of the development site. People residing on the eastern side of the Pacific Highway are not considered to be affected by the proposal.

CD 1081112 comprises the 0.7 km<sup>2</sup> of land south of the subject site along Marshall Way, including the Bellwood commercial area, Faringdon retirement village and Faringdon playing fields.

Illustration 2.1: Census collection districts



Source: ABS 2012

It is already known from previous assessments that the population of Nambucca is growing slowly and is aging. Richard Cardew in the *Valla Community Needs Assessment* (April 2011) found there is a strong pattern of outmigration of young from the LGA. There are some net migration gains amongst the middle aged and retirees, however, the increase in the 75 plus age group is largely due to the ageing of the population in-situ rather than recent net migration in the past decade.

Data from the two CDs have been combined to provide a social profile of the area closest to the development site. Key findings of this profile are:

1. Median age varies – northern area 47, southern area 68. Consistent with younger family groups in the Palmwoods and Alexandra Drive rural/residential area and the retirement community at Bellwood.
2. Character varies between north and south – family values north; mix of families and retirement community to the south. A much higher proportion of families with children in the northern CD.
3. High proportion of people who do not participate in the labour force within the southern CD.
4. Household incomes were higher in the northern CD than the southern CD however, housing loan repayments were significantly higher in the southern CD, indicating a much higher level of household debt and reduced capacity to make repayments.

This is consistent with higher levels of housing stress experienced in the Bellwood area.

The social profile of the Bellwood community (both north and south) does not differ significantly from the rest of the Nambucca Heads urban centre (census locality).

#### **Selected Medians and Averages**

The following table of selected medians and averages for the study area demonstrates the variations in basic social structure that can occur within a single area. The northern and southern areas of Bellwood are distinctly different in character and social profile. The northern CD (1081111) comprises low density and rural residential development with a small area of industrial uses on the eastern side of the Pacific Highway. The southern CD (1081112) has a mix of densities ranging from low density single dwellings to the closely settled Faringdon Village retirement

The proposed subdivision is located almost entirely in the northern CD area and would share similar characteristics with that area when fully developed.

**Table 2.1 Selected Medians and Averages**

	North (1081111)	CD	South CD (1081112)	Nambucca LGA
Median age of persons	47		68	46*
Median individual income	\$283/week		\$253/week	
Median family income	\$627/week		\$526/week	
Median household income	\$557/week		\$406/week	
Median housing loan repayment	\$945/month		\$1,409/month	
Median rent	\$117/week		\$100/week	
Average number of persons per bedroom	1.1		1	
Average household size	2.4		1.6	2.36

Source: ABS Census 2006 \* NSC Community Strategic Plan – Our society and People

#### **Population overview**

The usual resident population of the combined CDs is 1,109 people. The population grew from 1019 people in 2001 - a rate of approximately 1.6 % per annum. By comparison, the population of all NSW coastal LGAs combined grew by 1.3% between June 2008 and June 2009.

One of the reasons for the above average population growth during this period was the release of the first stage of the Marshall Estate in 2003.

The Council's Community Strategy Plan provides predictions of medium and high population projections for the Nambucca LGA. Adopting the medium range, it is predicted that growth in the LGA will increase by 1% each year.

**Table 2.2 Population Growth**

Year	Males	Females	Indigenous persons	Total
2001	488	531	6.1% (62 people)	1,019
2006	508	601	8.3% (92 people)	1,109
% growth	0.8 % pa	2.33 % pa	6.5%	1.6 % pa

By comparison, the fastest population growth occurred in Tweed with an increase of 2.0%, followed by Clarence Valley on the mid-north coast. Byron on the far north coast all grew by 1.5%

### Age Profile

The age profiles for the two CDs in 2001 and 2006 are shown in Table 2.2 below. These figures reflect the trend of coastal locations as popular retirement destinations and the relatively low numbers of younger people is consistent with an aging population.

**Table 2.3 Age Structure**

Age Group	2006	%	Nambucca LGA 2006
0-4 years	51	4.6	5.5
5-14 years	86	7.7	13.2
15-24 years	70	6.3	10.0
25-54 years	255	23.1	34.1
55-64 years	168	15.1	14.6
65 years & over	479	43.2	22.6
Median Age	55 to 64*		46
Median Age Indigenous Population			17
<b>TOTAL</b>	<b>1109</b>		

Source: ABS Census Community Profile

\*combined median for both CDs.

The Age Structure table above indicates that, within the study area, there are significantly less school age children and significantly more people of retirement age than the rest of the Nambucca LGA. The proportion of retirement aged people in Bellwood is significantly higher than the state average because the southern CD captures the Faringdon retirement village.

### Ethnicity

The population of the Bellwood areas comprises the following proportions of people from various Countries of origin:

**Northern CD:**

41% Australian  
31% English  
8% Scottish  
2% Aboriginal Australian

**Southern CD:**

36% English  
31% Australian  
9% Scottish  
2% Aboriginal Australian

This data was derived from the 2006 Census, where the question elicited a multi-response answer that resulted in a table of the most common ancestry responses. This data is imperfect in that a respondent may have stated that they were of English ancestry when in fact they and their parents were Australian born. Similarly many people of Aboriginal ancestry may have (correctly) stated they were of Australian ancestry.

The NSW Family & Community Services (Housing NSW) found that Indigenous people represent 5.7% of the total population in the Nambucca local government area, compared with 4.7% on average for non-metropolitan NSW.

**Household Composition**

The majority of households in the northern CD (1081111) comprise 2 person 'family' households. (ABS 2006 Census Community Profile), however the southern CD (1081112) comprises a majority of one person households (51%), reflecting the presence of the retirement village.

**Housing Type (Dwelling Structure)**

In 2006 detached housing comprised between 67% and 72% of the Bellwood area private occupied housing stock which is equivalent to the state average. Medium density type housing, (semi-detached, units and apartments), made up only 9% of the stock in the northern CD reflecting the low density / rural residential character of the area.

Medium density housing made up 26% of the housing stock in the south Bellwood CD reflecting the presence of the retirement village. This was also reflected in the high number of "other dwellings" which comprise the relocatable homes located within the retirement village.

The southern part of the study area (CD 1081112) was more consistent with the housing structure across the state.

**Table 2.4 Dwelling Type / NSW Comparison**

Dwelling Type	CD North (1081111)	%	CD South (1081112)	%	NSW 2006 %
Total Private Dwellings (including unoccupied dwellings)	188		374		
Separate house	136	72%	250	67%	69.7%
Flat, unit, townhouse or apartment	16	9%	98	26%	28.8%

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Dwelling Type	CD North (1081111)	%	CD South (1081112)	%	NSW 2006 %
Other dwellings	36*	19%	26	7%	1.4%
One vehicle per private dwelling		45%		63%	
Tenure: Fully owned or mortgaged		70%		57%	63.4%

Source: ABS Census

\* Faringdon Village relocatable homes.

### Employment Status

The labour force participation rate for Bellwood was significantly lower than the state average as would be expected for an area with a high proportion of retirement aged people. Bellwood has a higher unemployment rate than the rest of the Nambucca LGA and a significantly higher unemployment rate than the rest of NSW.

Note that the labour force participation rate is the percentage of working-age persons who are employed or who are unemployed but looking for a job. Typically "working-age persons" is defined as people between the ages of 16-64.

**Table 2.5 Labour Force Profile**

	Male	Female	NSW	Nambucca LGA
Total labour force (persons over 15)	437	529	-	
Not in the labour force	315	409	-	
Participation rate	28%	23%	60.2%	46%
Employed	95	102	-	
Unemployed	27	18	-	
Unemployment Rate (%)	22%	15%	5.0%	17.7%

Source: ABS Census and Nambucca Shire Economic Profile

### Family Composition

Family Composition data (Table 2.6) indicates that there are significantly more families with children in the northern CD than the southern CD and a higher proportion of families with children than the rest of Nambucca. The Alexandra Drive area is more consistent in family composition with the rest of NSW. The southern CD (Bellwood) has a much higher proportion on families without children which is consistent with the presence of the retirement village.

**Table 2.6      Family Composition**

Family type	CD North (1081111)	CD South (1081112)	Nambucca	NSW 2006 %
Couple family with no children	33%	77%	48%	36%
Couple family with children	41%	14%	29%	46%
One parent family with children	20%	3%	19%	16%
Other families	6%	6%	1%	2%

Source: ABS Census

### **Community character, identity and amenity**

The character of the area surrounding the proposed Nambucca Gardens Estate is predominantly suburban, however, the density increases from north to south. There is a natural dividing line occurring along the vegetated Swampy Creek area between the two main character areas.

North of the site is largely low density residential and rural residential in character. The southern Bellwood residential area is also low density in character graduating to higher densities closer to the commercial area.

The proposed subdivision will provide low density living opportunities that are similar in character to the surrounding Alexandra Drive and Marshall Way estates. This is further explained in the detailed site analysis provided in Section 1 of the Landscape Masterplan including analysis of the character of the area.

Character and identity varies in line with dwelling size and family structure. There is a considerably higher proportion of four person (family) households in the northern area (13%) than the southern area (2%) reflecting the character of the two areas. There is predominance of large homes with family infrastructure (pools, play equipment) in the northern area.

Single person households within the retirement village in the southern area tend to 'skew' the household structure statistics in the southern CD. The retirement village community and the commercial precinct attribute another significant character variance.

Values of the area are connected to why people live there. Families and 'lifestylers' will continue to be drawn to the northern rural residential and Palmwoods area to enjoy the low density / open residential character of the area. The proposed Nambucca Gardens Estate will be similar in character and will attract people with similar lifestyle values.

A different set of values would drive people to locate to the Bellwood area. Family values and affordability along the residential area of Marshall Way and security and accessibility for older people within the Faringdon retirement village.

The topographical bushland ‘barrier’ between the north and south areas and the fact that there is no road connection from north to south limits opportunities for a shared identity or character between the two precincts. It would be fair to assume that there would be very little social interaction between the north and south precincts.

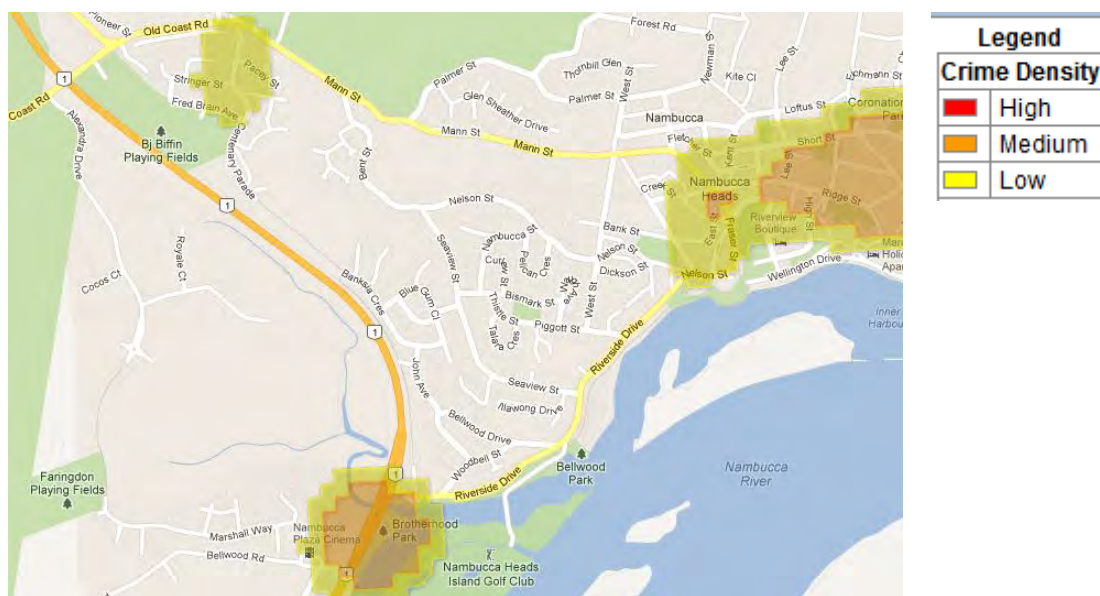
The proposed ‘linking’ of Marshall Way and Alexandra Drive will reduce physical barriers between the northern and southern precincts and would, over time, lead to a blending of lifestyle values and characteristics of the two neighbourhoods. Improving accessibility to the commercial area of Bellwood will strengthen community linkages between north and south as interactions between the two areas inevitably increase.

### Crime Statistics

The following maps and graphs show the locality and rate of crime in the study area. This information is based on 2010 crime statistics provided on the Lawlink Local Government Area Hotspot Maps.

NSW Recorded Crime Statistics indicate that the number of major offences in the Nambucca LGA is either stable or trending down. Sergeant Wayne Sainsbury of the Mid North Coast Local Area Command confirms this trend, although he advised that there has recently (first half of 2012) been an increase in property theft related offences. He also advised that as at June 2012, 2011 census data was not available to update any demographic changes that may have occurred in the Nambucca Valley which may impact on the advice previously provided.

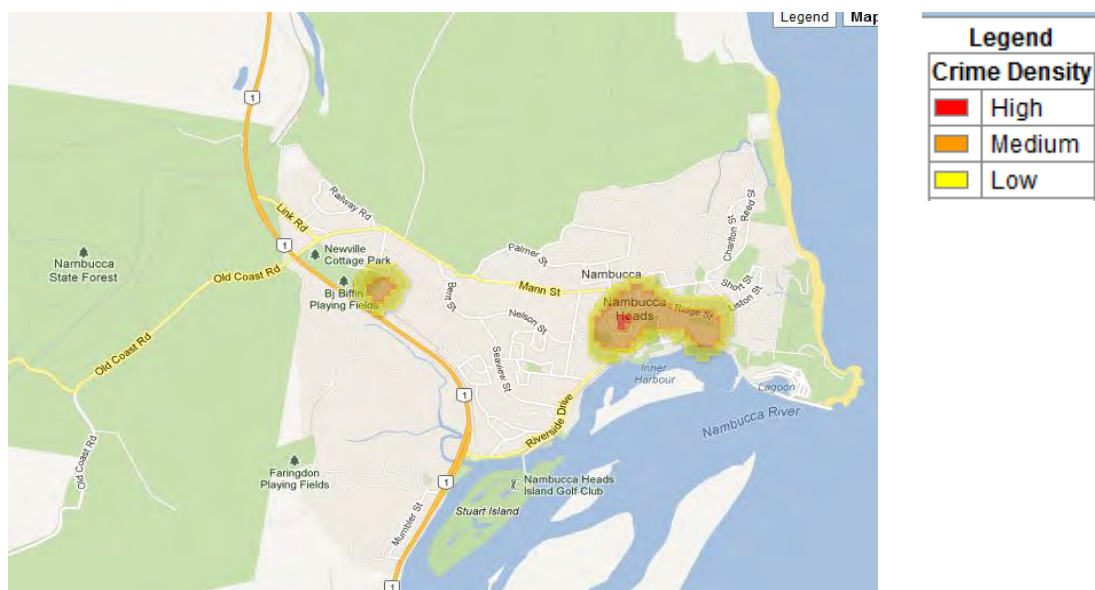
### Illustration 2.2 Assault – domestic violence related in 2010



Local Government Area Hotspot Maps Lawlink 2012

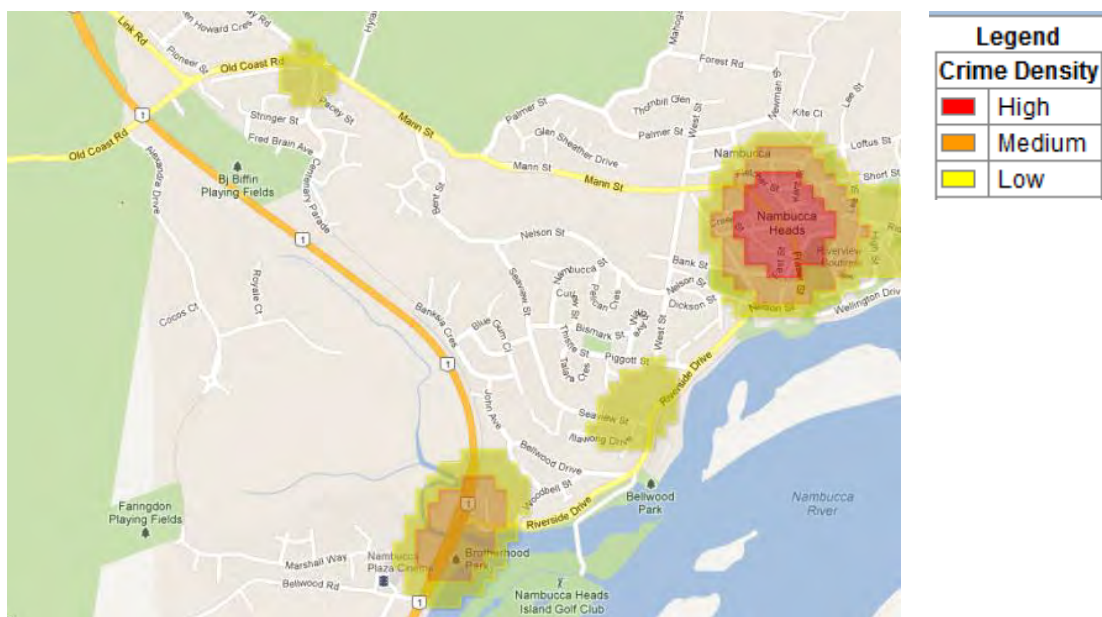


Illustration 2.3 Break and enter (non-dwelling) in 2010



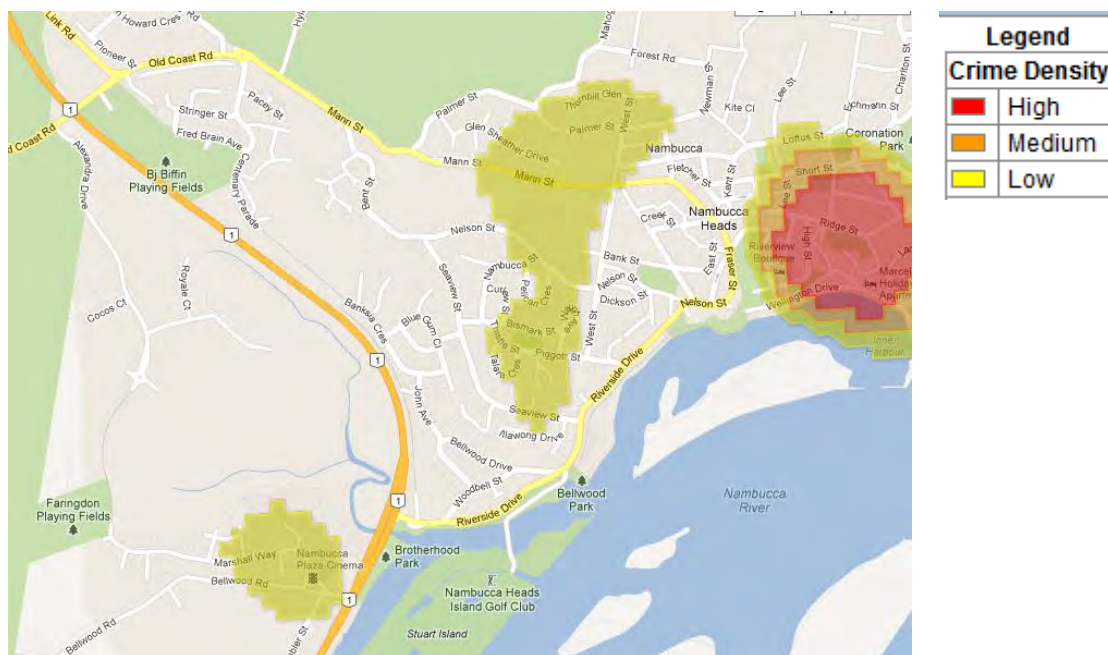
Local Government Area Hotspot Maps Lawlink 2012

Illustration 2.4 Malicious damage to property in 2010



Local Government Area Hotspot Maps Lawlink 2012

**Illustration 2.5 Stealing from dwelling in 2010**



**Local Government Area Hotspot Maps Lawlink 2012**

### Education

In 2006, the majority of current students were infants/primary school children. A large proportion of the Census respondents did not state their educational institution. 20% of the population that were 15 years and over had completed a tertiary level of education.

### Religion

74% of people in the study area reported in the 2006 Census they were Christians, of those the vast majority were Anglican or Catholic. 14% had no religion and the remaining 12% reported other religious beliefs.

### Significant social subgroups

Several significant social subgroups occur within the area surrounding the proposed Nambucca Gardens Estate subdivision site:

1. Retirement aged people in the southern Bellwood area
2. Underemployed people with little or no participation in the labour force
3. Family households in the Alexandra Drive area
4. Single person households in the Bellwood area

The proposed subdivision will predominantly cater for family households, unless there are opportunities for the consolidation of some of the proposed lots for medium density purposes.

## 2.4 Housing Analysis

An analysis of the Nambucca Housing Market was prepared by NSW Family & Community Services (Housing NSW) in 2010 to inform a submission to the draft Nambucca LEP 2010. The analysis examined the affordability, adequacy and appropriateness of housing to meet the needs of the local community, with a particular focus on low and moderate income earners who may be in housing need.

Data for the analysis was drawn from the 2006 Census, however other sources of data included:

- Rental Bond Board;
- Valuer Generals Department; and
- NSW Housing assess database

The full copy of the Housing NSW 'Nambucca Housing Market' analysis is found at Appendix B. Additional information and key findings of the analysis for the Nambucca area are listed below:

### Occupancy Rate

Occupancy rate of dwellings is **2.36 persons per dwelling**. This is well below the average for non-metropolitan NSW of 2.53 and is the lowest occupancy rate in the Mid North Coast housing market, with Hastings (2.40 persons per household average), Bellingen (2.43), Kempsey (2.48), Coffs Harbour (2.49) and Greater Taree (2.52).

### Indigenous Population

The indigenous population in Nambucca **increased between 2001 and 2006 by 7.5%** from 954 to 1,026 (compared with the growth rate of just 1.0% for the total population). Indigenous people now represent 5.7% of the total population in Nambucca local government area, compared with 4.7% on average for non-metropolitan NSW. Neighbouring LGAs in the Mid North Coast housing market have indigenous populations ranging from 2.6% in Bellingen and Hastings to 9.3% in Kempsey. Part of the growth in regional centres is due to a drift into urban areas and part due to the high birth rate.

### Housing Diversity

At least 67.5% of dwellings in Nambucca had three or more bedrooms. Separate houses are the predominant dwelling type in Nambucca. The predominance of larger bedroom stock indicates a lack of housing diversity. **Lack of diversity in housing** configuration and type is a problem across NSW, particularly in rural and coastal NSW.

The low supply of one bedroom housing stock is largely due to developer reluctance to create stock for which there is little demand from the private market. Dual occupancies, multi-dwelling housing, residential flat buildings and semi-detached dwellings are permissible with consent in the R1 General Residential zone under which most of the site is zoned. Strata and Community Title subdivision is permissible with consent and may be used under future development proposals within the site to increase density and provide more diverse and smaller housing options. CBD locations are generally considered to be more suitable for higher density housing, however, should the 'link road' and wetland walkway

links eventuate, there may be viable opportunities for medium density housing options within the Nambucca Gardens Estate.

### **Private Rental Market**

The private rental market represented 16.03% of all occupied private dwellings in Nambucca in 2006 compared to an average of 17.29% in non-metropolitan NSW. The proportion of private rental stock in Nambucca was the lowest in the Mid North Coast housing market at 2006, with Coffs Harbour (21.59%), Hastings (18.63%), Bellingen (17.94%), Greater Taree (17.7%) and Kempsey (16.60%).

The fact that Nambucca lost private rental stock despite an increase in the total number of dwellings suggests that there has been some conversion of private rental to owner occupation. This reduces flexibility or capacity of the housing stock to respond to local need and is likely to have an impact on affordability.

‘On-the-house’ (Domain, 2012) real estate data analysis for the Nambucca Heads postcode area found that there were only 25 houses available for rent and one unit available for rent during the quarter ending February 2012. (NSW Housing data; rent and Sales data for September Quarter 2011)

### **People in Housing Stress**

Housing stress occurs when people pay more than 30% of their income in rent. 59% of all low and moderate income households renting in the private rental market in Nambucca are in housing stress. This is higher than the average (50%) for non-metropolitan NSW. Single person households and single parents form the majority of cases of housing stress in Nambucca. The findings indicate that the private rental market in Nambucca is not catering well to the needs of smaller households in particular.

### **Private Purchase**

The proportion of dwellings affordable for purchase to households at 80% of median income in Nambucca at June 2008 was just 3.5%, down from 11.4% twelve months previously at June 2007 (and compared to 12.7% in non-metropolitan NSW in June 2008).

The proportion of low and moderate income households in Nambucca who are purchasing and are in housing stress is 46%. This is an increase of 10.3% from the 2001 Census and is above the average for non-metropolitan NSW at 2006 of 43%. The proportion of low and moderate income households purchasing and in stress in the other Mid North Coast housing market local government areas is 50% in Coffs Harbour, 48% in Bellingen, 51% in Hastings, 45% in Kempsey and 43% in Greater Taree. All the local government areas in the Mid North Coast housing market have at or above non-metro average proportion of low and moderate income purchasers in housing stress.

The median sales price for all dwellings in Nambucca at June 2011 was \$290,000 (down 6.4% over the last 12 months). The decrease in median sales price in Nambucca is close to that for non-metro NSW generally or similar to most LGA's in the Mid North Coast housing market.

‘On-the-house’ (Domain, 2012) sales data analysis for the Nambucca Heads postcode area found that the median sold price for the quarter ending February 2012 was \$260,000. There were 91 houses and 16 units available for sale.

A review of house sales data (Domain 2012) for the Bellwood area indicates that the sales price of detached 3 / 4 bedroom homes is significantly higher than the median sales price for the Nambucca area. This indicates that the housing stock is better than the median stock for the Nambucca area generally and that there is less supply of that stock, leading to higher prices

#### Recent Sales:

November 2009	4 BR house – 38 Alexandra Drive	\$342,000
September 2009	House - 15 Alexandra Drive	\$375,000
April 2009	3 BR House – 8 Alexandra Drive	\$320,000
February 2010	4 BR House – 17 Alexandra Drive	\$382,000
March 2009	4 BR House – 19 Alexandra Drive	\$370,000
March 2007	House – 21 Alexandra Drive	\$360,000
June 2008	3 BR House – 74 Marshall Way	\$325,000
April 2007	House – 66 Marshall Way	\$335,000
March 2009	3 BR House – 65 Marshall Way	\$239,000
September 2009	2 BR Villa Home - 1/44 Marshall Way	\$195,000
December 2009	2 BR duplex – 2/44 Marshall Way	\$208,000
January 2009	3 BR house – 34 Marshall Way	\$243,000
April 2010	House – 5 Marshall Way	\$285,000

#### Key Issues

In Nambucca, key housing issues identified by NSW Housing include:

- The low and declining proportion of private rental. The decline in private rental stock reduces flexibility in the housing market and thereby lessens the capacity to meet the needs of local residents throughout the housing life cycle. It can also result in lower income earners being squeezed out of the market, homelessness and an increase in requests for housing assistance.
- The low and declining average number of persons per household suggests a high number of smaller households.
- The high proportion of aged persons and aging of the population has implications for housing and services.
- Lack of housing diversity. With the vast majority of dwelling stock being three or more bedrooms and in the form of separate dwellings, there is a lack of housing

diversity to meet the needs of the community through different stages of the housing life cycle. There is a need for more one bedroom, studio, accessory dwellings (granny flats) and new more self-contained boarding house style accommodation to assist in meeting local housing needs, particularly for young people and elderly people on lower incomes. The fact that the majority of CRA recipients in housing stress in Nambucca are single person households suggests the need for more one bedroom stock.

- The growing indigenous population may have specific housing needs. All levels of government need to work together to assist in meeting the housing needs of indigenous residents.
- High proportion of low and moderate income renters in housing stress, despite a strong public housing presence and in spite of CRA being relatively effective in Nambucca. There is a need to increase the supply of affordable rental housing.
- The fact that a significant proportion of those in housing stress in the private rental market (including caravan or manufactured home estate accommodation) in Nambucca are older people suggests there are insufficient affordable housing opportunities for older lower income earners. In addition, the relatively rapid decline in the average number of persons per dwelling in Nambucca between 2001 and 2006 suggests the ageing of the population. Housing for older people needs to be well located in relation to services, facilities and transport as well as accessible for those with mobility problems. More purpose built aged housing, or greater housing diversity, including accessory dwellings or granny flats, particularly targeted to lower income earners is required to meet the housing needs of older lower income Nambucca residents. Ensuring a proportion of all new housing is adaptable will assist in enabling residents to age in place.
- Affordable rental housing suitable for young people is also required – this could also be in the form of accessory dwellings, new more self-contained boarding house style accommodation or shop top housing.
- The lack of affordable housing for purchase for low and moderate income earners. Purchase affordability is tight across the whole of Sydney and much of NSW, particularly in coastal areas. This is further evidenced by the high and increasing proportion of low and moderate income purchasers in housing stress in Nambucca and is in part a reflection of the relative lack of housing diversity.

## 2.5 Assessment of impacts

When fully developed, the Nambucca Gardens Estate will yield low density residential lots that would accommodate between 850 (2.4 people/lot) to 1,200 (3.4 people / lot) people. Nambucca Council has estimated that the catchment area of the *Bellwood Local Roads and Infrastructure Developer Contributions Plan 2009* will ultimately yield an additional 550 residential lots and an additional 7,000 m<sup>2</sup> of commercial floor area (Council minutes 19/1/12).

The first stage of the proposal will provide 27 lots for low density residential use. Assuming a household occupancy rate of 2.36 people / household, the first stage of the subdivision would cater for 65 people. Following stages will occur as the market dictates.

The Nambucca Gardens Estate will produce low density lots of a similar land use and neighbourhood character to the Palmwoods area and the western Marshall Way area. The character and feel of the proposed neighbourhood will vary somewhat from the larger rural/residential area at the northern end of Alexandra Drive. The Landscape Masterplan proposes to address the rural/residential to low density residential interface by providing:

*... a visual buffer between the two to soften the interface. It is proposed that a timber fence with spaced palings be constructed along the boundary so that the look of the overall boundary is the same. It is also proposed a 2 to 3m wide planted mound be located within the new lots in front of the fence. This planting would include indigenous plant species with a focus on achieving visual screening.*

The subdivision will be accessed from Alexandra Drive until the Marshall Way/Alexandra Drive link is constructed. The 'link' is not part of the subject development, however, it would be constructed by Council as part of the works comprised in the Bellwood *Local Roads and Traffic Infrastructure Developer Contributions Plan 2009*. The eventual construction of the 'link road' is not certain as discussed in Section 4 of this addendum.

#### **Who will be affected?**

The people who will be initially affected by the proposal will be those who live in the northern area – the Alexandra Drive residents.

If the Marshall Way / Alexandra Drive link is constructed, the residents of the Bellwood area particularly those along Marshall Way will be impacted by the increased traffic impacts from the connection. There will also be Aboriginal cultural impacts/sensitivities occurring should development become too close to the "Diamond Tree" located to the west of the proposed linkage. Aboriginal representatives have advised the developers that they would prefer the land on the slopes surrounding the Diamond Tree be reserved and, at a maximum, only a single row of lots be permitted, provided they are adequately screened and buffered from view of the cultural area.

The proposal will economically affect other people and industries (service providers, construction industry, building supplies) particularly during the construction phase of the development.

#### **How will they be affected?**

**Table 2.7      Assessment of Impacts**

Area of Impact	Negative Impact	Positive Impact
Alexandra Drive and Palmwoods residents	Temporary construction impacts	

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Area of Impact	Negative Impact	Positive Impact
		Local area improvements including the community parkland along the edge of the Swampy Creek bushland area and the bushland edge cycleway
		Increased security through passive surveillance of the neighbourhood.
		Future improvements to traffic network – access to Bellwood and Pacific Highway south if the ‘link road’ is constructed.
	Increased traffic volumes along Alexandra Drive will increase noise / vibration impacts and decrease overall road safety. *See extract from Traffic Study	
		Improvements to residential amenity through landscape masterplan pedestrian and cycleway linkages.
		Increased social diversity within the surrounding neighbourhood.
	Changes to social values and character of the area resulting from an overall population increase of between 850 and 1,200 people.	
Bellwood area residents	Potential future ‘Link road’ construction impacts and increased through traffic on Marshall Way.	
		Increased security through passive surveillance of the neighbourhood and additional passing traffic and pedestrian movements.
		Concepts for boardwalk pedestrian linkages from the Alexandra Drive residential area to the Bellwood commercial precinct.



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<b>Area of Impact</b>	<b>Negative Impact</b>	<b>Positive Impact</b>
		Through road to Pacific Highway north
		Proximity of new housing to commercial employment lands.
Bellwood commercial area  Impacts arising if/when the 'link road' is constructed.		Increased customer base
		Increased passing trade
		Approval of the subject proposal may generate sufficient confidence in the Bellwood area for certain commercial development proposals to proceed.
		Economic stimulation as a result of infrastructure and new home construction.
Nambucca / Macksville workforce		Economic stimulation as a result of infrastructure and new home construction.
Nambucca Shire Council / LGA		Increased rate base for Bellwood area
		Increased housing supply
		Increased housing affordability.
		Opportunity to provide for a diversity of housing types by inclusions of 'development lots' for specific purposes – Seniors Living or (one and two bedroom) smaller units.
		Potential to proceed with Bellwood local roads and traffic infrastructure through developer contributions.
		Multiplier effect of economic stimulus to wider community and economy.
	Increased demand for community facilities and services.	Expansion and improvements to community facilities and services as the client / customer base increases.

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Area of Impact	Negative Impact	Positive Impact
Aboriginal Community	Increased passing traffic to Faringdon playing fields and areas of cultural sensitivity.	
		Continued improvements to Bawrunga Aboriginal Medical Service as the service expands in line with increased local population
		Increased housing supply / decreased market house prices.

*\*Extract from Traffic Study:*

*It is unknown as to how much traffic from the development will use Alexandra Drive or Marshall Way. However, due to current facilities such as the overpass on the Old Coast road enabling vehicles to pass over the Highway, quick and easy access to Nambucca city centre and quick access to local schools it can be assumed that more vehicles will use Alexandra Drive than Marshall Way. Therefore calculations on intersection usage have been performed for 2 scenarios:*

*Scenario 1 – All traffic using Alexandra Drive:*

*Scenario 2 – 60% of vehicles using Alexandra Drive. (Remaining 40 % to Marshall Way). This enables a comprehensive study of the effects of the development on the intersection to be made.*

*Scenario 1 - With 100% usage of Alexandra Drive by the Development a Peak usage of:*

*Morning Peak (8am – 9am) – 413vph*

*Evening Peak (4pm – 5pm) – 407vph*

*Scenario 2 - With 60% usage:*

*Morning Peak (8am – 9am) – 272vph*

*Evening Peak (4pm – 5pm) – 267vph*

*As can be seen the development will have a significant impact on the amount of traffic flow along Alexandra Drive with the first scenario representing the worst case.*

### How long will the impacts last?

Construction impacts will occur throughout the construction phase of the subdivision and will continue as new houses are built. Impacts to the area surrounding the Marshall Way / Alexandra Drive link road will be permanent if the connection road is constructed.

ABS Census data 2011/2006 shows that the number private dwellings rose from 8,594 in 2006 to 9,171 in 2011 within the Nambucca Local Statistical Area. Assuming a need for 115 new dwellings per year in Nambucca Heads, and the shortage of alternative land release areas, the Nambucca Gardens Estate will cater for a share of that growth.

It is estimated that it will take approximately 3 years for the first 27 lot stage of Nambucca Gardens Estate to be developed (based on catering for 10% of the growth in new dwellings). On this basis, it is likely that the Nambucca Gardens Estate and surrounding area will be subject to construction impacts from subdivision works and new dwellings for at least the next 20 years.

### **Level of social change**

As mentioned above, the development of Nambucca Gardens Estate will be gradual and the social structure of the area will change incrementally. Once the estate is fully developed, around 1,200 additional people will bring positive and negative social change. Currently the Palmwoods and nearby rural residential area are relatively isolated and interaction among neighbours is more difficult under this scenario. A 'critical mass' of like-minded households may introduce new opportunities for community building within the area, based around family values and/or environmental awareness as in 'landcare' or like groups with a common goal to conserve the Swampy Creek wetland area.

It is highly likely that the social mix within the Nambucca Gardens Estate will be similar to this social mix already present in the Palmwoods / Alexandra Drive area. This area has a much higher proportion of families with children than in the Bellwood area and also a higher proportion than the rest of the Nambucca local area. Family households are likely to continue to find this area suitable for lifestyle purposes.

Given the nature of the subdivision and the character of the existing surrounding neighbourhood, there is no reason to think that the social structure of the area will significantly change, however the neighbourhood will become busier and noisier.

### **Mitigation of Impacts**

As mentioned above, the character and family values of the Palmwoods / Alexandra Drive neighbourhood will be reflected in the future social family mix of the proposed subdivision as it is designed for low density residential living.

In consideration of social issues already identified in the wider Nambucca area, such as lack of housing diversity and the lack of and high cost of rental / affordable housing, the release of this land onto the Nambucca housing market will increase supply and ultimately improve affordability.

NSW Housing, Service providers and non-government organisations who provide affordable housing may purchase land in the Nambucca Gardens Estate for housing proposals or may negotiate with the developers to provide 'development lots' for affordable housing projects.

Construction impacts will be mitigated in accordance with the controls listed in the Construction and Environmental Management Plan prepared by deGroot and Benson, Consulting Engineers.

The employment of local contractors will increase the likelihood of local tradespeople and labourers being employed on the site and thus increasing the level of tolerance to construction impacts and improving local economies.

If Stage E lots proceed, either as planned or as discussed with the Aboriginal community, buffer screening must be implemented to decrease visibility of the Diamond Tree area of cultural sensitivity. Similarly, if the 'link road' proceeds between Marshalls Way and Alexandra Drive, visual buffering will be required.

The increase in local population will change the demand for community and social facilities, however, service providers have indicated that their organisations will expand to accommodate additional patronage.

## Facilities and Services

### 3.1 Overview

**Issue:**

- *Access to facilities and services by both existing and proposed new residents of the area.*
- *How to achieve a good level of connectivity between the proposed residential subdivision and existing facilities and services in the area.*
- *An analysis of the proposed new community's need for community meeting space.*

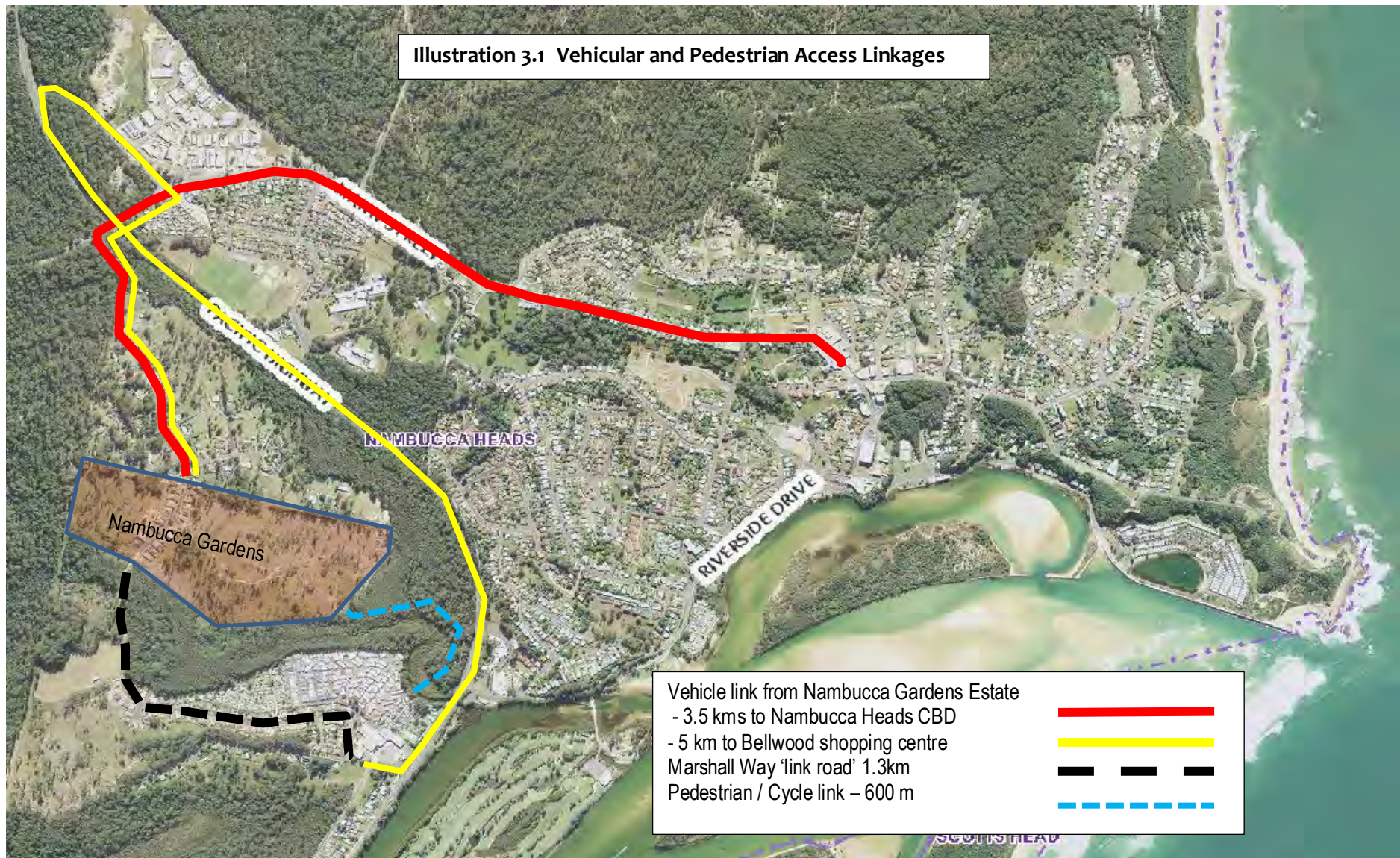
### 3.2 Access to Services and Facilities

Existing residents of the Alexandra Drive area access facilities and services of the Nambucca Heads area via the Old Coast Road link to either Nambucca Heads CBD via Mann Street or via the Pacific Highway to Bellwood. These linkages are shown on Illustration 3.1 below.

A practical link from the Nambucca Gardens Estate to the services and facilities of Bellwood exists if the Marshalls Way extension (link road) is constructed. This is discussed in Section 4 and is dependent upon Council progressing with the works identified in the *Bellwood Local Roads and Infrastructure Developer Contributions Plan 2009*.

The future residents of Nambucca Gardens Estate will have access to urban services and facilities in Nambucca Heads approximately 3.5 kms away car. The Nambucca Heads High School and the Frank Partridge VC Public School are 2 km away. Cycle connection from the development site to the schools via Old Coast Road does not involve crossing the Pacific Highway, however there is no dedicated cycleway linkage in this location.





### 3.3 Demand for Services

Informal consultation with service providers and local community organisations was undertaken to determine the adequacy of existing facilities in the Bellwood and Nambucca Heads area.

The local population increase associated with the development will be in stages, commencing with around 60 new residents in the first stage of the subdivision. The incremental increase in population will increase demand for services, however, those increases would be gradual.

Medical Practitioners in Nambucca Heads are already over-subscribed with many local GPs 'closing their books' to new patients (Lampe 2012). This is a common problem in regional areas. Another problem is attracting specialist practitioners who will live in the community rather than "fly in/fly out" to Coffs Harbour from Sydney.

In NSW, community / government facilities are gradually being transferred from government agencies to non-government organisations (NGOs). In the local area, these services include services for aged, disability and foster carers which have been outsourced to NGO's such as Life Without Barriers and Burnside.

Life Without Barriers are planning expansion in Nambucca Heads and will be increasing their service levels to the area (Snoek 2012). The Bawrunga Aboriginal Medical Centre has secured government funding for (Infrastructure Support) expansion and will initially increase to provide rooms for three additional GPs with plans for further expansion. Bawrunga have considered the predicted population increase from the Nambucca Gardens Estate development in their plans for expansion and welcome the additional client base (Mills 2012).

The Bellwood area has a high proportion of aged people who also have higher needs in terms of medical and community support. Nambucca has higher than average rates of teenage pregnancy and one of the highest rates of AVOs being issued which indicates high levels of domestic violence (Karen Dell, social worker for the Mid North Coast Division of General Practice, Radio National, 2005). According to Dell, Nambucca is *a financially disadvantaged area, with high rates of domestic violence and unemployment and limited access to health care.*

Given the higher than usual proportion of aged people and the generally low socio-economic status of the local population, the eventual population of the Nambucca Gardens Estate catering for a high proportion of family households, will not significantly strain social resources; particularly in terms of social and medical support.

Increased demand for medical and community services as a result of population increase from the Nambucca Gardens Estate will be negligible in terms of additional burdens to already overloaded system.

New housing opportunities as a result of the proposed subdivision will stimulate economic development in the Bellwood area, perhaps leading to increased visitation from specialist service providers and additional private practitioners living and working in the area.

### 3.4 Industry standard population benchmarks for services and facilities

Hill PDA (economists) provided the following estimated benchmarks that were used by Sutherland Koshy in the Nambucca Shire Council Structure Plan March 2008. The following table demonstrates that there are sufficient services and facilities to cater for population increases arising from the development. Noting that, when fully developed, the Nambucca Gardens Estate will yield low density residential lots to accommodate between 850 (2.4 people/lot) to 1,200 (3.4 people / lot) people.

The information provided in Table 3.1 demonstrates that there are sufficient community services and facilities to meet the needs of the growing population of Nambucca and Bellwood.

**Table 3.1 Industry standard benchmarks for services and facilities**

Services and Facilities	Population threshold	Consistency
Corner shop	700	Nambucca Plaza / IGA Supermarket Woolworths fuel / convenience store Bent Street/Mann Street Coles Supermarket at Bellwood approved – not constructed.
Supermarket	10,000	Full supermarket facilities already available at Bellwood and Nambucca Heads (IGA and Woolworths)
Long Day Care Centre	13,000	Family Day Care (services co-ordinator) Mann St Nambucca Heads Nambucca Valley Out of School Hours Care Emergency Child Care
Post Office	20,000	Nambucca Post Office Macksville Post Office
Police Station	20,000	Macksville and Nambucca Heads
Local Bank	20,000	Most major banks present in Macksville and Nambucca plus credit union.
Branch Library	40,000	Clarence Regional Library branches at Macksville and Nambucca
Primary School	2,400	Primary Schools- 8 State, 3 Private
Secondary School	8,000	Secondary Schools -3 State. TAFE - Annex at Macksville Ngurrula Aboriginal Corporation
Neighbourhood Centre	18,000	Nambucca Valley Neighbourhood Centre, 27 Wallace Street, Macksville.



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Services and Facilities	Population threshold	Consistency
		Nambucca Valley Life Education, 6 West Street, Nambucca Heads. Nambucca Valley Community Services, Macksville
Hospitals – (per bed)	600	Macksville Hospital (30-40 beds) Coffs Harbour Health Campus Bellingen Hospital
Youth Centre *	1 youth centre per 3,000 people aged 13 – 19 years	Youth Services Centre, Nambucca Heads NSW RSL Youth Club (Nambucca District Branch) Valley Skaters Association Youth Development Officer, Vicki Fernance, Nambucca Shire Council
Community hall	Small 1:10,000 people Large 1:20,000 people	Anglican Church Hall, Nambucca Heads CWA Rooms, Nambucca Heads and Macksville Frank Partridge VC Public Hall Headland Hall, Nambucca Heads Masonic Hall Nambucca Heads Nambucca Heads Entertainment Centre, Faringdon Village

\* Establishing Standards for Social Infrastructure, UQ, August 2005

A detailed Community Needs Assessment was prepared in April 2011 as part of the environmental assessments for the Valla Urban Growth Area, a 500 ha area planned to eventually accommodate 5,000 people and a range of employment lands and supporting urban uses. The Valla Urban Growth Area is significantly larger than the subject proposal, however, the thresholds used in the Community Needs Assessment provide guidelines that further indicate that the estimated population increase resulting from the proposed Nambucca Gardens Estate will not place a significant additional servicing pressures on existing facilities.

Table 3.2 lists some additional special and community use thresholds prepared by Richard Cardew in April 2011 for the Valla Urban Growth Area Community Needs Assessment. It is relevant to note that the Valla urban growth area is spatially isolated from Nambucca Heads, therefore some essential community services and facilities need to be located in or near the Valla Urban Growth Area. Conversely, the future residents of the Nambucca Gardens Estate will access existing services and facilities nearby in Nambucca Heads and Bellwood.

**Population Assumption:**

Note: Nambucca Urban Centre/Locality 2006 (UCL) Population	5,873
Nambucca Gardens Estate Estimated Population	1,200
Total estimated population (post development)	7,071

**Table 3.2      Benchmarks for services and facilities (Valla Urban Growth Area)**

Services and Facilities	Threshold population	Consistency
<p>Primary schools (4)</p> <p>Frank Partridge VC Primary School Nambucca Heads Public School Nambucca Valley Christian Community School</p>	<p>6000 or per 2,000 dwellings</p>	<p>Total post development population for the Nambucca UCL will be 7,071 people. Given the high proportion of aged people in the population, the 4 schools listed will provide for the existing and future population of the Nambucca Heads UCL area.</p> <p>On a per dwelling calculation: Dwellings Nambucca UCL 3168   Nambucca Gardens Estate 346 Total dwellings post development will be 3,514.</p>
<p>High schools (1)</p> <p>Macksville High School (Bishop Druitt College and John Paul College, Coffs Harbour) TAFE Macksville and Southern Cross University Senior College (Year 11 and 12 curriculum)</p>	<p>13000</p>	<p>Given that one high school is required for every 13,000 people, the additional population increase from the proposal does not give rise to the need for an additional high school in Nambucca Heads.</p> <p>There is a considerable outmigration of high school students to the private schools and senior college in Coffs Harbour further reducing enrolments pressure on Macksville High School.</p> <p>Note: Cardew states in the <i>Valla Urban Growth Area Community Needs Assessment</i> that One primary school per 2,000 dwellings ie about 6,000 residents is a guide to requirements, though the age structure of the area suggests a higher threshold for schools especially secondary schools.</p>
<p>Hospitals – (per bed)</p>	<p>600</p>	<p>Post development population (7,071) generates a need for 12 beds.</p> <p>Macksville Hospital (30-40 beds) combined with facilities at Coffs Harbour Health Campus and Bellingen Hospital are adequate to cater for the increased need generated by the development.</p>
<p>Senior citizens centres</p>	<p>8000</p>	<p>Nambucca and Macksville each have an active Senior Citizens Centre.</p>
<p>Men's sheds</p>	<p>2000</p>	<p>Nambucca Valley Community Men's Shed, Macksville Industrial Estate.</p>

Arts or cultural centres	66000	Nambucca Entertainment Centre Committee Nambucca Valley Arts Council Valley Community Arts Regional Art Gallery, Coffs Harbour
Community Neighbourhood Centre	8000	Neighbour Centres in Nambucca and Macksville (refer table 3.1)

*Source: Based on Parramatta Council 2006 with additions and modifications. The figure for Men's Sheds has been based on current and prospective provision in Gosford/Wyong*

### 3.5 Community Meeting Space

Standards for the provisions of community facility vary considerably. Three separate benchmark guidelines have been considered in the assessment of the need for a neighbourhood scale community centre. The following thresholds for the need for a 'Neighbourhood Centre' were considered:

1. 18,000 people - Hill PDA Economists data used by SutherlandKoshy in the Nambucca Structure Plan, 2009.
2. 8,000 people - Richard Cardew in the *Valla Urban Growth Area Community Needs Assessment*, April 2011.
3. 3,500 to 15,000 people – Sharyn Casey in *Establishing Standards for Social Infrastructure*, University of Queensland, August 2005.

The usual resident population of Nambucca CDs 1081111 and 1081112 is 1,109 people, rising to 2,300 post development. Based on the thresholds listed above, this increase does not justify a specific community facility or 'neighbourhood centre' for the Nambucca Gardens Estate and the surrounding area.

Instead, the major community parkland located between the estate and the Swampy Creek riparian area in the south of the site will act as a focal point for residents. This area has pedestrian and cycle linkages north to the Alexandra Drive area and south to Bellwood and will serve as a meeting point and recreation area for local people. Additionally, there are four other neighbourhood parks proposed for the Nambucca Gardens Estate.

The major community parkland and the four neighbour parks will be landscaped and furnished as part of the subdivision works.

## Marshall Way ‘link road’

### 4.1 Overview

**Issue:**

- *The social costs and benefits of the future planned Link Road to both existing and proposed new residents.*
- *Whether there is a social need for the Link Rd with detailed justifications provided for the conclusions reached.*

### 4.2 Bellwood Local Roads Development Contributions Plan 2009

The completion of the unconstructed section of road between Marshall Way and Alexandra Drive is one of the six local road network projects that would be funded under the *Bellwood Local Roads and Traffic Infrastructure Developer Contributions Plan 2009*. It is reasonable to assume that, should the Nambucca Gardens Estate development not proceed, there would be insufficient developer funding for the construction of the linking segment of road. (SIA October 2010)

If the ‘link road’ does not proceed, then ‘alternative works’ may include upgrading of the Alexandra Road network to cater for all of the traffic from the development and construction of the cycle/pedestrian connections from the Nambucca Gardens Estate to the Bellwood commercial area.

The social costs and benefits of not proceeding with the ‘link road’ are complex and were the topic of Council discussion in 2009 and again in 2011 in regarding the adoption of the developer contributions plan.

There are obvious commercial benefits from the subdivision to the Bellwood shopping precinct. However this must be balanced against cultural impacts to the Aboriginal community of increasing exposure to a significant cultural area (the Diamond Tree) in the vicinity of the Faringdon playing fields and impacts from increased traffic to existing residents of Bellwood.

The significance of the ‘Diamond Tree’ has been discussed in the SIA (October 2010) and extensively investigated by John Appleton and reported in the Archaeological Assessment prepared by Archaeological Surveys & Reports Pty Ltd (ASR) and later in an addendum to that report finalised in June 2012.

Whether or not there is a need for the 'link road' as documented in the *Bellwood Local Roads and Traffic Infrastructure Developer Contributions Plan 2009* was considered at Council's ordinary meeting in August 2009. Several community members addressed the meeting and petitions and letters of objection were presented for consideration. The main reasons for objecting to the construction of the link road are summarised in the business paper as follows:

- 1 Indigenous (and non-indigenous) women and children driving on the road would observe the Diamond Tree which is a sacred site.
- 2 Impact on lifestyle and safety of existing residents.
- 3 Increased traffic is seen as having the following impacts:
  - Reduce safety of pedestrians;
  - Less safe entering and exiting private property;
  - Day Care Centre exposed to higher traffic;
  - Elderly residents driving scooters in greater traffic may lead to accidents;
  - Increased noise, fumes and dust;
  - Presence of two Retirements Villages;
  - Two blind spots on the crest;
  - Impact on wildlife; and
  - Environmental impact of the link road.

A community member raised the following matters in support of the link road:

- 1 There is a silent majority who is in favour of the link road and is not speaking up
- 2 The link road is necessary as there is no alternative to going onto the highway
- 3 Safety of residents
- 4 No need to leave cars at home during holidays
- 5 Need to assist emergency
- 6 Noise will not be worse than that of the highway currently
- 7 Appreciates safety for children but takes life in hands crossing the highway
- 8 Petition signed by some
- 9 people coerced into signing petition out of fear
- 10 Pre school children shouldn't be on the road and their safety is up to the parent
- 11 The link road will be a safe alternative for residents and emergency vehicles

Council's General Manager made the following assessment of the impact of the works included in the *Bellwood Local Roads and Traffic Infrastructure Developer Contributions Plan 2009*:

**SUSTAINABILITY ASSESSMENT:**

**Environment:** The "link" road will be at the end of a wetland area. Design features and construction can be in a manner that is sensitive to the location. A detailed assessment is warranted.

**Social:** The "link" generates both positive and negative impacts. Local residents are concerned about the impact of higher traffic numbers on their safety and amenity. On a larger scale the access is needed to improve the travel route to the commercial area, to allow through road for school bus and traffic generally to remove one way in access

to Alexandra Drive and Marshall Way, to link growing local communities, to upgrade the roads for increases in traffic numbers relating to new housing and other developments (eg Aged Care and Education are possible) and to reduce the need to use the Pacific Highway. This distance from the southern end to the Plaza via the proposed link is 1.3 km compared to 5.5 km via the Pacific Highway.

**Economic:** The development and re-development of land on the western side of the Pacific Highway is likely to continue due to its close proximity to the urban areas of Nambucca Heads. A circular through route is essential to that growth in population and housing for access to commercial areas and as a transport route for school buses and waste collection for example. In financial terms Council is collecting \$795 per new residential lot under the existing plan but would be collecting \$2,839 per new residential lot under the proposed contribution plan. There is also a requirement for contribution by commercial development.

**Risk:** The residents believe that the value of their properties will reduce with greater traffic flows. Not resolving this matter now will result in even greater difficulties in the future as more people will be impacted. Council will also be faced with meeting the full cost at a future time. Some 15 years ago Council decided not to allow the link to be created. At that time there was standard urban housing in Marshall Way and Rural Residential in Alexandra Drive. Now there is urban housing on both roads. Removing the link road will exclude 363 residential blocks from the northern side making the plan not-financially viable. The income will not be sufficient to undertake the other traffic management projects.

#### FINANCIAL IMPLICATIONS:

##### **Direct and indirect impact on current and future budgets**

The construction of the link road is part of the Draft Contribution Plan. This would generate funding on a per Lot basis for 100% of the cost eventually. Maintenance costs over time only increase for a 180 metre extra length of urban road.

##### **Source of fund and any variance to working funds**

Developer funds through the Contribution Plan will meet 100% of the costs.

On the basis of the information provided by the General Manager and the findings of the traffic modelling conducted by RoadNET, Council resolved to adopt the draft Bellwood Local Roads and Traffic Infrastructure Developer Contribution Plan 2009 and that it be reviewed within twelve (12) months.

Nambucca Shire Council tabled the matter of a review of the Bellwood Local Roads and Traffic Infrastructure Developer Contributions Plan 2009 at a meeting in January 2012. Council received the following information:

- It is open to Council to propose amendments to the Contribution Plan. When the plan was last considered the topical element was the provision in the works schedule for the construction of the road segment between Alexandra Drive and Marshall Way. Whilst this or any other work identified in the works schedule can be deleted from the contribution plan, it would be more sensible to retain the provision pending a final decision on the development application for Lot 2 DP 119830 (Nambucca Gardens

Estate). If the development application is approved, Council will need to consider the construction of this road segment.

- Recently the Department of Planning advised it has waived the requirement for a (SEPP 71) Master Plan for the proposed (Nambucca Gardens Estate) subdivision. This subdivision together with other potential subdivisions could permit the creation of an additional 550 residential lots and an additional 7,000 m<sup>2</sup> of commercial floor area.
- As at 2009, the contribution plan provided a contribution rate of \$2,839 per additional lot and \$375.50 per sq m of additional gross retail/commercial floor area. This contribution rate is indexed by CPI from the date of the plan's adoption.
- In the event that a Joint Regional Planning Panel approves the proposed subdivision of Lot 2 DP 119830 (Nambucca Gardens Estate), Council would request that the JRPP impose a condition on the development consent requiring the payment of this contribution. Alternatively it is open to the applicant to seek to enter into a Voluntary Planning Agreement with Council or to proposed works in kind and/or material public benefits.
- Since the plan was adopted in 2009 there has been no change in circumstances such as to warrant any review of the plan's provisions.
- It is suggested that the next review of the plan be undertaken following a definite decision on the upgrade of the Pacific Highway between Warrell Creek and Nambucca Heads. This will obviously have a significant impact on traffic volumes at intersections and may warrant a review of the works schedule as over \$3m in work relates to intersection improvements and associated work on or adjacent to the Pacific Highway.

As noted above, there have been no changes of circumstances since the S94 plan was adopted in 2009. Council has indicated that it would consider a VPA for alternative works.

The cost of road works was estimated to be:

1. Intersection upgrade – Pacific Highway and Bellwood Road. The cost of this work was estimated at \$1.24m in 2009.
2. Roundabout – Bellwood Road and Mumbler Street. The cost of this work was estimated at \$1.14m in 2009.
3. Intersection upgrade – Pacific Highway and Riverside Drive. The cost of this work was estimated at \$1.17m in 2009.
4. Construction of road segment between Alexandra Drive and Marshall Way. The cost of this work was estimated at \$774,360 in 2009.
5. Bellwood Road upgrade between Mumbler Street and Marshall Way. The cost of this work was estimated at \$130,702 in 2009.
6. Roundabout construction – Bellwood Road and Marshall Way. The cost of this work was estimated at \$407,655 in 2009.
7. Bellwood Road upgrade between Mumbler Street and the Pacific Highway. The cost of this work was estimated at \$865,500 in 2009.

Council resolved that the information concerning the *Bellwood Local Roads and Traffic Infrastructure Developer Contribution Plan 2009* be received.

### 4.3 Social Costs and Benefits

As discussed above, there are competing arguments for and against creating the 'link road' between Marshall Way and Alexandra Drive. Does the social cost of traffic impacts and cultural sensitivities outweigh the obvious practical benefit of linking up the two neighbourhoods and increasing patronage of the Bellwood commercial area.

Council has already considered the matter and resolved to proceed with a plan that will eventually see the construction of the 'link road', however, the provision of this link is not imperative to the proposed Nambucca Gardens Estate. As noted by Council in January 2012, the developers could enter into a voluntary planning agreement for alternative works.

The 'preferred option' of the developers of the Nambucca Gardens Estate is to proceed with the development on the basis that the 'link road' will eventually be constructed in accordance with the adopted *Bellwood Local Roads and Traffic Infrastructure Developer Contribution Plan 2009*. However, the alternative option is to proceed with the development without the 'link road' limiting access to Alexandra Drive only. This option provides existing and future residents with a direct link to the Nambucca town area and access to the Pacific Highway north and south.

John Appleton of Archaeological Surveys & Reports conducted additional consultation with the Aboriginal community regarding impacts from the proposal to areas of Aboriginal cultural sensitivity, including the 'Diamond Tree'. This is further discussed in Section 7.

As discussed earlier, the construction of the 'link road' is not vital to the proposed subdivision. If the JRPP approve this development, Council and the developers will need to agree on an Voluntary Planning Agreement for alternative works or Council must revise the Developer Contributions Plan.

As noted in Appleton's addendum report, the Aboriginal representatives discussed with the developers an option that would allow some development to occur within the 'Stage E' area off the southern extension of Alexandra Drive, providing rear fencing and screening ensured no visual access to the Diamond Tree area from the road.

This provides some scope for Council to initiate similar discussions with the Aboriginal representatives regarding mitigating design measures that would screen the Diamond Tree area from any overlooking from the 'link road' connection.



## Cycle and Pedestrian Network

### 5.1 Overview

**Issue:** Local bicycle and pedestrian network priorities for the new residential subdivision.

### 5.2 Nambucca Shire 20 Year Structure Plan 2008

The Nambucca Structure Plan makes reference to opportunities to connect existing and proposed cycleways and pedestrian ways in a logical manner so that they form a continuous link connecting parks and open space in the process. There are existing cycleways along parts of Marshall Way, the Pacific Highway, Riverside Drive and Mann Street. There are proposed cycleways along the Pacific Highway (regional), and along Riverside Drive and Old Coast Road.

The Nambucca Shire Council Cycleway Plan Review sets priorities for the provisions of cycleway links.

### 5.3 Nambucca Shire Council Cycleway Plan

This plan updates the recommendations of the 1995 Cycleway Plan to ensure current standards and practices. The plan lists key aims and objectives including the formation of links between schools, business centres, recreation areas, residential areas and towns.

Part 4 of the plan lists the 'Nambucca Plaza to Faringdon Playing Fields connection to Marshalls Way from the Plaza' as completed. The cycleway link along Old Coast Road from Hyland Park Road (in the north) to Alexandra Drive is listed as a future option.

The Old Coast Road cycleway links is not listed as a priority project. Cycleway links along the Pacific Highway from Teagues Creek to Florence Wilmot Drive and to Macksville will 'consume all available funding'. Other funding sources must be found for cycleway linkages that would connect with the Alexandra Drive area.

### 5.4 Nambucca Strategic Plans

The Nambucca Shire Pedestrian Access and Mobility Plan and Street Furniture Audit was prepared for Council by GHD in February 2010. The main aim of the plan was to review the pedestrian needs of the Nambucca, Macksville and Bowraville CBD areas. The

recommendations of this plan do not impact on the proposed Nambucca Gardens Estate development.

The Nambucca River Master Plan prepared in March 2009 provides for a cycleway linkage from the Bellwood Creek area to Nambucca Heads via the Riverside Drive boardwalk incorporating the Pacific Highway underpass as shown on Illustration 5.1 below. This would link with the wetland walkway link shown as Item 8 in the Landscape Master Plan.

**Illustration 5.1 Extract from Nambucca River Master Plan**



## 5.5 Nambucca Gardens Estate Pedestrian/Cycleway Network

Extract from Landscape Masterplan Report:

*The development will include an extensive pedestrian/cycleway network. All streets will include at least a pedestrian pathway to one side of the street. Major streets will have pedestrian pathways to both sides of the street. The bushland edge will include the 2 metre bikeway which will provide a key link to the large area of parkland. The bikeway will take in natural features and will include seating locations. The potential wetland walkway will provide a link to the broader site context. The pathway network is intended to provide a range of recreational experience and to create a series of*

*interesting and attractive journeys around the site. There is the opportunity to incorporate artworks and feature pavements in pathways.*

The planned internal pedestrian / cycleway network will work effectively in terms of internal passive methods of accessing all areas of the development. Future off-site cycleway / pedestrian networks north to Old Coast Road and south to the Bellwood shopping area are important connections that will enable non-vehicular access to the schools in Centenary Drive and services and facilities available at Bellwood. These connections are not part of the works for the Nambucca Gardens Estate.

There is a service road running along a section of the eastern end of Old Coast Road connecting with Centenary Drive and the public and high schools. It is noted that there is already traffic calming structures within Centenary Drive and other opportunities may exist to provide cycleway connections from the Old Coast Road through the BJ Biffin playing fields.

The Bellwood Local Roads and Traffic Infrastructure Developer Contributions Plan 2009 provides the major road upgrade works to the Pacific Highway intersection and to Bellwood Road and Marshalls Way to cater for additional traffic from residential development in the Alexandra Drive area. These upgrades are dependent on the 'link road' connection between Marshall Way and Alexandra Drive.

As discussed in Section 7 of this report, a recommendation of the Archaeological Assessment is that the land surrounding a sensitive Aboriginal cultural site, the Diamond Tree, be acquired by the NSW Office of Environment and Heritage for reserve purposes. In this event, it is unlikely that the 'link road' would be constructed. Council again considered the Contributions Plan in January 2012 and noted, among other things, that

*In the event that a Joint Regional Planning Panel approves the proposed subdivision of Lot 2 DP 119830 (Nambucca Gardens Estate), Council would request that the JRPP impose a condition on the development consent requiring the payment of this contribution. Alternatively it is open to the applicant to seek to enter into a Voluntary Planning Agreement with Council or to proposed works in kind and/or material public benefits.*

Under the alternative scenario, a Voluntary Planning Agreement with Council would propose works in kind and may include the construction of passive linkages between the Alexandra Drive area and the Bellwood commercial precinct and the Centenary Drive school area.

## Open Space and Needs Analysis

### 6.1 Overview

**Issue:**

- An Open Space and Needs Analysis for the proposed residential subdivision, including desired local park designs (younger or older children to predominate).
- the need or otherwise for both the Faringdon Fields redevelopment and the proposed small pocket parks as detailed in the submitted Landscape Architects report/plans.

### 6.2 Open Space Guidelines

This open space and needs analysis looks at the needs of future residents of the Nambucca Gardens Estate. Guideline recommendations regarding the required size and configuration for local parks vary, therefore three different guidelines have been presented for the purpose of comparison.

**Table 6.1 Open Space Guidelines**

Guideline	Criteria	Nambucca Gardens Estate Consistency
<i>NSW Open Space and Recreational Planning Guideline 2010</i>	– minimum 0.5 to 2 ha in area	Community park - 1.6 ha. Neighbourhood parks are smaller.
<i>Hastings Open Space, Cultural and Recreational Facilities Study 2001 (Ballina and South West Rocks Open Space Studies)</i>	– Sufficient to meet location and size criteria – 1.13 ha / 1,000 persons	Subdivision will cater for between 850 (2.4 people/lot) to 1,200 (3.4 people / lot) 850 people – 1 ha open space 1,200 people - 1.4 ha
	– Within 500 metres of all residents and safe access without major road crossings.	Approx. 80% of all lots are within 500m walking distance of the community park. Those lots that are not within 500m of that park are less than 230m walking distance from a neighbourhood park or reserve. There are pedestrian paths along at least one side of each road with safe

ADDENDUM TO SOCIO-ECONOMIC ASSESSMENT  
NAMBUCCA GARDENS ESTATE

Guideline	Criteria	Nambucca Gardens Estate Consistency
		crossing locations. There is also a continuous bikeway link to the community park.
	– Min. size 2,000 m <sup>2</sup> , exclusive of any drainage/stormwater management reserves and serves up to 1,000 people	Community Park is consistent with these criteria.
	– Facilities – seating, play equipment, pathway, shade trees or structures, litter bins, safety fencing as appropriate	The community park includes the focus of park facilities with shade, picnic facilities, children's play areas, seating, paths & locations. The neighbourhood parks/reserves represent locations for passive relaxation with shade seating locations.
	– Attributes: <ul style="list-style-type: none"> <li>○ Access via more than one street</li> <li>○ Integrate with local shopping and community facilities</li> <li>○ Integrate with cycle and footpaths</li> <li>○ Parks will be sited to take advantage of natural features such as foreshore areas or where there is significant vegetation</li> <li>○ Link with wildlife corridors and flora and fauna protection areas</li> <li>○ At least 2,000m<sup>2</sup> should be level to gently sloping land.</li> </ul>	<ul style="list-style-type: none"> <li>– Neighbourhood parks generally have dual street frontage. The community park has a single street (esplanade road) frontage with alternative links to the cycleway and walkway.</li> <li>– Concepts for cycleway and pedestrian linkage to Bellwood shopping area. There is a pathway to at least one side of every street and a continuous cycleway link along bushland edge.</li> <li>– The community park includes over 1 hectare of revegetation and overlooks retained vegetation along the creek and within the SEPP14 wetland. Materials, layout and building styles have been proposed to complement the natural setting.</li> <li>– Community Park is located on gently sloping ground with platforms created for picnic facilities and playground.</li> </ul>
Sport and Recreation Qld	– Supply - 2 ha per / 1,000 persons	Faringdon Fields are over 4 ha. The redevelopment of the Faringdon

ADDENDUM TO SOCIO-ECONOMIC ASSESSMENT  
NAMBUCCA GARDENS ESTATE

Guideline	Criteria	Nambucca Gardens Estate Consistency
<i>'Planning Principles and Implementation Notes for Local Council', September 2003</i>		Playing Fields (not part of this development) seeks to create a large parkland that provides opportunities for recreation by individuals, family groups and informal groups of people. The philosophy behind the park layout is to create a hub of activity that encourages participation by many people creating a community focus. The proposals provide for a diverse range of recreational opportunities and are intended to accommodate a variety of age groups.
	– Size – 0.5 – 1 ha	Community park (1.6 ha) exceeds this criteria.
	– Distance from any residence to park – 500 m	See above.
	– Min 50% road frontage	More than 50% frontage to esplanade road.
	– Local parks should not be separated from catchment by physical barriers (main road, creeks)	Community park is separated from housing catchment by a local road.
	– Cycle and pedestrian access – safe and convenient access	Consistent.
	– Accessibility – Location and park landscape should maximize access for people with mobility difficulties	Community park is accessible via 1.2m pedestrian pathway.
	– Visibility from neighbouring residences should not be impeded by design, vegetation or buildings	Parks have been designed to maximize surveillance of the park and its facilities. Vegetation around facilities will be low and tree planting species with clear trunks to maintain visibility..
	– Shape – should allow for a range of uses (eg informal sport)	Community park is to incorporate retained trees and to overlook retained vegetation. Shape allows for layout that has strong links between facilities e.g. picnic areas

Guideline	Criteria	Nambucca Gardens Estate Consistency
		and play ground, paths with a view to the bush, frontage allows for a number of accesses into the park.
	– Minimum access corridor widths of 10 m	Community park and the neighbourhood parks all have wide frontages to road and pathway network.
	– Land quality <ul style="list-style-type: none"> <li>○ Maximum slope is 1:4.</li> <li>○ Not constrained by hazards (power lines, conservation, contamination etc)</li> <li>○ Generally free of flood constraints</li> <li>○ Must not require above average development costs</li> </ul>	<p>The entire site is undulating. Community park slopes gently down to the Swampy Creek Bushland area. The development area, including the parklands, are generally unconstrained land.</p> <p>Community and neighbourhood parks are part of the subdivision works and will include landscaping, furniture and equipment at no cost to Council.</p>

### 6.3 Open Space Needs Analysis

The table above demonstrates that the proposal provides sufficient open space in accordance with relevant planning guidelines.

The Faringdon Playing Fields are not part of this development however a concept for a park upgrade has been provided in the Landscape Masterplan. This is a concept only and will depend on liaisons between Council and the Aboriginal community regarding buffer screening of the Aboriginal culturally sensitive Diamond Tree area.

The BJ Biffin sporting fields are located in Centenary Drive approximately 2 km from the site and provide for larger scale formal sporting activities. As noted in the table above, the community parkland has been designed for passive recreation with pedestrian and cycle linkages to the smaller neighbourhood parks and the future wetland walkway link to Bellwood.

The proposed major community parkland, smaller neighbourhood parks, internal cycleways exceed the guidelines as demonstrated in Table 3.1. for open space for the expected resident population of up to 1,200 people.

## Diamond Tree / Faringdon Fields

### 7.1 Overview

**Issue:**

*Social implications stemming from the cultural sensitivities of the local Aboriginal community about the Diamond Tree and the inability of women and children under Aboriginal cultural law to use Faringdon Fields and the surrounding area which are within hearing distance of a Bull Roarer.*

### 7.2 Faringdon Playing Fields and Diamond Tree

The Aboriginal cultural significance of the ‘Diamond Tree’ has been recorded previously by others and is listed as NPWS Site # 21-6-0090. Nambucca Shire Council’s Aboriginal Cultural Heritage Management Plan makes reference to the carved tree as follows:

*The bloodwood tree was carved in the 1930s and is generally referred to as the “Diamond Tree”. This tree is now in an advanced state of decay and was wire wrapped by the NPWS in April 1991. The Diamond Tree is of particular importance to the local Aboriginal people. The site is also entered on the Register of the National Estate.*

The SIA prepared in October 2010 referred to the significance of the Diamond Tree in terms of subdivision design. A suggested layout for the redevelopment of Faringdon Playing Fields and the retention of vegetation buffers around the final stage of the developments nearest to the Diamond Tree has been proposed.

In his original archaeological assessment in December 2009, John Appleton of Archaeological Surveys and Report provided a range of mitigating guidelines for the protection of Aboriginal cultural sites including the following notation to be placed on future planning certificates:

*“The Bellwood/Nambucca Aboriginal Community believes that any prospective Aboriginal purchaser of residential property in the proposed subdivision should be advised that it is a common belief amongst Aboriginal people of the area that anyone residing within “bull-roarer” distance of the Highly Culturally Significant carved tree known as the “Diamond Tree” may experience sickness”.*

Later consultation with the Aboriginal community (March – June 2012) included a ‘walk – over’ of the site to discuss the potential impact of Stage E of the development and the future extension of Marshall Way, the ‘link road’. A record of those discussions is found in



the June 2012 addendum to the Archaeological Assessment and is partially reproduced below:

*The Aboriginal representatives were concerned for development occurring too close to the 'Diamond Tree'. The meeting discussed an option allowing some development to proceed by way of allowing an extension to Alexandra Drive from the north to permit a row of residential lots on the western side of that road across land on the slopes surround the 'Diamond Tree' site. This option would require rear fencing or other screening of the lots and road from any view of the 'Diamond Tree' site.*

*The preferred option is for all of the residential land on the slopes surrounding the 'Diamond Tree' site and including any road link by way of an extension to Marshall Way or Alexandra Drive to be acquired by the NSW Office of Environment & Heritage for dedication as a buffer reserve to the 'Diamond Tree'. The Aboriginal representatives suggested that the Local Aboriginal Land Council may be able to contribute to the cost of acquisition.*

*It was explained to the Aboriginal representatives that the Marshall Way extension was proposed by the Council and while the connection offers a practical link to Bellwood & Nambucca Heads the proposed subdivision can have access limited to Alexandra Drive and to Nambucca Heads to the north.*

As noted above, the proposed development does not include the Marshalls Way extension as part of the subdivision works, however, developer contributions levied on the development would contribute to the construction of that linkage. Suggested redevelopment of the Faringdon Playing Fields are also documented in the Landscape Masterplan, however, these are not part of the subdivision works.

On the basis of new information received following recent liaison with the Aboriginal community by Appleton, Stage E of the development (proposed Lots 334 to 352 and Roads 15 and 16) should be amended or deferred from the development until:

1. a compromise design is agreed upon with the Aboriginal community comprising a single row of lots along the southern extent of Alexandra Drive and buffer planting with suitable impervious fencing; and/or
2. arrangements are made to acquire the land surrounding the Diamond Tree for cultural reserve purposes by the NSW Office of Environment & Heritage.

This approach may alleviate the need to notify future purchasers by way of a notation on planning certificates of the presence of the Diamond Tree and the belief that anyone residing within a 'bull roarer' of the tree may experience sickness. Council planning staff has advised that this approach is difficult to implement through their usual processes as the cultural site is not listed on the heritage schedule of the Nambucca Local Environmental Plan 2010 by request of the Local Aboriginal Land Council.

Future management of the land surrounding the “Diamond Tree’ and the redevelopment of the Faringdon Playing Fields are a matter for the Aboriginal community, the Local Aboriginal Land Council and the Nambucca Shire Council to continue to progress. Discussions with Council staff and local stakeholders indicate that the fields are not utilised in their present ‘open’ format. Local schools are reluctant to program sports or activities at the field as Aboriginal people, especially women and girls, will not attend this area out of respect for the cultural sensitivity of the site.

Suggestions for redevelopment are heavily focused on the screening and buffering of the Diamond Tree and use of the fields for passive activities and non-team sports. Council’s Economic Development Officer advised that some thought had been given to utilising the Faringdon Playing Fields as a Men’s Shed for Aboriginal men. Under this scenario, the area nearest the Diamond Tree could be utilised for men’s only activities, leaving the more distant areas of Faringdon Field for passive recreational use.

In terms of the subject development, provided Stage E under the present layout and the Marshall Way ‘link road’ are not part of the approved works, the Diamond Tree and surrounding area will remain adequately buffered from public view. The remainder of the Nambucca Gardens Estate does not impact on these cultural areas.

## Appendix

# A

### **NSC Community Strategic Plan – Our Society and People**

# Our People and Society

## Towards the Nambucca Shire 10-year Community Strategic Plan

This paper has been prepared as part Nambucca Shire Council's (NSC) Community Engagement Strategy, to assist in preparing the Council's 10-year Community Strategic Plan.

It gives a snapshot of the existing social position of the Nambucca Local Government Area (LGA) and highlights opportunities and challenges that the area faces.

*Note: unless otherwise indicated, population figures refer to the Australian Bureau of Statistics 2006 Census.*

### 1 POPULATION GROWTH

As at the 2006 census the population of the LGA was 17,991 persons.

Although the Nambucca LGA has previously been identified in the top 10 fastest population increases in NSW LGA's (year ending 30 June 2004 (growth rate of 2.2%)<sup>1</sup>), the average annual growth rate for the 2001-2006 period was 0.2% and the average annual growth rate for the last 25 years is 1.7%.

Predicting future population growth in the LGA is difficult and a number of different models can be used to determine growth. Recent strategies prepared by Council have not limited population estimates to a single methodology, rather they have examined low, medium and high estimates.

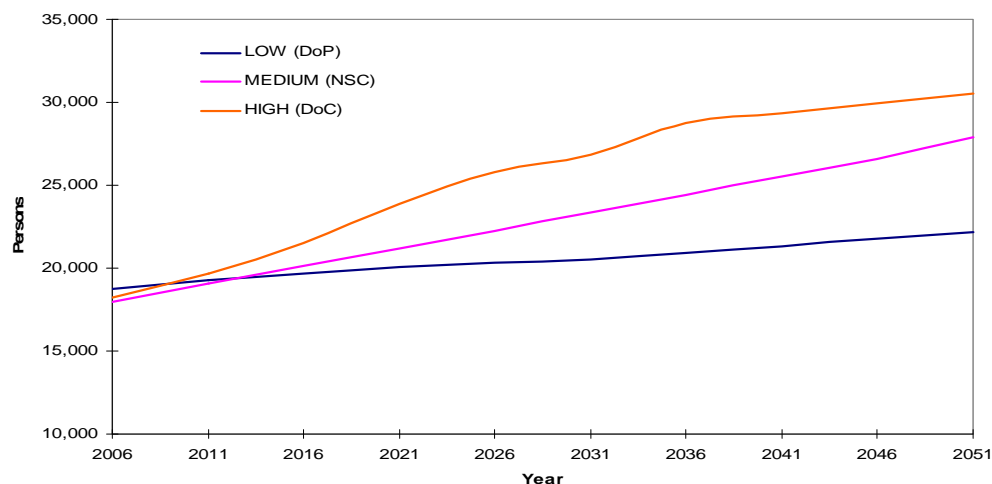
LOW, MEDIUM AND HIGH POPULATION PROJECTIONS, NAMBUCCA LGA			
	LOW (Department of Planning)	MEDIUM (Nambucca Shire Council)	HIGH (Department of Commerce)
2006	18,749	17,991	18,219
2011	19,249	19,054	19,661
2016	19,690	20,125	21,481
2021	20,060	21,196	23,877
2026	20,340	22,266	25,810
2031	20,538	23,337	26,859
2036	20,938	24,408	28,774
2041	21,346	25,527	29,359
2046	21,762	26,549	29,943
2051	22,186	27,923	30,556
<b>Annual Growth</b>	<b>0.4%</b>	<b>1.0%</b>	<b>1.6%</b>

Source: ABS (2009), NSW Department of Commerce (2009) Nambucca Shire Council (2010)

Based on these projections the Nambucca LGA is expected to increase from 17,991 in 2006 to between 22,186 and 30,556 persons in 2051.

<sup>1</sup> Population Bulletin June 2005 – Transport and Population Data Centre.

## LOW , MEDIUM AND HIGH POPULATION PROJECTIONS, NAMBUCCA SHIRE



## 2 POPULATION DETAILS – ABS 2006

POPULATION BY AGE GROUP COMPARED TO THE NATIONAL AVERAGE			
Age Group	No of people	% of total	Australia % of total
0-4 years	980	5.5%	6.3%
5-14 years	2,369	13.2%	13.5%
15-24 years	1,780	9.9%	13.6%
25-54 years	6,105	34.1%	42.2%
55-64 years	2,616	14.6%	11.0%
65 years and over	4,048	22.6%	13.3%
Median age	46		37

The population is dispersed across five urban centres with the balance in a rural hinterland:

<b>Nambucca Heads</b>	<b>5,873</b>	<b>Macksville</b>	<b>2,658</b>
<b>Valla Beach</b>	<b>1,054</b>	<b>Bowraville</b>	<b>976</b>
<b>Scotts Head</b>	<b>789</b>	<b>Balance – rural hinterland</b>	<b>6,547</b>

SELECTED MEDIANS AND AVERAGES				
	Nambucca		MNC	NSW
Median Age	46		43	37
Median Individual Income (p/w)	\$296		\$344	\$461
Median Household Income (p/w)	\$562		\$642	\$1,036
Median Family Income (p/w)	\$642		\$821	\$1,181
Median Housing Loan Repayments (monthly)	\$900		\$1,083	\$1,517
Median Weekly Rent	\$146		\$165	\$210
Average Household Size	2.3		2.4	2.6
No of lone person households	2,156	30.1%	26.5%	24.1%
No of one parent families	922	18.7%	18.0%	16.1%
Left school at Yr 10 or below	8,572	58.9%	57.2%	41.4%
Zero vehicles per household	754	10.5%	9.1%	11.6%
1 vehicle per household	3,357	46.8%	42.7%	38.3%

### **3 WHAT STATISTICS TELL US ABOUT POPULATION GROUPS**

- Aboriginal and Torres Strait Islander peoples – a young population
- Children – a decreasing population; significant number of 1 parent families
- Older people – high proportion of older people and lone households
- People from culturally and linguistically diverse backgrounds – not a significant number of people; very varied population who tend to be long-term residents
- People with disabilities – results are affected by the age of the population generally
- Women – an ageing population and large number of widows
- Young people – number remained similar over 20 years, however the proportion is decreasing

### **4 CHILDREN – Population, Key Issues and Opportunities**

In 2006:

- There were 2,562 children 11 years and younger, a decrease of 227 from the 2001 census.
- The highest concentration of children 0-11 years was in Bowraville (22.3%) and Eungai area (20.4%).
- There were 4,924 families in Nambucca LGA: 32.1% were couple families with children, 47.8% couple families without children, and 18.7% were one parent families.
- The average family weekly income for couples with children was \$1,125, (couples without children \$791), one parent families \$587.
- 289 children were attending pre-school = 73.9% of 3 and 4 year olds.

<b>NAMBUCCA SHIRE POPULATION OF CHILDREN 1986 – 2006</b>								
	<b>Nambucca Shire</b>					<b>% proportion of 2006 population</b>		
<b>Age</b>	<b>1986</b>	<b>1991</b>	<b>1996</b>	<b>2001</b>	<b>2006</b>	<b>Nambucca</b>	<b>MNC</b>	<b>NSW</b>
<b>0</b>	224	244	193	183	199	1.1	1.1	1.3
<b>1</b>	235	248	213	167	169	0.9	1.0	1.3
<b>2</b>	266	258	248	205	222	1.2	1.1	1.3
<b>3</b>	244	275	239	195	180	1.0	1.1	1.3
<b>4</b>	241	287	239	223	211	1.2	1.1	1.3
<b>5</b>	227	257	273	212	222	1.2	1.2	1.3
<b>6</b>	222	300	250	258	202	1.1	1.3	1.3
<b>7</b>	215	300	295	260	221	1.2	1.3	1.3
<b>8</b>	220	282	286	260	216	1.2	1.3	1.3
<b>9</b>	191	291	298	257	236	1.3	1.4	1.3
<b>10</b>	228	268	272	299	215	1.2	1.4	1.3
<b>11</b>	235	262	273	270	269	1.5	1.5	1.4
<b>TOTAL</b>	<b>2748</b>	<b>3272</b>	<b>3079</b>	<b>2789</b>	<b>2562</b>	<b>14.3</b>	<b>14.9</b>	<b>15.7</b>

Improved child well-being, health and safety: nutrition and obesity; good oral health and access to affordable dental services; protecting children from tobacco; access to therapy; children have parents who know how to and can parent effectively; mothers have healthy pregnancies and babies are born healthy.

Make sure children have the skills for learning by school entry: access to high quality preschool and increased participation; improved literacy and numeracy rates by increasing the understanding by parents and community of its importance.

Support students to reach their full potential at school: early identification of children needing additional support; and increased support networks for families of children with a disability.

Important initiatives and services include BRIDGES at Bowraville Central School; supported playgroup at Macksville; Nambucca-Bellingen Family workers; Ante-natal services; Brighter Futures; Triple P seminars and groups; Early Childhood Intervention Service; Aboriginal medical centres and Maternal Infant Health Strategy; Early Childhood Clinics.

## 5 YOUNG PEOPLE – Population, Key Issues and Opportunities

In 2006:

- Approx 10% of the Nambucca Shire's population is high school aged young people.
- Main concentrations are in Bowraville, Valla Beach, Nambucca Heads and Eungai area where around 1/3 of the population is under 18 years of age; however at Macksville it is about 4%.
- The proportion of indigenous young people is significantly higher than the State average at 7.4%.
- The proportion of 18-23 year olds in education is low compared to the State average due to the number who leave the area for further education and work.

AGE BREAKDOWN OF THE YOUTH POPULATION												
Age	Males			Females			Total			% of Total Pop		
	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006
12-14	479	469	399	475	403	360	954	872	759	5.4	4.9	4.2
15-17	435	423	393	385	395	395	820	818	788	4.7	4.6	4.4
18-19	150	200	164	118	157	149	268	357	313	1.5	2.0	1.7
20-24	320	294	324	359	280	305	679	574	629	3.9	3.2	3.5
<b>Total</b>	<b>1465</b>	<b>1448</b>	<b>1280</b>	<b>1410</b>	<b>1299</b>	<b>1209</b>	<b>2875</b>	<b>2747</b>	<b>2489</b>	<b>15.3</b>	<b>15.5</b>	<b>13.8</b>
Source: ABS 1996/2006 Census in conjunction with the National Youth Affairs Research Scheme												

Education and Employment Opportunities: for jobs, distance education, traineeships, university and trade qualifications eg Bowraville Off-site Learning Centre, Nambucca Skills Centre, NORTEC Pride Café and Nambucca Valley Youth Services Centre Inc with its Mobile Fresh Café and Creative Design; improved schools – more grass/shade, better equipment and buildings, relevant subjects/timetables and more choice; a place where everyone gets along, up-to-date and access to technology; whether to stay or leave the area? – new experiences and opportunities, valley is a retirement area.

Health: substance abuse – not knowing when enough is enough; mental health – depression, weight issues, self harm, suicide, family problems; youth-friendly clinics, counselors and support; wellbeing – nutrition, smoking, and access to sport facilities and exercise; sexual health – education, STD's, contraception, pregnancy eg Resilient Young People's Program in high schools.

Safety: feeling safe in the community – being harassed, violence, gangs, drunks in public places, dark places/lack of lighting, unfriendly Police, safe parties

Participation in Decision Making: having a say, being listened to and then someone doing something about it; Both new technology and traditional ways are still important; remove barriers – like attitudes to young people by seniors, come to school for open conversations, allow anonymous contribution promote trust and respect, have representation; use youth activities to express young people's views.

Pastimes: playing sport, catching up with friends, listening to music, swimming and surf-related activities, social networking.

NSC employs a full-time Youth Development Officer and provides 2 libraries with a range of services for young people. It also has a number of Committees of Management which plan activities or manage facilities for young people eg Missabotti Hall, Grants Hall.

## 6 OUR INDIGENOUS PEOPLE – Population, Key Issues and Opportunities

In 2006:

- The Census counted 1,025 indigenous people (489 males and 536 females) being 5.7% of the population (Australia 2.3%)..
- The population is very young with a median age of 17 years compared to 47 for the population overall.
- Showed only 3% of people are employed and an unemployment rate for indigenous people of 34.8%

SELECTED CHARACTERISTICS BY TOWN FOR NAMBUCCA SHIRE INDIGENOUS POPULATION									
	Macksville (2447)			Nambucca Heads (2448)			Bowraville (2449)		
Age Groups	2001	2006	%	2001	2006	%	2001	2006	%
0 - 4 years		27	12%		76	15%		41	16%
5 - 14 years		55	24%		141	28%		77	30%
15 - 24 years		37	16%		92	18%		35	14%
25 - 54 years		78	35%		151	30%		85	34%
55 - 64 years		22	10%		30	6%		15	6%
65 yrs & over		7	3%		14	3%		0	0%
Total	191	226	100%	323	504	100%	191	253	100%
Speaks Australian Indigenous Language		0			17			4	
Median Individual Income		\$301			\$302			\$271	

Law and Order: improved safety for youth and activities for kids; lower levels of domestic/family violence, alcohol and drug abuse, and anti-social behaviour and crime.

Education: literacy and numeracy skills that match the state average; higher levels of school attendance; completion of HSC and higher education; access to high quality preschool and increased participation prior to starting school - Giiguy Gamambi Preschool at Bellwood.

Job Creation and Employment: employment rates that match the NSW average, development of successful local businesses, local traineeships and apprenticeships. Miimi Creations is a current showcase for opportunities and Ngurrula Aboriginal Corporation is a provider for Job Services Australia.

Health: equitable access to preventative and crisis health care services, higher birth weights, lower levels of alcohol and drug abuse; babies get the best start in life. Health services available include Darimba Maara and Bowraville Health Outpost.

Housing: affordable and appropriate housing.

Some other relevant initiatives and services include:

NSC has a 4-days/week Aboriginal Community Development Officer; and the Indigenous Sports Facilitation Program. Libraries have focus collections for the Aboriginal community.

Murrabay Language Centre offers various projects and opportunities. Miimi House at Bowraville offers advocacy, information, referrals, programs and activities; legal aid also attends. The Aboriginal Legal Service provides outreach services to Bowraville Health Outpost.



## **7 OLDER PEOPLE – Population, Key Issues and Opportunities**

In 2006:

- 23% (4,102 persons) of the population was aged 65 years and over (Mid North Coast 20%, NSW 13.9%). The proportion will be 34% by 2021.
- The median age was 46 years, compared with 37 years for persons in Australia.
- The average individual income for persons aged 65-74 was \$323 per week (MNC \$349, NSW \$400); for people aged 75+ \$319 per week (MNC \$341, NSW \$367). Most seniors relied on a pension as their major source of income.
- Pensioner Age (over 65) as a Proportion of Working Age was 39.3%.
- A large number of seniors lived alone.
- The older population had greater representation of females compared to males which will bring specific impacts on the health and Medicare system due to the ageing of the female population
- 872 people (507 women and 365 men) over 65 years did voluntary work in the previous 12 months.
- The Nambucca has a large population of indigenous peoples, however they are under-represented in the 65+ years age group.

<b>OLDER POPULATION – NAMBUCCA SHIRE COMPARED TO MID NORTH COAST and NSW</b>				
<b>Age</b>	<b>Shire Number of Persons</b>	<b>Shire % Total</b>	<b>MNC % Total</b>	<b>NSW % Total</b>
<b>55-59</b>	<b>1,406</b>	<b>7.9</b>	<b>7.3</b>	<b>6.1</b>
<b>60-64</b>	<b>1,227</b>	<b>6.9</b>	<b>6.5</b>	<b>4.8</b>
<b>65-69</b>	<b>1,160</b>	<b>6.5</b>	<b>5.7</b>	<b>3.9</b>
<b>70-74</b>	<b>960</b>	<b>5.4</b>	<b>4.9</b>	<b>3.2</b>
<b>75-79</b>	<b>888</b>	<b>5.0</b>	<b>4.2</b>	<b>2.9</b>
<b>80-84</b>	<b>656</b>	<b>3.7</b>	<b>3.0</b>	<b>2.2</b>
<b>85-89</b>	<b>301</b>	<b>1.7</b>	<b>1.5</b>	<b>1.1</b>
<b>90-94</b>	<b>110</b>	<b>0.6</b>	<b>0.6</b>	<b>0.5</b>
<b>95-99</b>	<b>24</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>
<b>100+</b>	<b>3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

The Local Government and Shires Associations of NSW estimate that by 2018, around 6,400 or 1/3 of the Shire's population will be aged 65 years or older and that 3,600 of this group will be 65-75 years of age.

Housing: adaptable for life changes; maintaining one's own home; social isolation/living on your own; poor living environment/squalor. Areas of improvement include additional housing and aged care choices locally.

Access to transport: lack of infrastructure; increasing fuel prices; pressures on Community Transport. Recent improvements include access to the \$2.50 RED ticket for bus transport.

Care Issues: Palliative Care; increasing incidence of dementia; respite options for carers; high demand for Domestic Assistance; access to Allied Therapists particularly Occupational Therapy and Podiatry. There is a small hospital but an ageing primary health care centre.

The Built Environment: lighting and safety; accessibility; footpaths.

The Nambucca Shire has an active and strong University of the Third Age; and a large population of people with skills and experience who are potential community leaders and mentors.

NSC has a part-time aged/disability worker and a number of strategies in place or being developed eg Pedestrian Access and Mobility Plan; and Workplace Equity and Diversity Strategy. Council has 2 senior citizen's centres, 2 libraries, a hydrotherapy pool and numerous active and passive sporting and cultural facilities which appeal to seniors.

There are strong community-based organizations providing aged services.

Major changes which may impact locally are the aged Care reforms and the transition of Home and Community Care (HACC) Program services to the Commonwealth government.

## **8 PEOPLE WITH DISABILITIES – Population, Key Issues and Opportunities**

NSW Ageing, Disability and Home Care estimate that 22% of the population has a disability (3,700 people).

In the 2006 Census, 1,265 people (or 7% of the total population) in the Nambucca Shire reported that they had need for assistance due to profound disability. 1,913 people reported that in the 2 weeks prior to Census night they spent time providing unpaid care, help or assistance to family members or others because of a disability, long term illness or problems related to old age.

People acquire disabilities as they age and therefore the figures will be affected by the large numbers of older people living in the Shire. There are also many issues and opportunities which are shared between these population groups.

Housing: adaptable for life changes; maintaining one's own home; supported accommodation for younger people with disabilities,

Care Issues: Care for people with Acquired Brain Injury; respite options for carers and people with disabilities;

The Built Environment: accessibility; footpaths.

Employment: engaging people with disabilities in employment

In addition to the resources listed above (Section 7 Older People), NSC has a Pedestrian Access and Mobility Plan and Disability Action Plan.

## **9 PEOPLE FROM CULTURALLY DIVERSE BACKGROUNDS**

- The vast majority (64%) of the Nambucca Shire population who reported as being born overseas in the 2006 Census, were born in either the United Kingdom or New Zealand.
- Nambucca Shire has a very small population of people who were born overseas in a non-English speaking country (2.9%). The vast majority of these people had been in Australia for 10 years or more.
- Those arriving between 1996 and 2006, arrived in small groups of 3 or 4 from the following countries: Fiji, Germany, Hong Kong, India, Indonesia, Philippines, South Africa and Thailand.
- The most popular languages (other than English) spoken at home were German, Australian Indigenous, Dutch and Italian.

## **10 GENERAL COMMUNITY – Key Issues and Opportunities**

How to fund services?

There are scarce resources and few opportunities for recurrent funding, therefore there is a need to collaborate and work creatively for growth and sustainability in community services. The challenge is that this needs to occur in an environment where there is competition for funding by competitive tendering. The Evolve Network Australia proposed "Collaborative HUB Model" is being developed to tackle some of these issues.

Cultural Opportunities

Although it lacks a major cultural festival, the Shire has a small number of highly valued cultural assets including the Bowraville Theatre and a number of niche museums. Organisations such as Nambucca Valley and Bowraville Arts Councils continue to offer a range of cultural programs; however challenges here include the continued development of these facilities, maintenance of buildings and assisting our ageing volunteers.

Rural Communities

The rural community continues to face numerous challenges from low average gross farm incomes, commodity prices, viability issues and the impact of severe weather events. The community-based Rural Financial Counsellor may assist with access to financial assistance and business planning; assistance to plan farm exit; and referral to support agencies. The Macksville Show, (in its 99<sup>th</sup> year in 2011) continues to showcase some of the aspects of Nambucca rural life and combined with its entertainment program, remains one of the last events on the local calendar with a community-wide audience.

Other issues for rural communities include infrastructure management (eg roads, bridges, halls).

## **BACKGROUND INFORMATION – INTEGRATED PLANNING AND REPORTING**

The Local Government Act 1993 was amended in 2009 to introduce a new integrated planning and reporting framework for local government. Central to this framework was the establishment of a Community Strategic Plan which identifies the Shire's aspirations and priorities over the next 10 years.

The Community Strategic Plan is different from conventional Council Strategic Plans in that it can include matters outside of Councils traditional sphere of activity. Therefore the Community Strategic Plan can only be delivered successfully by the combined efforts of local organisations, community, State agencies and Council.

The Council's contribution to the achievement of the Community's aspirations and priorities is contained in the Council's Delivery and Operational Plans. The diagram below outlines how this integrated planning framework links together.



Objectives of engaging the community in this process include:

- Review previous community engagement as basis for the draft Community Strategic Plan
- Identify any gaps and priorities in Councils knowledge of community aspirations
- Ensure residents are informed and educated on key issues facing the shire
- Focus discussion on the 'big' strategic issues
- Create community buy-in and ownership of their Community Strategic Plan and its strategies
- Provide input for future Council decision-making
- Develop ongoing community partnerships and shared responsibility for local issues

The timeframe:

Activity	Timeframe
Develop Community Engagement Strategy	December 2010
Undertake Community Survey	December 2010
Research State government plans	December 2010
Develop information/discussion papers on key issues	February 2011
Media Involvement	February 2011
Regular home page blog	February 2011
Council meetings incorporating community forums	February to July
Community Forums – People, Environment & Economic Development	March 2011
Report on outcome of community engagement	July 2011
Prepare draft Community Strategic Plan	Sept. 2011
Develop draft Delivery Plan	Oct. 2011
Consultation on draft Plans	March 2012

## Appendix

# B

## **Housing NSW – Nambucca Housing Market**

## Information on Nambucca Housing Market

### INTRODUCTION

This information on Nambucca Housing Market examines the affordability, adequacy and appropriateness of housing to meet the needs of the local community, with a particular focus on low and moderate income earners who may be in housing need. The term 'affordable housing' applies to housing that is appropriate to the needs of a household and within their means to pay for it.

Data for this housing market analysis has been drawn from the Australian Bureau of Statistics 2006 and 2001 Census, Centrelink, Rental Bond Board data, Valuer General's data and Housing NSW's Housing's asset database. For analysis purposes, Housing NSW groups the Nambucca LGA as part of the Mid North Coast market together with Bellingen, Coffs Harbour, Greater Taree, Kempsey and Hastings. These market groups have been identified largely on the basis of shared geographical, demographic, and socio-economic characteristics.

The Explanatory Notes elaborate on the information included in the housing market analysis. They discuss housing stress, adequacy and appropriateness of affordable housing stock, housing diversity as well as what can be done about these issues, broader housing market trends, plus where to look for more information. They also provide information on housing tenure, boarding house accommodation and residents, caravan park accommodation and residents, the housing needs of older people, of younger people, housing issues in non-metropolitan NSW, homelessness and indigenous housing, with some ideas on what can be done about these issues at a local level.

### HOUSING MARKET

#### A Glance at the Market

At the 2006 Census, Nambucca had a population of 17,897 (up by 1.0% from 17,718 in 2001). Nambucca had a total of 7,582 occupied dwellings at the 2006 Census (up by 4.5% from 7,256 in 2001), giving an average occupancy rate of 2.36 persons per dwelling (down from 2.44 in 2001). This occupancy rate is well below the average for non-metropolitan NSW of 2.53 (down from 2.62 at the 2001 Census) and is the lowest occupancy rate in the Mid North Coast housing market, with Hastings (2.40 persons per household average), Bellingen (2.43), Kempsey (2.48), Coffs Harbour (2.49) and Greater Taree (2.52). All the local government areas in the Mid North Coast housing market have below non-metropolitan NSW average occupancy rates.

#### *Indigenous Population*

Like non-metropolitan NSW generally, the indigenous population in Nambucca increased between 2001 and 2006 by 7.5% from 954 to 1,026 (compared with the growth rate of just 1.0% for the total population). Indigenous people now represent 5.7% of the total population in Nambucca local government area, compared with 4.7% on average for non-metropolitan NSW (excluding the Greater Metropolitan Region or GMR). Neighbouring local government areas in the Mid North Coast housing market have indigenous populations ranging from 2.6% in Bellingen and Hastings to 9.3% in Kempsey. Across Australia the indigenous population is growing at three times the national average. Between 2001 and 2006 across Australia the indigenous population

grew by 11%<sup>1</sup>. Part of the growth in regional centres is due to a drift into urban areas and part due to the extremely high birth rate.

### **Housing Diversity**

It is noted that at the 2006 Census, 1.2% of all dwellings in Nambucca had no bedroom (bedsits), 5.4% had one bedroom, 23.7% had two bedrooms, 45.9% had three bedrooms and 21.6% had four (with 2.2% not stated). This means that at least 67.5% of dwellings in Nambucca had three or more bedrooms. Separate houses are the predominant dwelling type in Nambucca.

The predominance of larger bedroom stock indicates a lack of housing diversity. Lack of diversity in housing configuration and type is a problem across NSW but is more acute in the outer ring local government areas of the GMR and in rural and coastal NSW.

### **Private Rental Market**

#### **General**

As of the 2006 census the private rental market represented 16.03% of all occupied private dwellings in Nambucca (down from 17.5% in 2001), compared to an average of 17.29% in non-metropolitan NSW. The proportion of private rental stock in Nambucca was the lowest in the Mid North Coast housing market at 2006, with Coffs Harbour (21.59%), Hastings (18.63%), Bellingen (17.94%), Greater Taree (17.7%) and Kempsey (16.60%). Coastal areas of NSW and local government areas with major regional centres (such as Coffs Harbour) tend to have a higher proportion of private rental stock than less intensively populated rural and regional areas (for example Broken Hill has 10.63% of its stock in private rental, Walcha 10.94% and Queanbeyan 21.52%).

It should be noted that the proportion of private rental stock in non-metropolitan NSW declined between 2001 and 2006 from 17.53% to 17.29%. Many inland rural local government areas lost occupied private dwelling stock between 2001 and 2006, even areas with strong population growth, such as Lismore. The fact that Nambucca lost private rental stock despite an increase in the total number of dwellings suggests that there has been some conversion of private rental to owner occupation. This reduces flexibility or capacity of the housing stock to respond to local need and is likely to have an impact on affordability.

#### **People in Housing Stress**

Using 2010 Centrelink data Housing NSW has calculated what proportion of people on low incomes in the private rental market and in receipt of Commonwealth Rent Assistance (CRA) are paying more than 30% of their income as an indicator of housing stress (the Explanatory Notes provide more information on housing stress). There are around 2,077 Nambucca residents in receipt of Commonwealth Rent Assistance and 24.8% are in housing stress. Single person households form the majority of households in housing stress in Nambucca, comprising 65.1%, followed by single parents with 21.7%. This data indicates that while in the majority of cases CRA is sufficient income support to ensure low income earners are not in housing stress, the private rental market in Nambucca is not catering well to the needs of smaller households in particular.

From the 2006 Census, 59% of all low<sup>2</sup> and moderate<sup>3</sup> income households renting in the private rental market in Nambucca are in housing stress. This represents an

<sup>1</sup> <http://www.smh.com.au/news/national/caught-out-by-an-urban-time-bomb/2008/03/10/120...>

<sup>2</sup> "Low income" households are those whose income is under 80% of the median household income.

<sup>3</sup> "Moderate income" households are those whose income is between 80% and 120% of the median household income.

increase of 4.9% from the 2001 Census (despite the fact there are fewer households renting) and is above the average of 56% across the GMR and well above the 50% for non-metropolitan NSW. In the same housing market, Coffs Harbour has 61% of low and moderate income renters in housing stress, Hastings 60%, Bellingen and Kempsey 57%, and Greater Taree 54%. It should be noted that Nambucca has considerably more low and moderate income renters in housing stress than purchasers, in line with the trend nationally.

#### ***Caravan Parks***

According to ABS data from the 2001 Census, there were 370 households living permanently in caravan park and manufactured home estate accommodation in Nambucca. Of these 86% of households own their home/van and rent the site and the remaining 14% rent both the van and the site. This is a relatively high proportion owning the van and renting the site. According to Centrelink data at the time of the 2001 Census, 283 of all caravan park and manufactured home estate residents in Nambucca were in receipt of a pension or benefit. Of those, 64% were single person households and 34% were couple only households. In addition, 68% were in receipt of an Aged Pension. This suggests that caravan parks and manufactured home estates are providing affordable housing for lower income earners, mostly in single person households and predominantly to older residents.

According to ABS data from the 2006 Census there are 628 households living in caravans and manufactured homes in Nambucca. Not all of these are necessarily living in caravan parks or manufactured home estates as there has been a change to the way ABS collects data and all residents living in caravans (for example at road sides, on vacant lots) are now included. Centrelink data from 2006 indicates 473 residents of caravans/manufactured homes are in receipt of a pension or benefit. There are only ten local government areas in the whole of NSW with more Centrelink recipients living in caravan or manufactured home accommodation.

Caravan Park accommodation provides a housing choice to people with limited housing options. Caravan parks provide housing to people who may not have the references to access housing in the private rental market, who may not be able to afford anything else or who need flexibility. The closure of caravan park accommodation or conversion to tourist sites reduces the housing options available for people on low incomes. Given the decline in the number of caravan parks across NSW, when a caravan park is redeveloped or there is a switch from long term to short term sites, residents are at risk of homelessness. In a recent research paper "Planning for Affordable Housing in Coastal Sea Change Communities" by Nicole Gurrán and Caroline Squires, the authors note that "Areas on the mid and far north coast of New South Wales have experienced significant declines in permanent caravan park accommodation. A total of 420 permanent sites are estimated to have been lost between November 2001 and January 2004 on the north coast... and a significant amount of remaining caravan park accommodation is at risk of being redeveloped."

Additional information about caravan park accommodation and residents is included in the Explanatory notes.

#### ***Rental Affordability***

At June 2008 the average proportion of housing that is theoretically affordable<sup>4</sup> for people at 80% of median income<sup>5</sup> in Nambucca was 83.0% (down from 90.8% just six

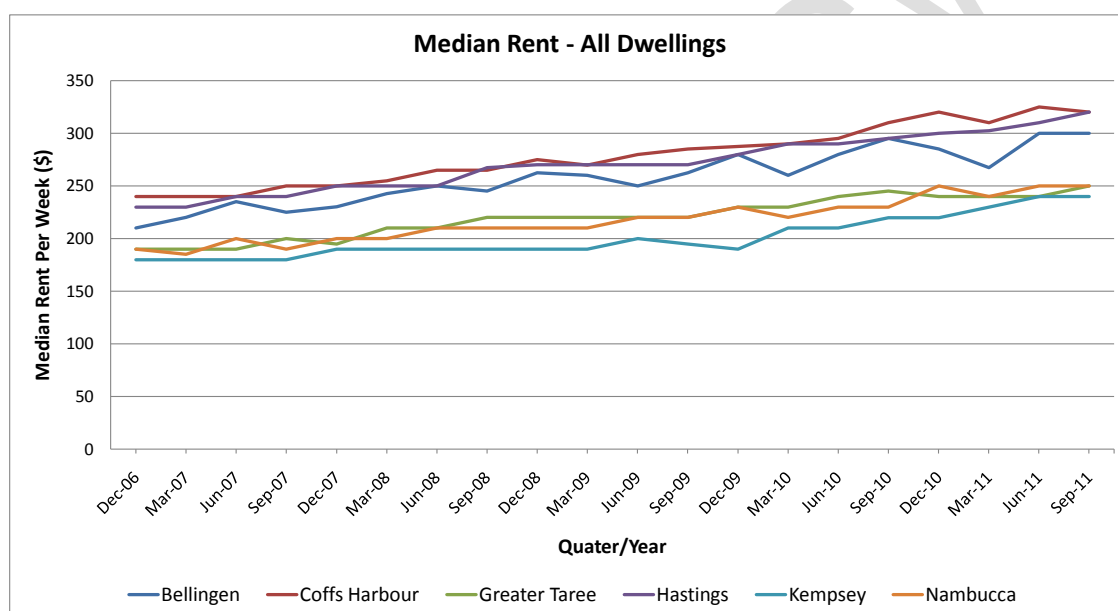
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<sup>4</sup> Based on 30% of income

<sup>5</sup> Estimated based on non-metropolitan NSW weekly household income (Census 2006) and Average Weekly Earning index published by ABS. NSW income is used as proxy for non-metropolitan NSW

months prior at December 2007), which is above the average for non-metropolitan NSW of 64.8%. The proportion of affordable rental in Nambucca is towards the top of the range of neighbouring local government areas which range from 43.3% in Coffs Harbour to 86.1% in Kempsey. It should be noted that not all affordable private rental housing is actually occupied by lower and moderate income earners, as the Explanatory Notes explain. This is evident from the number and proportion of low and moderate income earners in stress in the private rental market, according to both Census and Centrelink data. The Explanatory Notes also give more information about rental housing affordability.

The chart below shows the difference in median rental levels between Nambucca LGA and its neighbouring LGAs of Coffs Harbour, Bellingen, Greater Taree, Kempsey and Hastings over the period from December 2006 to September 2011. Rents have increased at a steady rate for all LGA's in the Mid North Coast housing market over this period, with Hastings and Coffs Harbour generally having the highest median rent for all dwellings.



At September 2011 median rent for all dwellings (houses and units) in Nambucca for one bedroom dwellings was \$160 per week; the median rent for two bedroom dwellings was \$200 per week (up 3.6% in the last 12 months); median rent for three bedroom dwellings was \$275 (up 2.6% in the last 12 months); and median rent for four or more than four bedroom dwellings was \$315. Median rental levels in Nambucca are at the lower end of the range in the Mid North Coast housing market and are lower than the medians for non-metropolitan NSW. Generally the Mid North Coast housing market is experiencing steady increases in median rents, with Hastings and Kempsey experiencing the greatest increases.

Median Rents for all dwellings (houses and units) in the Mid North Coast NSW for September 2011. The annual change in median is in brackets.

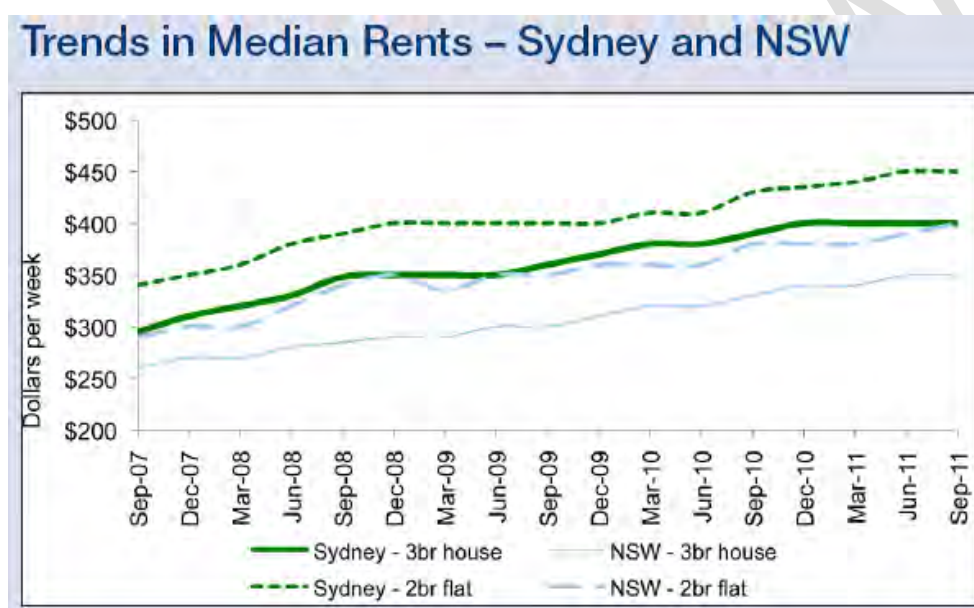
LGA	One bedroom	Two bedroom	Three	Four+
Nambucca	\$160	\$200 (3.9%)	\$275 (2.8%)	\$315



Bellingen	-	\$240	\$300 (3.4%)	\$360
Coffs Harbour	\$200 (0.0%)	\$250 (4.2%)	\$340 (3.0%)	\$400 (-1.2%)
Greater Taree	\$135 (-6.9%)	\$195 (-1.3%)	\$270 (5.9%)	\$320 (0.0%)
Hastings	\$168 (6.3%)	\$250 (4.2%)	\$343 (7.0%)	\$420 (5.0%)
Kempsey	\$140	\$210 (13.5%)	\$260 (8.3%)	\$310
Non-metro NSW	\$155 (3.3%)	\$220 (4.8%)	\$290 (5.5%)	\$370 (5.7%)

According to the Real Estate Institute of NSW in October 2011 the vacancy rate in the Mid North Coast was 1.8% and the private rental market has been tight (less than 3%) for at least two years.

The figure below gives a picture of the change in median rents in Sydney and NSW between September 2007 and September 2011. This contrasts with the trend for median sales prices. However, rental increases now appear to be slowing down.



Rent and Sales Report No. 97 September 2011

### Private Purchase

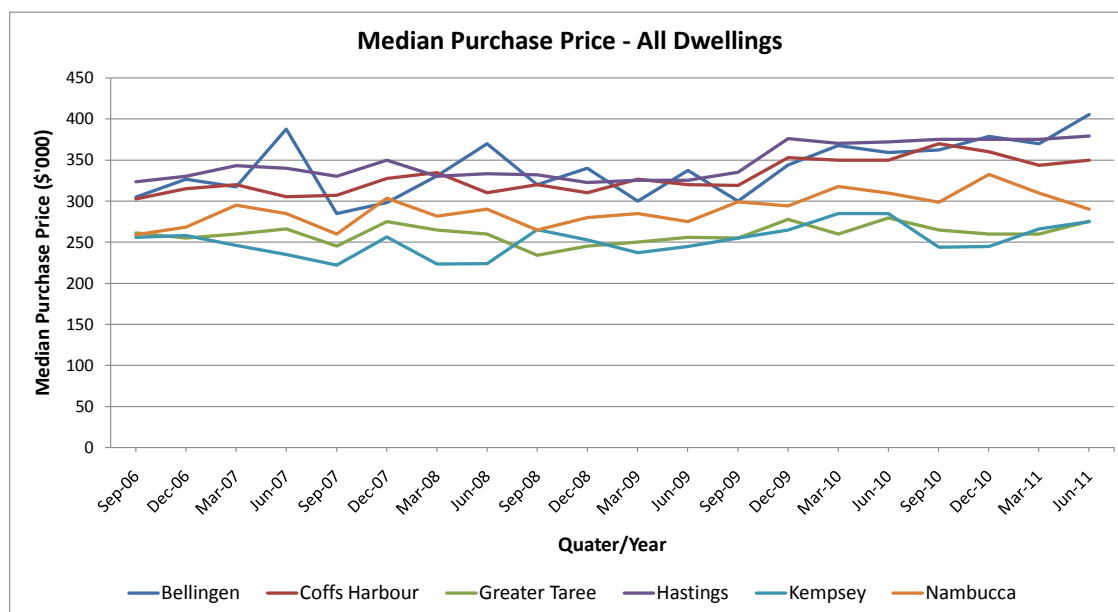
The proportion of dwellings affordable for purchase to households at 80% of median income<sup>6</sup> in Nambucca at June 2008 was just 3.5%, down from 11.4% twelve months previously at June 2007 (and compared to 12.7% in non-metropolitan NSW in June 2008). In the Mid North Coast, the proportion of affordable purchase in neighbouring local government areas at June 2008 ranged from 0.5% in Hastings to 16.2% in Kempsey. Apart from Kempsey, all the local government areas in the Mid North Coast housing market had below non-metropolitan NSW proportion of dwellings affordable for purchase.

From the 2006 Census, the proportion of low and moderate income households in Nambucca who are purchasing and are in housing stress is 46%. This is an increase of 10.3% from the 2001 Census and is above the average for non-metropolitan NSW at 2006 of 43%. The proportion of low and moderate income households purchasing and in stress in the other Mid North Coast housing market local government areas is 50% in Coffs Harbour, 48% in Bellingen, 51% in Hastings, 45% in Kempsey and 43% in

<sup>6</sup> Based on 30% of income

Greater Taree. All the local government areas in the Mid North Coast housing market have at or above non-metro average proportion of low and moderate income purchasers in housing stress.

The chart below shows the median purchase price for Nambucca and its neighbouring LGAs in the Mid North Coast housing market over the period from September 2006 to June 2011. Sales prices have remained steady within all local government areas in the Mid North Coast market, with Hastings having the highest median purchase price in the market, and Bellingen with seasonal fluctuations.

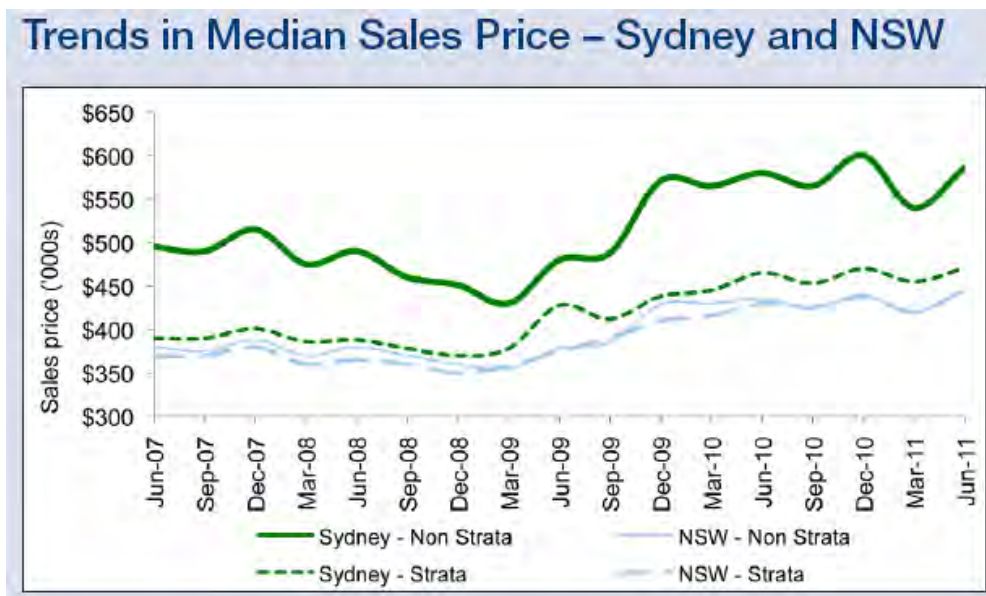


The median sales price for all dwellings in Nambucca at June 2011 was \$290,000 (down 6.4% over the last 12 months). The decrease in median sales price in Nambucca is close to that for non-metro NSW generally and similar to most LGA's in the Mid North Coast housing market. Kempsey had the lowest median sales price and Bellingen the highest in the Mid North Coast.

The median dwelling prices for the Mid North Coast housing market at June 2011 are in the table below. Price movements have varied significantly over the last 12 months, ranging from a decline of 6.4% in Numbucca to 13.1% growth in Bellingen.

LGA	Median Dwelling Price	Annual change
Nambucca	\$290,000	-6.4%
Bellingen	\$406,000	13.1%
Coffs Harbour	\$350,000	0.0%
Greater Taree	\$276,000	-1.4%
Hastings	\$379,000	1.9%
Kempsey	\$275,000	-3.5%
Non-metro NSW	\$270,000	-0.8%

The trends in median sales price for houses and units for Sydney and NSW for the period June 2007 to June 2011 are depicted in the figure below.



Rent and Sales Report No. 97 June 2011

## Social Housing

There are currently around 321 social housing dwellings in Nambucca, with 265 public housing dwellings, 36 Aboriginal Housing Office dwellings and 20 community housing properties. At the 2006 Census, public housing represented 3.7% of all housing in Nambucca which is just above the average of 3.5% for non-metropolitan NSW.

The majority of public housing tenants (household heads) in Nambucca are aged over 55 (64.2% compared to 42.0% on average in non-metropolitan NSW) and single person households are the predominant household type (50.3% compared with 45.7% on average in non-metropolitan NSW), followed by couple households (16.0% compared with 9.0% in non metropolitan NSW).

## Key Issues

In Nambucca key housing issues for the community include:

- The low and declining proportion of private rental. The decline in private rental stock reduces flexibility in the housing market and thereby lessens the capacity to meet the needs of local residents throughout the housing life cycle. It can also result in lower income earners being squeezed out of the market, homelessness and an increase in requests for housing assistance.
- The low and declining average number of persons per household suggests a high number of smaller households.
- At the same time there is a distinct lack of housing diversity. With the vast majority of dwelling stock being three or more bedrooms and in the form of separate dwellings, there is a lack of housing diversity to meet the needs of the community through different stages of the housing life cycle. There is a need for more one bedroom, studio, accessory dwellings and new more self-contained boarding house style accommodation to assist in meeting local housing needs, particularly for young people and elderly people on lower incomes. The fact that the majority of CRA recipients in housing stress in Nambucca are single person

households suggests the need for more one bedroom stock. Additional information about housing diversity, including accessory dwellings (granny flats) and new more self-contained boarding house style accommodation is in the Explanatory Notes.

- The growing indigenous population may have specific housing needs. All levels of government need to work together to assist in meeting the housing needs of indigenous residents.
- High proportion of low and moderate income renters in housing stress, despite a strong public housing presence and in spite of CRA being relatively effective in Nambucca. There is a need to increase the supply of affordable rental housing.
- The fact that there are people living permanently in caravans in Nambucca further underscores this point. That the vast majority of caravan residents in Nambucca are dependent on a pension or benefit means that these people are particularly vulnerable. These residents are at risk of losing their housing if there is any move from long term to short term sites or redevelopment of the caravan parks. The loss of this low cost housing would have significant impacts for the residents and flow on effects to the local housing market. The explanatory notes show what other councils are doing to protect this form of accommodation for long term residents. It should be pointed out that the ABS regards marginal residents of caravan parks (those who rent the van and have no employment or other address) as part of the homeless population, as the Explanatory Notes explain.
- Hillier, Fisher and Tonts in their 2002 AHURI report “Rural housing, regional development and policy integration: an evaluation of alternative policy responses to regional disadvantage” point out from their case studies that itinerant workers often have to live in hotels and caravan parks because of a shortage of appropriate and affordable rental accommodation.
- The fact that a significant proportion of those in housing stress in the private rental market (including caravan or manufactured home estate accommodation) in Nambucca are older people suggests there are insufficient affordable housing opportunities for older lower income earners. In addition, the relatively rapid decline in the average number of persons per dwelling in Nambucca between 2001 and 2006 suggests the ageing of the population. Housing for older people needs to be well located in relation to services, facilities and transport as well as accessible for those with mobility problems. More purpose built aged housing, or greater housing diversity, including accessory dwellings or granny flats, particularly targeted to lower income earners is required to meet the housing needs of older lower income Nambucca residents. Ensuring a proportion of all new housing is adaptable will assist in enabling residents to age in place.
- Affordable rental housing suitable for young people is also required – this could also be in the form of accessory dwellings, new more self-contained boarding house style accommodation or shop top housing. Burke, Pinkney and Ewing in their 2002 paper on “Young People and Housing” state that “proximity to possible work or to the educational institution where they are studying is a key factor in young people’s decisions about where to live.” The young people surveyed by Burke et al nominated high housing costs as their biggest housing problem. “Because of their stage in life and trends in education and employment, young people tend to have low incomes.” Further information about housing for young people is in the Explanatory Notes.

- The lack of affordable housing for purchase for low and moderate income earners. Purchase affordability is tight across the whole of Sydney and much of NSW, particularly in coastal areas. This is further evidenced by the high and increasing proportion of low and moderate income purchasers in housing stress in Nambucca and is in part a reflection of the relative lack of housing diversity.

(More information on what can be done about these issues is included in the Explanatory Notes.)

Housing NSW