

Planning Proposal

Biodiversity field assessments

Deferred Matter - Stage 1 Non-Urban

August 2018



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Lismore City Council

Ecological Assessment Report – Environmental Zoning

Property Address	1035 Blue Knob Road, Blue Knob
Lot/DP	4/258958
Property owner	Ms. V. P. Pelly
Assessment date	06/03/18
Assessor/s	Wendy Neilan and Greg Yopp
Document Ref	ED18/9170

The site inspection involved a discussion with the property owner/s regarding the previous management of the site and the wildlife observed. This was followed by a random meander survey by foot over all accessible areas of the property. Walked majority of the property with landholders and discussed staged restoration programs, what vegetation was present 30 years ago, fauna recorded on site by landholders and land use. Species were recorded on a field data sheets, as well as habitat features, weeds and other relevant observations. The survey included searching for signs of any threatened species known or likely to occur on the property.

Site Description

The dominant naturally occurring vegetation community on site was Wet Sclerophyll forest in varying stages of regrowth. Dominant trees included Pink Bloodwood (*Corymbia intermedia*); Flooded Gum (*Euclayptus grandis*); Brush Box (*Lophostemon confertus*); and Tallowwood (*E. microcorys*). Restoration plantings of subtropical rainforest species are established in the north west half of the riparian zone. Other areas near the northern property boundary are planted with Koala food trees and native vegetation to reduce the incursion of bell miners and associated dieback. A mixture of weeds and pasture dominate in the south west corner of the property. This area will be the next to be targeted by the landholders to kick start natural regeneration with weed control and some supplementary plantings of native species.

- Underlying Geology - Walloon Coal Measures
- Colluvial soil landscape – Calico (Morand 1994)
- Soils – red and yellow podzolics and red earths
- Entire parcel mapped as North Coast High Environmental Value 2014 (OEH)
- Entire parcel falls within the mapped priority 1 wildlife corridor ‘Blue Knob connector’ which provides a regional link between Nightcap Range to Mackellar Range through to Boorabee SF (Milledge 2012).
- Habitat features occurring on site included koala feed trees, mature trees, low cover/ thickets, nectar producing plants, riparian vegetation and a permanent watercourse.

The land is known habitat for the following threatened species based on positively identified records within 1 km radius of site (Bionet atlas data accessed 04/03/18):

Fauna

- *Mixophyes iterates* (Giant Barred Frog)
- *Petaurus norfolcensis* (Squirrel glider)
- *Ptilinopus magnificus* (Wompoo Fruit-dove)
- *Calyptorhynchus lathamii* (Glossy Black-Cockatoo)
- *Pomatostomus temporalis temporalis* (Grey-crowned Babbler)
- *Carterornis leucotis* (White-eared Monarch)
- *Phascolarctos cinereus* (Koala)
- *Scoteanax rueppellii* (Greater Broad-nosed Bat)

Flora

- *Lepiderema pulchella* (Fine-leaved tuckeroo)

Assessment against Environmental zone criteria

Table 1. Assessment against E2 Zone and E3 Zone criteria

E2 Zone Criteria	Present? (Y/N)	Assessment comments
SEPP 26 Littoral Rainforests Land mapped as littoral rainforest in accordance with the state wide policy for littoral rainforest protection (State Environmental Planning Policy 26 – Littoral Rainforests).	N	Site is not within range of distribution of Littoral rainforest (i.e. not with 2 km of sea or maritime influence)
SEPP 14 Coastal Wetlands. Land mapped as coastal wetlands in accordance with the state wide policy for coastal wetland protection (State Environmental Planning Policy 14 – Coastal Wetlands).	N	Site is not within range of distribution of SEPP 14 Coastal Wetlands (i.e. coastline and up to 30 km inland)
Endangered Ecological Communities (EECs') listed under Threatened Species Conservation Act 1995 and/ or Environmental Protection and Biodiversity Conservation Act 1999.	N	<p>Based on ground assessment there was no evidence of remnant vegetation indicative of EEC's present on the site at the time of assessment.</p> <p>The elevation range is 205-235 m asl and the soil types are mapped as colluvial red earths and red and yellow podzolics. There is a second order stream dissecting the property.</p> <p>The elevation and stream order and lack of alluvium suggests the site is not within a coastal floodplain and therefore the coastal floodplain EEC definitions do not apply.</p> <p>Soil type mapping does not suggest the site would naturally support rainforest therefore the Lowland Rainforest EEC was likely not present pre clearing however there may have been some elements within the riparian corridor. The most likely vegetation type is wet sclerophyll dominated by <i>Eucalyptus</i> spp.</p> <p>The assessors note that there were a number of planted specimens within the riparian corridor that would be present in Lowland subtropical rainforest.</p>

<p>Key Threatened Species Habitat.</p> <ul style="list-style-type: none"> • old-growth forests where the over-storey or canopy trees are in the late mature stage of growth ⁴ • areas of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates ⁵ • habitats for threatened species or endangered populations that cannot withstand further loss where the threatened species or endangered population is present⁶. 	Y	<p>The site meets the criteria for key threatened species habitat for the following reasons:</p> <p>The land parcel is predicted to be high conservation value for forest fauna as it is:</p> <ul style="list-style-type: none"> • located within the “very high significance, priority 1-1” Blue Knob Connector” fauna corridor (Milledge 2012). This corridor is identified as key habitat for the following two prioritised vertebrate assemblages: Wompoo fruit dove, Superb Fruit-dove, Rose Crowned Fruit-dove, Little Shrike-thrush, White-eared Monarch, Black Flying-fox, Grey-headed Flying-fox and Top-knot Pigeon, Koala, Little Bent-winged bat, Greater Broad-nosed bat, Eastern Forest Bat • mapped as high environmental value by OEH (2014)(see appendix 1 for definitions). <p>There is habitat present on the land parcel for the following threatened species that are not to be able to withstand further loss and have been recorded as present within 5 km radius of the land parcel:</p> <ul style="list-style-type: none"> • <i>Mixophyes iterates</i> (Giant Barred Frog) <p>Riparian habitat present along Websters Creek. Landholder has positively identified <i>Mixophyes iterates</i> from the creek zone.</p> <ul style="list-style-type: none"> • <i>Carterornis leucotis</i> (White-eared Monarch) <p>Ecotone habitat present along creek line would favour use by this species. Known to occur in rainforest, wet sclerophyll and regrowth forest and use vegetation edges along roadsides near to forest habitats.</p> <p>These criteria were verified as being met during the site assessment.</p>
<p>Over-cleared vegetation communities.</p> <ol style="list-style-type: none"> 1. over-cleared vegetation communities, where more than 70% of the original (pre 1750) extent of the native vegetation type has been cleared⁷ and 	N	<p>The remnant vegetation on-site is not representative of any of the over-cleared vegetation communities listed in (DECCW 2010). Areas of the site are vegetated by elements of Wet Sclerophyll forest. Mature and regenerating specimens of <i>Corymbia intermedia</i> (Pink Bloodwood),</p>

2. Native vegetation in over-cleared Mitchell landscapes ⁸ . Clarence–Richmond Alluvial Plains.		<i>Eucalyptus microcorys</i> (Tallowwood), <i>Lophostemon confertus</i> (Brush Box), <i>Melia azedarach</i> (White Cedar), <i>Syzygium luehmannii</i> (Riberry) are present. Other areas consist of extensive restoration plantings of koala food trees and rainforest species along riparian zones, landscape gardens around the dwelling and pasture areas under conversion to restored forest. The land is not located within the Clarence-Richmond Alluvial Plain.
Culturally significant lands. Areas of culturally significant lands such as Aboriginal object sites, Aboriginal places of heritage significance, and other significant objects identified by the local Aboriginal community ¹⁰ .	Not assessed	Not assessed under this criteria by the LCC Ecologist and Strategic Planner.
E3 Zone Criteria	Present? (Y/N)	Assessment comments
Riparian and estuarine vegetation and wetlands. Land comprising riparian and estuarine vegetation on waterfront land, defined under the NSW Water Management Act 2000, or wetland areas other than those mapped as SEPP 14 Coastal Wetlands. Waterfront land is defined under the NSW Water Management Act 2000 as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark.	Y	The property is dissected by a second order and first branch of Websters Creek. Riparian vegetation is in early stages of regrowth and under restoration by landholder.
Rare, Endangered and Vulnerable Forest Ecosystems. Land comprising areas of rare, endangered and vulnerable forest ecosystems as defined by the Joint ANZEC/MCFFA National Forest Policy Statement Implementation sub-committee (JANIS) (Commonwealth of Australia 1997).	N	None of the forest ecosystems listed in Appendix 1 of <i>Northern Councils E-Zone Review: Final recommendations report</i> were recorded at the site
Native vegetation on coastal foreshores. Native vegetation on land with frontage, or adjoining or adjacent to, a beach, estuary, coastal lake, headland, cliff or rock platform.	N	Site is > 30 km from coastline

4 <http://www.epa.nsw.gov.au/resources/pnf/OGRFreviewFieldIdent.pdf>

5 Scotts, D 2003, Key Habitats and Corridors for Forest Fauna: A Landscape Framework for Conservation in Northeast New South Wales, NPWS Occasional Paper no. 32, National Parks and Wildlife Service, Sydney, NSW.

6 NSW Office of Environment and Heritage 'Threatened Species Profiles Database' <http://www.bionet.nsw.gov.au>

7 Keith, DA 2006, Ocean Shores to Desert Dunes the Native Vegetation of New South Wales and the ACT, Department of Environment and Climate Change, Hurstville.

8 Mitchell, PB 2002, 'NSW Ecosystems Study: Background and Methodology', report prepared for National Parks and Wildlife Service, Hurstville, NSW and Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p27.

9Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p26

10 Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW, NSW Department of Environment, Climate Change & Water (2011)

Summary

Vegetation on the site is consistent with both E2 and E3 criteria. The site is of high conservation value for forest fauna. The land is located in the Blue Knob Connector which links Nightcap Range to McKellar Range through to Boorabee State Forest, a wildlife corridor of very high significance (Milledge 2012). The land is habitat for threatened species as evidenced by the records of threatened fauna present on and around the property.

The riparian area 40 m either side of Webster's creek that dissects the property also meets criteria 1 for an E3 zone.

The current landholder, Vanessa Pelly, has lived on the property for 30 years and has not used the land for agriculture in that time (Pelly, pers.comm). The primary use of the land over the past two years has been environmental conservation and management and as a residence. The landholder and her partner have undertaken extensive ecological restoration works on more than half the property and have plans to restore the remaining zones on the riparian flats in the central and south west portion of the parcel. The intent of the landholder to manage the land primarily for conservation is evidenced by her engagement in a number of conservation initiatives. Restoration works already completed include riparian plantings conducted under two Property Vegetation Plans, planting of 300 koala feed trees, and plantings to mitigate incursion of Bell Miners, environmental weed control funded under the LCC Rural Landholder Initiative.

References

Milledge, D.R. 2012. *Lismore Local Government Area key habitats and corridors system: development and application of a methodology to identify key habitats and corridors for terrestrial vertebrate species to inform planning for biodiversity conservation in the Lismore Local Government Area*. Unpublished Report to Lismore City Council. Landmark Ecological Services, Suffolk Park, NSW.

Morand DT, 1994, *Soil Landscapes of the Lismore-Ballina 1:100,000 Sheet report*, NSW Department of Land and Water Conservation, Sydney.

North Coast High Environmental Value 2014 mapping OEH

NSW Department of Planning and Environment, 2015. *Northern Councils E Zone Review Final Recommendations Report*, unpublished report. Available online http://www.planning.nsw.gov.au/Policy-and-Legislation/Environment-and-Heritage/~/_media/70C33DB9E53B41738B7591A8EEEEAA238.ashx

Appendix 1

High Environmental Value areas were identified outside National Parks and Wildlife Service (NPWS) managed lands and State Forests that meet one or more of the following criteria:

1. Native vegetation of high conservation value including; over-cleared vegetation types, all native vegetation in over-cleared Mitchell Landscapes, SEPP26 littoral rainforest (including 100m buffer), all rainforest, JANIS (Joint ANZECC/MCFFA National Forest Policy) rare, endangered or vulnerable vegetation, riparian vegetation including waterfront land within 40m of estuaries, lakes and stream orders 3 and above.

2. Threatened species, populations and ecological communities; including mapped areas of NSW and EPBC listed Endangered Ecological Communities (EEC), Koala habitats, key habitats for forest fauna (Scotts 2003), important shorebird habitat, old growth forest and records from the NSW Wildlife Atlas for species-credit threatened flora and fauna (except Koala) in the Threatened Species Database (TSPD) not on NPWS managed lands, State Forest or land with other HEV values and buffered to 200m (only records since 1989 with an accuracy of 200m or less) .

3. Wetlands, Coastal Lakes and Lagoons including; mapped coastal wetlands (SEPP14), Sensitive Estuaries, Nationally Important Wetlands, important wetland vegetation.

High Environmental Value lands were identified, outside of NPWS managed lands and State Forest, where one or more of the following criteria were present:

- Littoral Rainforest (SEPP 26) including the 100m buffer area
- Over-cleared vegetation types
- All native vegetation in over-cleared Mitchell Landscapes
- NSW and EPBC listed EECs
- Coastal Wetlands (SEPP 14)
- All rainforest
- Important shorebird habitats
- Other wetlands of importance – directory of important wetlands
- Threatened species habitats (Koala habitats, Old Growth Forests, Fauna Key

Habitats for North East NSW (Scotts 2003)

- Wetland vegetation of importance
- JANIS vegetation
- Sensitive estuaries
- Threatened flora and fauna records from the NSW Wildlife Atlas for species-credit species (except Koala) in the Threatened Species Database (TSPD). Records were only included where they did not fall on NPWS managed lands, State Forest or land with other HEV values. Records were only included from the last 25 years (records since 1989) and if they had an accuracy of 200m or less. These records were buffered to 200 m.
- Waterfront land – within 40 m of streams with order GE3 and LT99 (DECCW Stream Ordering), and within 40 m of lakes and estuaries (OEH MER Estuaries)

Appendix 2. Definition of waterfront land from the Dictionary of the Water Management Act 2000 No 92

waterfront land means:

(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary, or

(b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters,

where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.

Where river is defined as

(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and

(b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and

(c) anything declared by the regulations to be a river,

whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.

<https://www.legislation.nsw.gov.au/#/view/act/2000/92/dict1>

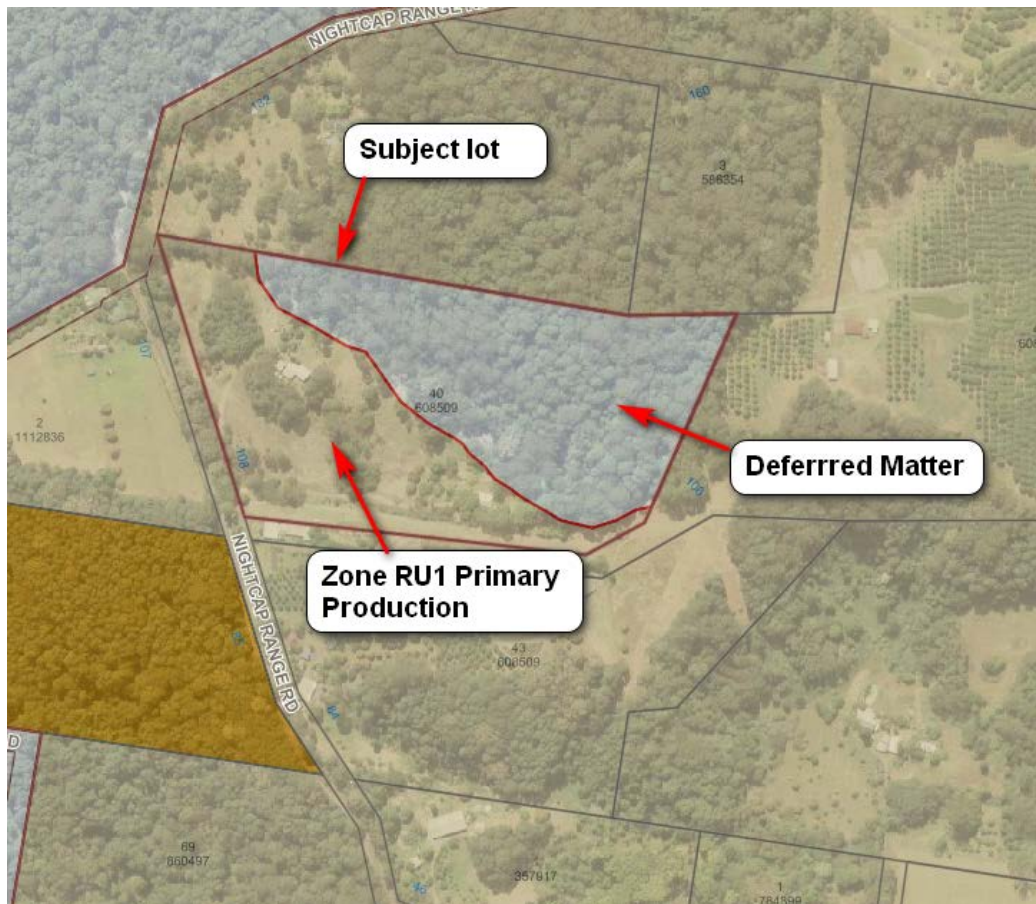
Appendix 3 Bionet Search criteria

Search criteria: Licensed Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Entities in selected area [North: -28.47 West: 153.14 East: 153.24 South: -28.57] returned a total of 224 records of 52 species.

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Ecological Report – Lismore LEP 2012 Deferred Matter (Non-Urban)

Property: 108 Nightcap Range Road, Dorrroughby (Lot 40 DP 608509)



Site inspection date: 3 May 2018

Inspection officer: Greg Yopp (Senior Strategic Planner - Lismore City Council)

File reference: EF17/65:ED18/12240

Site description

108 Nightcap Range Road Dorroughby has an area of 8ha with approximately 4.5ha being Deferred Matter (DM) under Lismore LEP 2012 and is currently within Zone 1(a) General Rural under LEP 2000. The land is less than 1km to the Nightcap Range National Park. The DM area of the land was proposed for Zone E3 at the request of the landholder in 2010.

Vegetation

The DM area is a contiguous patch of North Coast Wet Sclerophyll Forest within the north eastern half of the allotment, generally delineated by a diagonal line running north west to south east through the lot. The vegetation is tall open forest with a mixed canopy of Tallowwood, Brushbox, Pink Bloodwood and Turpentine. The vegetation in this area is in good condition with minimal weed infestation. Some understory rainforest species were evident at the time of inspection probably due to the low frequency of burning.

Some of the endemic flora species observed along the periphery of the patch of vegetation include: Sally Wattle (*Acacia melanoxylon*), Pink Euodia (*Melicope elleryana*), Tallowwood (*Eucalyptus microcorys*), Brushbox (*Lophostemon confertus*), Pink Bloodwood (*Corymbia intermedia*), Flooded Gum (*Eucalyptus grandis*), Pencil Cedar (*Polyscias murrayi*), Lilly Pilly (*Syzygium spp*), Tree Fern (*Cyathea spp*), Bangalow Palm (*Archontophoenix cunninghamiana*), Turpentine (*Syncarpia glomulifera*), Palm Lily (*Cordyline spp*), Blue Quondong (*Elaeocarpus grandis*), Cheese Tree (*Glochidion ferdinandi*), native grasses including but not limited to *Lamondra spp* and Basket Grass (*Oplismenus spp*).

Threatened species

Evidence of recent Koala (*Phascolarctos cinereus*) activity was observed with scratch marks on certain feed trees and scat around the base of the trees. The Koala is listed as a Threatened species (vulnerable) pursuant to the *Biodiversity Conservation Act 2016*.

The NSW Office of Environment and Heritage online threatened species search tool (<http://www.environment.nsw.gov.au/threatenedspeciesapp/geohabitatsearch.aspx>) indicates numerous other threatened species are known or predicted to occur in this location.

Northern Councils E Zone Review – Final Report Recommendations

The vegetation located on the site is assessed against the E Zone Criteria under the Northern Councils E Zone Review – Final Report Recommendations. The assessment is located in Table 1.

Table 1 - E Zone Criteria

Criteria	Assessment comments
Zone E2 Environmental Conservation	
SEPP 26 Littoral Rainforests	No
SEPP 14 Coastal Wetlands	No
Endangered Ecological Communities	No
Key Threatened Species Habitat	Yes Area of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates.
Over-cleared vegetation communities	No
Culturally significant lands	No No AHIMS Not listed in other Council study
Zone E3 Environmental Management	
Riparian and estuarine vegetation and wetlands	Yes – partial Order 1 stream (Strahler Stream Order) passes through the south eastern part of the DM land.
Rare, Endangered and Vulnerable Forest Ecosystems	Yes – Wet Bangalow - Brushbox
Native Vegetation on Coastal Foreshores	No

In accordance with Part 3, Clause 7 of the Northern Council's E zone Review, private land may be zoned E2 or E3 despite being inconsistent with the criteria. The landholders formerly requested

Council to apply an E zone in the DM area of the lot in an email dated 1 May 2018. Extract of Clause 7 follows:

Private land may be zoned E2 or E3 despite being inconsistent with the criteria, only if it is consistent with a negotiated development outcome (master plan, rezoning, development consent, designated offset areas) or at the request of the landholder.

Previous ecological assessment of the site

The site was the subject of an ecological assessment in December 2010 as part of the Lismore draft LEP process. An ecological assessment report prepared by Landmark Ecological Services Pty Ltd, dated 15 December 2010 is still deemed to be valid and is located at Attachment 1 of this report.

Greg Yopp *BEd (ACU), BSc (UQ), GradDipNatRes (UNE), GradDipURP (UNE)*

Attachment 1 – Previous ecological assessment



LANDMARK
Ecological Services Pty Ltd

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ABN 29 064 548 876

**Ecological Report – Submission re Draft Lismore Local
Environment Plan 2010**

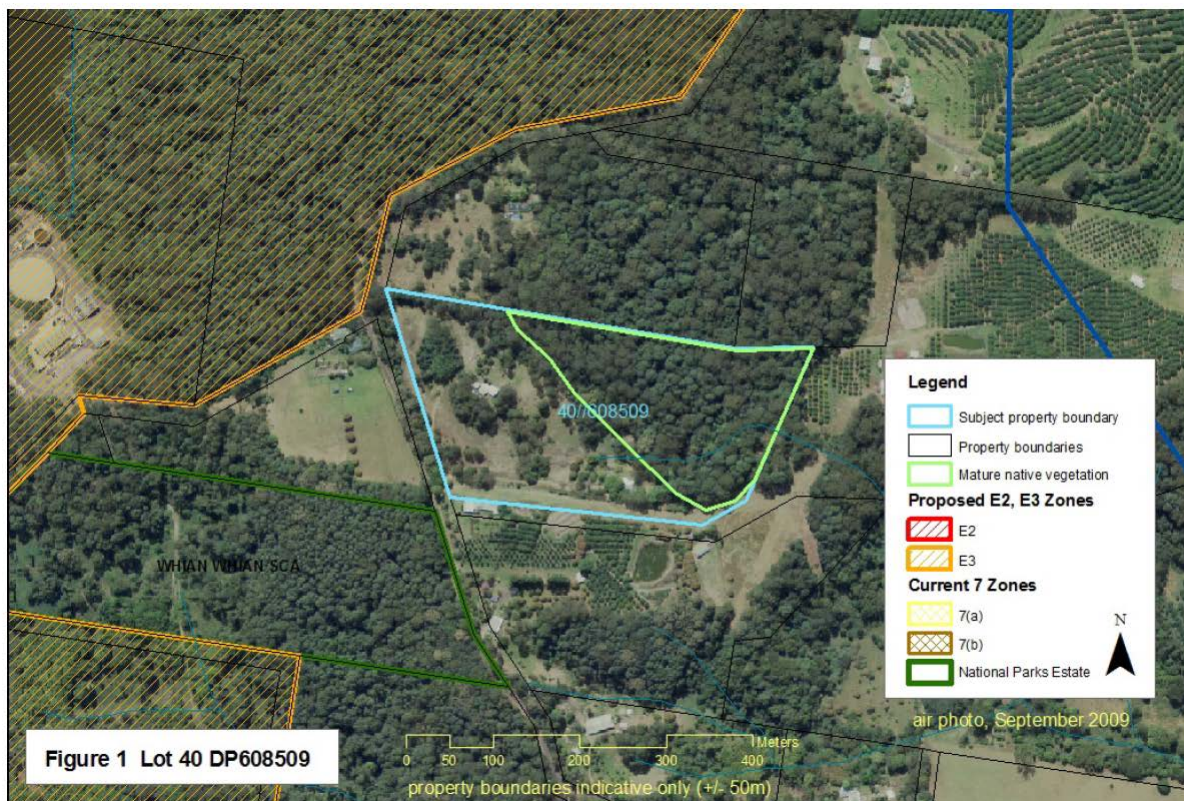
Property: Cheryl & Michael Cochran
Lot 40 DP 608509

Submission reference number: 10/23864

Inspection date: 15th December 2010

This property is not included in the Draft LEP E3 zone, but is proposed for inclusion in an Environmental Protection Zone by the landholders.

The property is shown in the attached map. (Figure 1)



E3 Merit Considerations (Lismore Local Environment Study)	
Koala habitat	Koala habitat mapping is not available for this part of the Local Government Area. Koalas have been recorded by the landholders near the residence utilizing planted Flooded Gum (<i>Eucalyptus grandis</i>).
Area (of entire vegetation polygon) > 0.5 ha	Yes
Potential for environmental regeneration and rehabilitation	<p>Natural regeneration is widespread and evident in the northeastern part of the land where mature Brushbox / Tallowood very tall forest and Blackbutt / Turpentine very tall open forest represents mature native forest in excellent condition with very few weeds..</p> <p>Good potential for regeneration and rehabilitation exists in the planted native vegetation and regeneration in the southwestern part of the land where understorey regeneration is diverse, including the roadside vegetation. Control of environmental weeds including Camphor Laurel and lantana could consolidate this area.</p>
Land surrounding important natural water body	No
Additional Information	
Current land use	The southwestern half of the land is used for horse grazing and includes the residence, garden/orchard, pasture and patches of mature planted and regrowth native vegetation.
Current zoning	The property is currently zoned 1(a) General Rural and is proposed for RU2 Rural Landscape zoning. Land to the northwest is proposed for E3 zoning (Rocky Creek Dam catchment) and land immediately to the southwest is to be zoned E1 National Parks and Nature Reserves (Whian Whian State Conservation Area).
Vegetation mapping	<p>The northeast half of the land contains vegetation mapped by Landmark (2011) (in draft) as:</p> <p>Tallowood / Brushbox +/- Pink Bloodwood very tall open forest, Blackbutt / Turpentine very tall open forest.</p> <p>The western part of the land contains vegetation mapped by Landmark (2011) (in draft) as:</p> <p>Tallowood / Brushbox / Wattle midhigh to tall open forest, Planted native vegetation (Mixed Eucalyptus spp.), Planted native vegetation (Brushbox / Subtropical rainforest).</p>

Wildlife corridor	The property is mapped as part of a wildlife corridor. (Lismore Local Environmental Plan 2010 Natural Resources Sensitivity - Biodiversity Map).
Weeds of concern	A comprehensive weed survey was not conducted. No major environmental weeds of concern were encountered, but Camphor Laurel and Lantana are common in the western part of the land.

References

Landmark Ecological Services Pty Ltd (2011) Draft Detailed Mapping of the Lismore Local Government Area.
 Turnbull, J.W. and Boulton, S.C., 2000. Goonellabah and East Lismore Koala Study Area Vegetation Mapping Draft Report. Ecograph, Limpinwood.

Lismore City Council

Ecological Assessment Report – Environmental Zoning

Property Address	165 Fox Road, Rosebank
Lot/DP	3/618351
Property owner	Ms. S. A. Simpkins and Mr. A. Hill
Assessment date	08/03/18
Assessor/s	Wendy Neilan and Greg Yopp
Document Ref	ED18/19925

The site inspection involved a discussion with the property owner/s regarding the previous management of the site and the wildlife observed. This was followed by a random meander survey by foot over all accessible areas of the property. Species were recorded on a field data sheets, as well as habitat features, weeds and other relevant observations. The survey included searching for signs of any threatened species known or likely to occur on the property.

Site Description

The vegetation over the much of the eastern half of the land parcel is dominated by landscaped gardens and non-native ornamental and fruiting trees around the residence and ancillary buildings. The western portion of the land parcel is vegetated by wet sclerophyll forest grading into what is likely to be rainforest on the far western boundary along the creek line (based on desktop assessment of aerial mapping). The wet sclerophyll forest was dominated by Blackbutt (*Euclayptus pilularis*) with Brush Box (*Lophostemon confertus*) sub dominant. Occasional Pink Bloodwood (*Corymbia intermedia*) occurred up slope nearer to residence. Midstorey species included Bangalow Palm (*Archontophoenix cunninghamiana*); Sally wattle (*Acacia melanoxylon*); Scrub Turpentine (*Rhodamnia rubescens*); *Pittosporum undulatum*; *Livistona australis*; Foambark (*Jagera pseudorhus*); Tree heath (*Trochocarpa laurina*).

- Underlying Geology - Rhyolite
- Erosional soil landscape – Minyon (Morand 1994)
- Soils – red and yellow podzolics
- Vegetated areas of site mapped as North Coast High Environmental Value 2014 (OEH)
- Entire parcel falls within the mapped priority 2-1 wildlife corridor ‘Repentance Creek Connector’ which provides a subregional link connecting through to Goonengerry and Mt Jerusalem National Parks and Andrew Johnston Big Scrub Nature Reserve (Milledge 2012).
- Habitat features occurring on site included large mature trees, low cover/ thickets, nectar producing and fruiting plants, secondary koala habitat, riparian vegetation and a permanent second order stream on lower slope near western boundary.
- 53 threatened fauna species and 29 threatened flora species have been recorded within 10 km of the site (Bionet atlas data accessed 23/07/18)

Assessment against Environmental zone criteria

Table 1. Assessment against E2 Zone and E3 Zone criteria

E2 Zone Criteria	Present? (Y/N)	Assessment comments
SEPP 26 Littoral Rainforests Land mapped as littoral rainforest in accordance with the state wide policy for littoral rainforest protection (State Environmental Planning Policy 26 – Littoral Rainforests).	N	Site is not within range of distribution of Littoral rainforest (i.e. not with 2 km of sea or maritime influence)
SEPP 14 Coastal Wetlands. Land mapped as coastal wetlands in accordance with the state wide policy for coastal wetland protection (State Environmental Planning Policy 14 – Coastal Wetlands).	N	Site is not within range of distribution of SEPP 14 Coastal Wetlands (i.e. coastline and up to 30 km inland)
Endangered Ecological Communities (EECs') listed under Threatened Species Conservation Act 1995 and/ or Environmental Protection and Biodiversity Conservation Act 1999.	N	Based on ground assessment there was no evidence of remnant vegetation indicative of EEC's present on the site at the time of assessment. Although from desktop assessment there is likely to be rainforest species within the riparian zone along the creek on the western boundary
Key Threatened Species Habitat. <ul style="list-style-type: none"> old-growth forests where the over-storey or canopy trees are in the late mature stage of growth ⁴ areas of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates ⁵ habitats for threatened species or endangered populations that cannot withstand further loss where the threatened species or endangered population is present⁶. 	Y	<p>The site meets the criteria for key threatened species habitat for the following reasons:</p> <p>The land parcel is predicted to be high conservation value for forest fauna due to:</p> <ul style="list-style-type: none"> The land parcel is predicted to be high conservation value for forest fauna as it is located within the "Repentance Creek Connector" fauna corridor which has "high significance as a sub-regional link connecting through to Goonengerry and Mount Jerusalem National Parks and Andrew Johnston Big Scrub Nature Reserve" (Milledge 2012, p.53). This corridor is identified as key habitat for nine of the twelve prioritised vertebrate assemblages with key habitat in the Lismore LGA. Vegetated areas on the property are mapped as high environmental value by OEH (2014) (see appendix 1 for definitions).

		<p>There is habitat present on the land parcel for the following threatened species that have been recorded as present within 10 km radius of the land parcel:</p> <p>Fauna</p> <ul style="list-style-type: none"> • Pouched frog (<i>Assa darlingtoni</i>) • Little lorikeet (<i>Glossopsitta pusilla</i>) • Barking Owl (<i>Ninox connivens</i>) • Powerful Owl (<i>Ninox strenua</i>) • Albert's Lyrebird (<i>Menura alberti</i>) • Common Planigale (<i>Planigale maculate</i>) • Spotted-tailed Quoll (<i>Dasyurus maculatus</i>) • Eastern Tube-nosed Bat (<i>Nyctimene robinsoni</i>) • Yellow-bellied Sheath-tail-bat (<i>Saccolaimus flaviventris</i>) • Golden-tipped Bat (<i>Kerivoula papuensis</i>) • Greater Broad-nosed Bat (<i>Scoteanax rueppellii</i>) <p>Flora</p> <ul style="list-style-type: none"> • Corokia (<i>Corokia whiteana</i>) <p>These criteria were verified as being met during the site assessment.</p>
<p>Over-cleared vegetation communities.</p> <ol style="list-style-type: none"> 1. over-cleared vegetation communities, where more than 70% of the original (pre 1750) extent of the native vegetation type has been cleared⁷ and 2. Native vegetation in over-cleared Mitchell landscapes⁸. <p>Clarence–Richmond Alluvial Plains.</p>	N	<p>The remnant vegetation on-site is not representative of any of the over-cleared vegetation communities listed in (DECCW 2010).</p> <p>The land is not located within the Clarence-Richmond Alluvial Plain.</p>
<p>Culturally significant lands.</p> <p>Areas of culturally significant lands such as Aboriginal object sites, Aboriginal places of heritage significance, and other significant objects identified by the local Aboriginal community¹⁰.</p>	Not assessed	Not assessed under this criteria by the LCC Ecologist and Strategic Planner.
E3 Zone Criteria	Present? (Y/N)	Assessment comments

Riparian and estuarine vegetation and wetlands. Land comprising riparian and estuarine vegetation on waterfront land, defined under the NSW Water Management Act 2000, or wetland areas other than those mapped as SEPP 14 Coastal Wetlands. Waterfront land is defined under the NSW Water Management Act 2000 as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark.	Y	The property is bordered by a second order stream to the west. Intact riparian vegetation is present along the creek line.
Rare, Endangered and Vulnerable Forest Ecosystems. Land comprising areas of rare, endangered and vulnerable forest ecosystems as defined by the Joint ANZEC/MCFFA National Forest Policy Statement Implementation sub-committee (JANIS) (Commonwealth of Australia 1997).	N	None of the forest ecosystems listed in Appendix 1 of <i>Northern Councils E-Zone Review: Final recommendations report</i> were recorded at the site
Native vegetation on coastal foreshores. Native vegetation on land with frontage, or adjoining or adjacent to, a beach, estuary, coastal lake, headland, cliff or rock platform.	N	Site is not on a coastal foreshore

4 <http://www.epa.nsw.gov.au/resources/pnf/OGRFreviewFieldIdent.pdf>

5 Scotts, D 2003, Key Habitats and Corridors for Forest Fauna: A Landscape Framework for Conservation in Northeast New South Wales, NPWS Occasional Paper no. 32, National Parks and Wildlife Service, Sydney, NSW.

6 NSW Office of Environment and Heritage 'Threatened Species Profiles Database' <http://www.bionet.nsw.gov.au>

7 Keith, DA 2006, Ocean Shores to Desert Dunes the Native Vegetation of New South Wales and the ACT, Department of Environment and Climate Change, Hurstville.

8 Mitchell, PB 2002, 'NSW Ecosystems Study: Background and Methodology', report prepared for National Parks and Wildlife Service, Hurstville, NSW and Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p27.

9 Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p26

10 Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW, NSW Department of Environment, Climate Change & Water (2011)

Summary

The western portion of the Deferred Matter area meets some of the criteria for E2 and E3 zoning. The eastern portion is generally inconsistent with E zone criteria.

The site incorporates significant habitat values for threatened species occurring in close proximity to the site. The land is located in an important sub-regional wildlife corridor, “Repentance Creek Connector”, a wildlife corridor of high significance for a number of priority vertebrate assemblages (Milledge 2012). To maintain and restore ecological values into the future it is recommended to ensure that ornamental plantings are checked for the presence of environmental weeds and any of these species present are controlled from spreading into the surrounding natural vegetation.

References

Milledge, D.R. 2012. *Lismore Local Government Area key habitats and corridors system: development and application of a methodology to identify key habitats and corridors for terrestrial vertebrate species to inform planning for biodiversity conservation in the Lismore Local Government Area*. Unpublished Report to Lismore City Council. Landmark Ecological Services, Suffolk Park, NSW.

Morand DT, 1994, *Soil Landscapes of the Lismore-Ballina 1:100,000 Sheet report*, NSW Department of Land and Water Conservation, Sydney.

North Coast High Environmental Value 2014 mapping OEH

NSW Department of Planning and Environment, 2015. *Northern Councils E Zone Review Final Recommendations Report*, unpublished report. Available online http://www.planning.nsw.gov.au/Policy-and-Legislation/Environment-and-Heritage/~/_media/70C33DB9E53B41738B7591A8EEEEAA238.ashx

Appendix 1

High Environmental Value areas were identified outside National Parks and Wildlife Service (NPWS) managed lands and State Forests that meet one or more of the following criteria:

1. Native vegetation of high conservation value including; over-cleared vegetation types, all native vegetation in over-cleared Mitchell Landscapes, SEPP26 littoral rainforest (including 100m buffer), all rainforest, JANIS (Joint ANZECC/MCFFA National Forest Policy) rare, endangered or vulnerable vegetation, riparian vegetation including waterfront land within 40m of estuaries, lakes and stream orders 3 and above.

2. Threatened species, populations and ecological communities; including mapped areas of NSW and EPBC listed Endangered Ecological Communities (EEC), Koala habitats, key habitats for forest fauna (Scotts 2003), important shorebird habitat, old growth forest and records from the NSW Wildlife Atlas for species-credit threatened flora and fauna (except Koala) in the Threatened Species Database (TSPD) not on NPWS managed lands, State Forest or land with other HEV values and buffered to 200m (only records since 1989 with an accuracy of 200m or less) .

3. Wetlands, Coastal Lakes and Lagoons including; mapped coastal wetlands (SEPP14), Sensitive Estuaries, Nationally Important Wetlands, important wetland vegetation.

High Environmental Value lands were identified, outside of NPWS managed lands and State Forest, where one or more of the following criteria were present:

- Littoral Rainforest (SEPP 26) including the 100m buffer area
- Over-cleared vegetation types
- All native vegetation in over-cleared Mitchell Landscapes
- NSW and EPBC listed EECs
- Coastal Wetlands (SEPP 14)
- All rainforest
- Important shorebird habitats
- Other wetlands of importance – directory of important wetlands
- Threatened species habitats (Koala habitats, Old Growth Forests, Fauna Key

Habitats for North East NSW (Scotts 2003)

- Wetland vegetation of importance
- JANIS vegetation
- Sensitive estuaries
- Threatened flora and fauna records from the NSW Wildlife Atlas for species-credit species (except Koala) in the Threatened Species Database (TSPD). Records were only included where they did not fall on NPWS managed lands, State Forest or land with other HEV values. Records were only included from the last 25 years (records since 1989) and if they had an accuracy of 200m or less. These records were buffered to 200 m.
- Waterfront land – within 40 m of streams with order GE3 and LT99 (DECCW Stream Ordering), and within 40 m of lakes and estuaries (OEH MER Estuaries)

Appendix 2. Definition of waterfront land from the Dictionary of the Water Management Act 2000 No 92

waterfront land means:

(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary, or

(b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters,

where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.

Where river is defined as

(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and

(b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and

(c) anything declared by the regulations to be a river,

whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.

<https://www.legislation.nsw.gov.au/#/view/act/2000/92/dict1>

Appendix 3 Results of Bionet Atlas Search of 10 km grid centred on 165 Fox Road, Rosebank

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Animals in selected area [North: -28.59 West: 153.34 East: 153.44 South: -28.69] returned a total of 1,379 records of 53 fauna species and 1,190 records of 29 flora species.

Fauna

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Amphibia	Myobatrachidae	<i>Assa darlingtoni</i>	Pouched Frog	V,P		20
Amphibia	Myobatrachidae	^ <i>Mixophyes fleayi</i>	Fleay's Barred Frog	E1,P,2	E	1
Amphibia	Myobatrachidae	^ <i>Mixophyes iteratus</i>	Giant Barred Frog	E1,P,2	E	4
Amphibia	Myobatrachidae	^ <i>Philoria loveridgei</i>	Loveridge's Frog	E1,P,2		3
Amphibia	Hylidae	<i>Litoria brevipalmata</i>	Green-thighed Frog	V,P		1
Reptilia	Elapidae	<i>Hoplocephalus stephensii</i>	Stephens' Banded Snake	V,P		16
Aves	Columbidae	<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	V,P		192
Aves	Columbidae	<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V,P		210
Aves	Columbidae	<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V,P		38
Aves	Podargidae	<i>Podargus ocellatus</i>	Marbled Frogmouth	V,P		58
Aves	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		6

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Aves	Ardeidae	<i>Botaurus poiciloptilus</i>	Australasian Bittern	E1,P	E	1
Aves	Ardeidae	<i>Ixobrychus flavicollis</i>	Black Bittern	V,P		25
Aves	Accipitridae	<i>Circus assimilis</i>	Spotted Harrier	V,P		2
Aves	Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P	C	23
Aves	Accipitridae	<i>Hieraaetus morphnoides</i>	Little Eagle	V,P		11
Aves	Accipitridae	<i>Pandion cristatus</i>	Eastern Osprey	V,P,3		1
Aves	Falconidae	<i>Falco subniger</i>	Black Falcon	V,P		7
Aves	Rallidae	<i>Amaurornis moluccana</i>	Pale-vented Bush-hen	V,P		31
Aves	Jacanidae	<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P		10
Aves	Turnicidae	<i>Turnix melanogaster</i>	Black-breasted Button-quail	E4A,P	V	2
Aves	Cacatuidae	<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V,P,2		32
Aves	Psittacidae	<i>Glossopsitta pusilla</i>	Little Lorikeet	V,P		1
Aves	Strigidae	<i>Ninox connivens</i>	Barking Owl	V,P,3		1
Aves	Strigidae	<i>Ninox strenua</i>	Powerful Owl	V,P,3		5
Aves	Tytonidae	<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3		9
Aves	Tytonidae	<i>Tyto tenebricosa</i>	Sooty Owl	V,P,3		45

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Aves	Menuridae	<i>Menura alberti</i>	Albert's Lyrebird	V,P		121
Aves	Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		2
Aves	Campephagidae	<i>Coracina lineata</i>	Barred Cuckoo-shrike	V,P		6
Aves	Artamidae	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P		1
Aves	Monarchidae	<i>Carterornis leucotis</i>	White-eared Monarch	V,P		69
Aves	Petroicidae	<i>Petroica boodang</i>	Scarlet Robin	V,P		1
Mammalia	Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	9
Mammalia	Dasyuridae	<i>Planigale maculata</i>	Common Planigale	V,P		1
Mammalia	Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	V,P	V	333
Mammalia	Petauridae	<i>Petaurus australis</i>	Yellow-bellied Glider	V,P		1
Mammalia	Pseudocheiridae	<i>Petauroides volans</i>	Greater Glider	P	V	2
Mammalia	Potoroidae	<i>Potorous tridactylus</i>	Long-nosed Potoroo	V,P	V	4
Mammalia	Macropodidae	<i>Thylogale stigmatica</i>	Red-legged Pademelon	V,P		7
Mammalia	Pteropodidae	<i>Nyctimene robinsoni</i>	Eastern Tube-nosed Bat	V,P		4
Mammalia	Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	4
Mammalia	Pteropodidae	<i>Syconycteris australis</i>	Common Blossom-bat	V,P		1

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Mammalia	Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		2
Mammalia	Molossidae	<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V,P		2
Mammalia	Vespertilionidae	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V,P	V	1
Mammalia	Vespertilionidae	<i>Kerivoula papuensis</i>	Golden-tipped Bat	V,P		1
Mammalia	Vespertilionidae	<i>Miniopterus australis</i>	Little Bentwing-bat	V,P		23
Mammalia	Vespertilionidae	<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V,P		5
Mammalia	Vespertilionidae	<i>Myotis macropus</i>	Southern Myotis	V,P		12
Mammalia	Vespertilionidae	<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V,P		4
Mammalia	Vespertilionidae	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		7
Mammalia	Vespertilionidae	<i>Vespadelus troughtoni</i>	Eastern Cave Bat	V,P		1

Flora

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Acanthaceae	<i>Isoglossa eranthemoides</i>	Isoglossa	E1,P	E	2
Flora	Apocynaceae	<i>Ochrosia moorei</i>	Southern Ochrosia	E1,P	E	7
Flora	Cunoniaceae	<i>Davidsonia jerseyana</i>	Davidson's Plum	E1,P,2	E	1
Flora	Cunoniaceae	<i>Davidsonia johnsonii</i>	Smooth Davidson's Plum	E1,P	E	10

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Dilleniaceae	<i>Hibbertia hexandra</i>	Tree Guinea Flower	E1,P		4
Flora	Doryanthaceae	<i>Doryanthes palmeri</i>	Giant Spear Lily	V,P		1
Flora	Elaeocarpaceae	<i>Elaeocarpus sedentarius</i>	Minyon Quandong	E1,P,3	E	67
Flora	Elaeocarpaceae	<i>Elaeocarpus williamsianus</i>	Hairy Quandong	E1,P,3	E	2
Flora	Fabaceae (Faboideae)	<i>Desmodium acanthocladum</i>	Thorny Pea	V,P	V	19
Flora	Grammitidaceae	<i>Grammitis stenophylla</i>	Narrow-leaf Finger Fern	E1,P,3		2
Flora	Lauraceae	<i>Endiandra floydii</i>	Crystal Creek Walnut	E1,P	E	1
Flora	Lauraceae	<i>Endiandra hayesii</i>	Rusty Rose Walnut	V,P	V	64
Flora	Lauraceae	<i>Endiandra muelleri</i> subsp. <i>bracteata</i>	Green-leaved Rose Walnut	E1,P		3
Flora	Lindsaeaceae	<i>Lindsaea brachypoda</i>	Short-footed Screw Fern	E1,P,3		2
Flora	Meliaceae	<i>Owenia cepiodora</i>	Onion Cedar	V,P	V	21
Flora	Menispermaceae	<i>Tinospora tinosporoides</i>	Arrow-head Vine	V,P		176
Flora	Myrtaceae	<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V,P	V	120
Flora	Myrtaceae	<i>Syzygium moorei</i>	Durobby	V,P	V	4
Flora	Myrtaceae	<i>Uromyrtus australis</i>	Peach Myrtle	E1,P	E	16
Flora	Proteaceae	<i>Floydia praealta</i>	Ball Nut	V,P	V	3

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Proteaceae	<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	V,P	V	319
Flora	Proteaceae	<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V,P	V	50
Flora	Psilotaceae	<i>Psilotum complanatum</i>	Flat Fork Fern	E1,P,3		2
Flora	Rutaceae	<i>Melicope vitiflora</i>	Coast Euodia	E1,P		1
Flora	Sapindaceae	<i>Diploglottis campbellii</i>	Small-leaved Tamarind	E1,P,2	E	3
Flora	Sapindaceae	<i>Lepiderema pulchella</i>	Fine-leaved Tuckeroo	V,P		2
Flora	Sapotaceae	<i>Niemeyera whitei</i>	Rusty Plum, Plum Boxwood	V,P		33
Flora	Symplocaceae	<i>Symplocos baeuerlenii</i>	Small-leaved Hazelwood	V,P	V	192
Flora	Argophyllaceae	<i>Corokia whiteana</i>	Corokia	V,P	V	63

Lismore City Council

Ecological Assessment Report – Environmental Zoning

Property Address	76 Maso Road, Repentance Creek
Lot/DP	2/251294
Property owner	Ms. Noreen Noblet
Assessment date	08/03/18
Assessor/s	Wendy Neilan and Greg Yopp
Document Ref	ED18/19913

The site inspection involved a brief discussion with the tenant resident on-site. This was followed by a random meander survey by foot over all accessible areas of the property. A portion of property was steep and inaccessible where it is dissected by a waterfall. Species were recorded on a field data sheets, as well as habitat features, weeds and other relevant observations. The survey included searching for signs of any threatened species known or likely to occur on the property.

Site Description

The site is on the southern face of a ridgeline and is dissected by a creek falling via a waterfall from 200m to 130 m asl. The upper ridgeline and slopes are vegetated by wet sclerophyll forest dominated by Flooded Gum (*Eucalyptus grandis*) and Blackbutt (*Euclayptus pilularis*) with a shrubby understorey. Sub-dominant species included Brush Box (*Lophostemon confertus*), Scrub turpentine (*Rhodamnia rubescens*), Forest Oak (*Allocasuarina torulosa*), Tree heath (*Trochocarpa laurina*). The lower slope on the southern boundary supports rainforest regrowth dominated by the woody weed Camphor laurel in the tree canopy. In the north east corner of the property, land around the existing infrastructure contains planted exotic species in garden beds and there is evidence of some garden escapees in the surrounding vegetation.

- Underlying Geology – Basalt and Rhyolite
- Erosional soil landscape – Minyon (Morand 1994)
- Soils –lithosols, kraznozems and podzolics
- Vegetated areas of site mapped as North Coast High Environmental Value 2014 (OEH)
- Land parcel falls within the mapped priority 2-1 wildlife corridor ‘Repentance Creek Connector’ which provides a subregional link connecting through to Goonengerry and Mt Jerusalem National Parks and Andrew Johnston Big Scrub Nature Reserve (Milledge 2012).
- Habitat features occurring on site included large mature trees, tree hollows, large woody debris, low cover/ thickets, nectar producing and fruiting plants, rocky cliff face with overhangs, riparian vegetation and first order stream.
- 53 threatened fauna species and 29 threatened flora species have been recorded within 10 km of the site (see appendix 3 Bionet atlas data accessed 23/07/18).

Assessment against Environmental zone criteria

Table 1. Assessment against E2 Zone and E3 Zone criteria

E2 Zone Criteria	Present? (Y/N)	Assessment comments
SEPP 26 Littoral Rainforests Land mapped as littoral rainforest in accordance with the state wide policy for littoral rainforest protection (State Environmental Planning Policy 26 – Littoral Rainforests).	N	Site is not within range of distribution of Littoral rainforest (i.e. not with 2 km of sea or maritime influence)
SEPP 14 Coastal Wetlands. Land mapped as coastal wetlands in accordance with the state wide policy for coastal wetland protection (State Environmental Planning Policy 14 – Coastal Wetlands).	N	Site is not within range of distribution of SEPP 14 Coastal Wetlands (i.e. coastline and up to 30 km inland)
Endangered Ecological Communities (EECs') listed under Threatened Species Conservation Act 1995 and/ or Environmental Protection and Biodiversity Conservation Act 1999.	Y	Based on ground assessment there was areas of vegetation along riparian zones with elements indicative of Lowland Subtropical Rainforest EEC although much of this is regrowth and weed-dominated.
Key Threatened Species Habitat. <ul style="list-style-type: none"> old-growth forests where the over-storey or canopy trees are in the late mature stage of growth ⁴ areas of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates ⁵ habitats for threatened species or endangered populations that cannot withstand further loss where the threatened species or endangered population is present⁶. 	Y	<p>The site meets the criteria for key threatened species habitat for the following reasons:</p> <p>The land parcel is predicted to be high conservation value for forest fauna as it is:</p> <ul style="list-style-type: none"> located within the “Repentance Creek Connector” fauna corridor which has “high significance as a sub-regional link connecting through to Goonengerry and Mount Jerusalem National Parks and Andrew Johnston Big Scrub Nature Reserve” (Milledge 2012, p.53). This corridor is identified as key habitat for nine of the twelve prioritised vertebrate assemblages with key habitat in the Lismore LGA. mapped as high environmental value by OEH (2014)(see appendix 1 for definitions). <p>There is habitat present on the land parcel for the following threatened species have been recorded as present within 1 km radius of the land parcel:</p>

		<ul style="list-style-type: none"> • Albert's lyrebird (<i>Menura alberti</i>) • Glossy Black-Cockatoo (<i>Calyptrorhynchus lathamii</i>) • Spotted-tailed Quoll (<i>Dasyurus maculatus</i>) • Pouched Frog (<i>Assa darlingtoni</i>) <p>These criteria were verified as being met during the site assessment.</p>
Over-cleared vegetation communities. <ol style="list-style-type: none"> 1. over-cleared vegetation communities, where more than 70% of the original (pre 1750) extent of the native vegetation type has been cleared⁷ and 2. Native vegetation in over-cleared Mitchell landscapes⁸. <p>Clarence–Richmond Alluvial Plains.</p>	Y	<p>The subtropical rainforest regrowth on site is representative of any of the over-cleared vegetation communities listed in (DECCW 2010).</p> <p>The land is not located within the Clarence-Richmond Alluvial Plain.</p>
Culturally significant lands. Areas of culturally significant lands such as Aboriginal object sites, Aboriginal places of heritage significance, and other significant objects identified by the local Aboriginal community ¹⁰ .	Not assessed	Not assessed under this criteria by the LCC Ecologist and Strategic Planner.
E3 Zone Criteria	Present? (Y/N)	Assessment comments
Riparian and estuarine vegetation and wetlands. Land comprising riparian and estuarine vegetation on waterfront land, defined under the NSW Water Management Act 2000, or wetland areas other than those mapped as SEPP 14 Coastal Wetlands. Waterfront land is defined under the NSW Water Management Act 2000 as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark.	Y	<p>The property is dissected by a first order stream at the headwaters of Repentance creek. Riparian vegetation on the lower slope is rainforest regrowth with a tree layer dominated by Camphor laurel riparian vegetation near to the base of the waterfall is rainforest regrowth dominated by a diversity of rainforest flora.</p>
Rare, Endangered and Vulnerable Forest Ecosystems. Land comprising areas of rare, endangered and vulnerable forest ecosystems as defined by the Joint ANZEC/MCFFA National Forest Policy Statement Implementation sub-committee (JANIS) (Commonwealth of Australia 1997).	N	<p>None of the forest ecosystems listed in Appendix 1 of <i>Northern Councils E-Zone Review: Final recommendations report</i> were recorded at the site</p>

Native vegetation on coastal foreshores. Native vegetation on land with frontage, or adjoining or adjacent to, a beach, estuary, coastal lake, headland, cliff or rock platform.	N	Site is not on a coastal foreshore
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4 <http://www.epa.nsw.gov.au/resources/pnf/OGRFreviewFieldIdent.pdf>

5 Scotts, D 2003, Key Habitats and Corridors for Forest Fauna: A Landscape Framework for Conservation in Northeast New South Wales, NPWS Occasional Paper no. 32, National Parks and Wildlife Service, Sydney, NSW.

6 NSW Office of Environment and Heritage 'Threatened Species Profiles Database' <http://www.bionet.nsw.gov.au>

7 Keith, DA 2006, Ocean Shores to Desert Dunes the Native Vegetation of New South Wales and the ACT, Department of Environment and Climate Change, Hurstville.

8 Mitchell, PB 2002, 'NSW Ecosystems Study: Background and Methodology', report prepared for National Parks and Wildlife Service, Hurstville, NSW and Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p27.

9 Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p26

10 Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW, NSW Department of Environment, Climate Change & Water (2011)

Summary

Attributes of most of the Deferred Matter area meet the criteria for E2 and E3 zoning. The northern eastern portion of the Deferred Matter area incorporating buildings is inconsistent with E zone criteria.

The site is of high conservation value for forest fauna and a range of threatened flora and fauna species known to occur in close proximity to the property. The land is located in an important sub-regional wildlife corridor, “Repentance Creek Connector”, a wildlife corridor of high significance for a number of priority vertebrate assemblages (Milledge 2012). To maintain and restore ecological values into the future recommend control of environmental weed species in particular vine weeds, Silverleaf Desmodium (*Desmodium uncinatum*) and staged removal of Camphor laurel (*Cinnamomum camphora*) to enhance the natural regenerative capacity of rainforest in riparian areas.

References

Milledge, D.R. 2012. *Lismore Local Government Area key habitats and corridors system: development and application of a methodology to identify key habitats and corridors for terrestrial vertebrate species to inform planning for biodiversity conservation in the Lismore Local Government Area*. Unpublished Report to Lismore City Council. Landmark Ecological Services, Suffolk Park, NSW.

Morand DT, 1994, *Soil Landscapes of the Lismore-Ballina 1:100,000 Sheet report*, NSW Department of Land and Water Conservation, Sydney.

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Appendix 1

High Environmental Value areas were identified outside National Parks and Wildlife Service (NPWS) managed lands and State Forests that meet one or more of the following criteria:

1. Native vegetation of high conservation value including; over-cleared vegetation types, all native vegetation in over-cleared Mitchell Landscapes, SEPP26 littoral rainforest (including 100m buffer), all rainforest, JANIS (Joint ANZESS/MCFFA National Forest Policy) rare, endangered or vulnerable vegetation, riparian vegetation including waterfront land within 40m of estuaries, lakes and stream orders 3 and above.

2. Threatened species, populations and ecological communities; including mapped areas of NSW and EPBC listed Endangered Ecological Communities (EEC), Koala habitats, key habitats for forest fauna (Scotts 2003), important shorebird habitat, old growth forest and records from the NSW Wildlife Atlas for species-credit threatened flora and fauna (except Koala) in the Threatened Species Database (TSPD) not on NPWS managed lands, State Forest or land with other HEV values and buffered to 200m (only records since 1989 with an accuracy of 200m or less) .

3. Wetlands, Coastal Lakes and Lagoons including; mapped coastal wetlands (SEPP14), Sensitive Estuaries, Nationally Important Wetlands, important wetland vegetation.

High Environmental Value lands were identified, outside of NPWS managed lands and State Forest, where one or more of the following criteria were present:

- Littoral Rainforest (SEPP 26) including the 100m buffer area
- Over-cleared vegetation types
- All native vegetation in over-cleared Mitchell Landscapes
- NSW and EPBC listed EECs
- Coastal Wetlands (SEPP 14)
- All rainforest
- Important shorebird habitats
- Other wetlands of importance – directory of important wetlands
- Threatened species habitats (Koala habitats, Old Growth Forests, Fauna Key

Habitats for North East NSW (Scotts 2003)

- Wetland vegetation of importance
- JANIS vegetation
- Sensitive estuaries
- Threatened flora and fauna records from the NSW Wildlife Atlas for species-credit species (except Koala) in the Threatened Species Database (TSPD). Records were only included where they did not fall on NPWS managed lands, State Forest or land with other HEV values. Records were only included from the last 25 years (records since 1989) and if they had an accuracy of 200m or less. These records were buffered to 200 m.
- Waterfront land – within 40 m of streams with order GE3 and LT99 (DECCW Stream Ordering), and within 40 m of lakes and estuaries (OEH MER Estuaries)

Appendix 2. Definition of waterfront land from the Dictionary of the Water Management Act 2000 No 92

waterfront land means:

(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary, or

(b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters,

where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.

Where river is defined as

(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and

(b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and

(c) anything declared by the regulations to be a river,

whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.

<https://www.legislation.nsw.gov.au/#/view/act/2000/92/dict1>

Appendix 3 Results of Bionet Atlas Search of 10 km grid centred on 76 Maso Road, Repentance Creek

Data from the BioNet BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Animals in selected area [North: -28.59 West: 153.34 East: 153.44 South: -28.69]. Report generated on 23/07/2018 4:51 PM returned a total of 1,379 records of 53 fauna species and 1,190 records of 29 flora species.

Fauna

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Amphibia	Myobatrachidae	<i>Assa darlingtoni</i>	Pouched Frog	V,P		20
Amphibia	Myobatrachidae	^ <i>Mixophyes fleayi</i>	Fleay's Barred Frog	E1,P,2	E	1
Amphibia	Myobatrachidae	^ <i>Mixophyes iteratus</i>	Giant Barred Frog	E1,P,2	E	4
Amphibia	Myobatrachidae	^ <i>Philoria loveridgei</i>	Loveridge's Frog	E1,P,2		3
Amphibia	Hylidae	<i>Litoria brevipalmata</i>	Green-thighed Frog	V,P		1
Reptilia	Elapidae	<i>Hoplocephalus stephensii</i>	Stephens' Banded Snake	V,P		16
Aves	Columbidae	<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	V,P		192
Aves	Columbidae	<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V,P		210
Aves	Columbidae	<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V,P		38
Aves	Podargidae	<i>Podargus ocellatus</i>	Marbled Frogmouth	V,P		58
Aves	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		6

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Aves	Ardeidae	<i>Botaurus poiciloptilus</i>	Australasian Bittern	E1,P	E	1
Aves	Ardeidae	<i>Ixobrychus flavicollis</i>	Black Bittern	V,P		25
Aves	Accipitridae	<i>Circus assimilis</i>	Spotted Harrier	V,P		2
Aves	Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P	C	23
Aves	Accipitridae	<i>Hieraaetus morphnoides</i>	Little Eagle	V,P		11
Aves	Accipitridae	<i>Pandion cristatus</i>	Eastern Osprey	V,P,3		1
Aves	Falconidae	<i>Falco subniger</i>	Black Falcon	V,P		7
Aves	Rallidae	<i>Amauornis moluccana</i>	Pale-vented Bush-hen	V,P		31
Aves	Jacaniae	<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P		10
Aves	Turnicidae	<i>Turnix melanogaster</i>	Black-breasted Button-quail	E4A,P	V	2
Aves	Cacatuidae	<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V,P,2		32
Aves	Psittacidae	<i>Glossopsitta pusilla</i>	Little Lorikeet	V,P		1
Aves	Strigidae	<i>Ninox connivens</i>	Barking Owl	V,P,3		1
Aves	Strigidae	<i>Ninox strenua</i>	Powerful Owl	V,P,3		5
Aves	Tytonidae	<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3		9
Aves	Tytonidae	<i>Tyto tenebricosa</i>	Sooty Owl	V,P,3		45
Aves	Menuridae	<i>Menura alberti</i>	Albert's Lyrebird	V,P		121
Aves	Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		2
Aves	Campephagidae	<i>Coracina lineata</i>	Barred Cuckoo-shrike	V,P		6

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Aves	Artamidae	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P		1
Aves	Monarchidae	<i>Carterornis leucotis</i>	White-eared Monarch	V,P		69
Aves	Petroicidae	<i>Petroica boodang</i>	Scarlet Robin	V,P		1
Mammalia	Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	9
Mammalia	Dasyuridae	<i>Planigale maculata</i>	Common Planigale	V,P		1
Mammalia	Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	V,P	V	333
Mammalia	Petauridae	<i>Petaurus australis</i>	Yellow-bellied Glider	V,P		1
Mammalia	Pseudocheiridae	<i>Petauroides volans</i>	Greater Glider	P	V	2
Mammalia	Potoroidae	<i>Potorous tridactylus</i>	Long-nosed Potoroo	V,P	V	4
Mammalia	Macropodidae	<i>Thylogale stigmatica</i>	Red-legged Pademelon	V,P		7
Mammalia	Pteropodidae	<i>Nyctimene robinsoni</i>	Eastern Tube-nosed Bat	V,P		4
Mammalia	Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	4
Mammalia	Pteropodidae	<i>Syconycteris australis</i>	Common Blossom-bat	V,P		1
Mammalia	Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		2
Mammalia	Molossidae	<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V,P		2
Mammalia	Vespertilionidae	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V,P	V	1
Mammalia	Vespertilionidae	<i>Kerivoula papuensis</i>	Golden-tipped Bat	V,P		1

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Mammalia	Vespertilionidae	<i>Miniopterus australis</i>	Little Bentwing-bat	V,P		23
Mammalia	Vespertilionidae	<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V,P		5
Mammalia	Vespertilionidae	<i>Myotis macropus</i>	Southern Myotis	V,P		12
Mammalia	Vespertilionidae	<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V,P		4
Mammalia	Vespertilionidae	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		7
Mammalia	Vespertilionidae	<i>Vespadelus troughtoni</i>	Eastern Cave Bat	V,P		1

Flora

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Acanthaceae	<i>Isoglossa eranthemoides</i>	Isoglossa	E1,P	E	2
Flora	Apocynaceae	<i>Ochrosia moorei</i>	Southern Ochrosia	E1,P	E	7
Flora	Cunoniaceae	<i>Davidsonia jerseyana</i>	Davidson's Plum	E1,P,2	E	1
Flora	Cunoniaceae	<i>Davidsonia johnsonii</i>	Smooth Davidson's Plum	E1,P	E	10
Flora	Dilleniaceae	<i>Hibbertia hexandra</i>	Tree Guinea Flower	E1,P		4
Flora	Doryanthaceae	<i>Doryanthes palmeri</i>	Giant Spear Lily	V,P		1

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Elaeocarpaceae	<i>Elaeocarpus sedentarius</i>	Minyon Quandong	E1,P,3	E	67
Flora	Elaeocarpaceae	<i>Elaeocarpus williamsianus</i>	Hairy Quandong	E1,P,3	E	2
Flora	Fabaceae (Faboideae)	<i>Desmodium acanthocladum</i>	Thorny Pea	V,P	V	19
Flora	Grammitidaceae	<i>Grammitis stenophylla</i>	Narrow-leaf Finger Fern	E1,P,3		2
Flora	Lauraceae	<i>Endiandra floydii</i>	Crystal Creek Walnut	E1,P	E	1
Flora	Lauraceae	<i>Endiandra hayesii</i>	Rusty Rose Walnut	V,P	V	64
Flora	Lauraceae	<i>Endiandra muelleri</i> subsp. <i>bracteata</i>	Green-leaved Rose Walnut	E1,P		3
Flora	Lindsaeaceae	<i>Lindsaea brachypoda</i>	Short-footed Screw Fern	E1,P,3		2
Flora	Meliaceae	<i>Owenia cepiodora</i>	Onion Cedar	V,P	V	21
Flora	Menispermaceae	<i>Tinospora tinosporoides</i>	Arrow-head Vine	V,P		176
Flora	Myrtaceae	<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V,P	V	120
Flora	Myrtaceae	<i>Syzygium moorei</i>	Durobby	V,P	V	4
Flora	Myrtaceae	<i>Uromyrtus australis</i>	Peach Myrtle	E1,P	E	16
Flora	Proteaceae	<i>Floydia praealta</i>	Ball Nut	V,P	V	3
Flora	Proteaceae	<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	V,P	V	319
Flora	Proteaceae	<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V,P	V	50

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Psilotaceae	<i>Psilotum complanatum</i>	Flat Fork Fern	E1,P,3		2
Flora	Rutaceae	<i>Melicope vitiflora</i>	Coast Euodia	E1,P		1
Flora	Sapindaceae	<i>Diploglottis campbellii</i>	Small-leaved Tamarind	E1,P,2	E	3
Flora	Sapindaceae	<i>Lepiderema pulchella</i>	Fine-leaved Tuckeroo	V,P		2
Flora	Sapotaceae	<i>Niemeyera whitei</i>	Rusty Plum, Plum Boxwood	V,P		33
Flora	Symplocaceae	<i>Symplocos baeuerlenii</i>	Small-leaved Hazelwood	V,P	V	192
Flora	Argophyllaceae	<i>Corokia whiteana</i>	Corokia	V,P	V	63

Ecological Assessment Report – Environmental Zoning

Property Address	93 Maso Rd Repentance creek
Lot/DP	5/615305
Assessment date	29/03/2018
Assessors name	Angus Underwood
Document	EF17/65:ED18/11059

The site inspection involved a discussion with the property owner regarding the previous management of the site and the wildlife observed. This was followed by a random meander survey over the entire property including observation of canopy species from forest edges as well as observation within the forest patches. Species were recorded on a field data sheets, as well as habitat features, weeds and other relevant observation. The survey included searching for any threatened species likely to occur.

Site Description

Four vegetation communities were recorded on the site:

1. Lowland Subtropical Rainforest occurring in the south west associated basalt derived soils on the creekline. This area includes a range of species including emergent Flooded gum (*Eucalyptus grandis*), with a canopy of species including Cheese tree (*Glochidion fernadii*), Sally Wattle (*Acacia melanoxyln*), Sandpaper Fig *Ficus coronata*), Blueberry Ash (*Eleocarpis reticulata*), *Macaranga tanaris*, Red Kamala (*Mallotus philippensis*). The mid and ground layer contain species including Native Ginger (*Alpinia caerulea*), Lantana (*Lantana camara*), Soft Fern *Calochlaena* sp., Native Raspberry (*Rubus* sp.).
2. Brushbox rainforest in the western edge of the property on the lower east facing slope. This area contained a similar species mix to the community listed above but also contained a high proportion of Brushbox (*Lephostemon confertus*) in the canopy.
3. Northern tall moist Blackbutt forest. This vegetation community occurred on the higher ridge line associated with the Rhyolite derived soils. Blackbutt (*Eucalyptus pilularis*) was the dominant species occurring with scattered Turpentine (*Syncarpia glomulifera*) and Brushbox (*Lephostemon confertus*) and Bloodwood (*Corymbia intermedia*). Forest Oak (*Allocasuarina torulosa*) was dominant in the mid story as well as in the lower canopy. A mix of other mesic species in the mid story included Blueberry Ash (*Eleocarpis reticulata*), *Pittosporum undulatum*, *Trochocarpa laurina*, *Cinamomum camphora*. Ground layer species included ferns such as *Calochlaena* sp.
4. *Plantation* – an area of planted species close to the house including Forest red Gum (*Eucalyptus tereticornis*), Lemon Scented Gum (*Corymbia citriodora*) and Hoop Pine (*Araucaria cunninghamii*)

Soil – Two soil types have been mapped:

- Rhyolite - mildly Leached chocolate soils
- Basalt derived Krasnozem

- OEH High Environmental Value (HEV) mapped on eastern half of the property
- Council High Conservation Value mapping over all vegetation on the property
- Council Priority Habitats and Corridor Mapping – over entire property
- Habitat features occurring on site included koala feed trees, Glossy Black Cockatoo Feed trees, low cover/ thickets, creeklines, coarse woody debris, fallen logs.
- Interrogation NSW Bionet identifies a total of 6 threatened flora and 9 threatened fauna species being recorded within a 5km radius of the property.
- No threatened species were recorded during the site inspection.

Assessment against Environmental zone criteria

E2 Criteria	Present? (Y/N)	Assessment comments
SEPP 26 Littoral Rainforests Land mapped as littoral rainforest in accordance with the state wide policy for littoral rainforest protection (State Environmental Planning Policy 26 – Littoral Rainforests).	No	No present on the land
SEPP 14 Coastal Wetlands. Land mapped as coastal wetlands in accordance with the state wide policy for coastal wetland protection (State Environmental Planning Policy 14 – Coastal Wetlands).	No	Not present on the land
Endangered Ecological Communities (EECs') listed under Threatened Species Conservation Act 1995 and/ or Environmental Protection and Biodiversity Conservation Act 1999.	Yes	The rainforest vegetation communities meet the scientific committee determination of Lowland Subtropical Rainforest in the North Coast Bioregion.
Key Threatened Species Habitat. <ul style="list-style-type: none"> old-growth forests where the over-storey or canopy trees are in the late mature stage of growth⁴ areas of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates⁵ habitats for threatened species or endangered populations that cannot withstand further loss where the threatened species or endangered population is present⁶. 	Yes	<p>The land parcel is mapped within the High Significance 'Repentance Creek Connector' fauna corridor (Milledge 2012).</p> <p>The eastern portion of the site is mapped as High Environmental Value by Office of Environment and Heritage 2014</p> <p>Part of the site is mapped as high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates by Scotts.</p> <p>Koala habitat occurs on site. Bionet contains 4 separate koala records occurring on the property between 2013 and 2018. This includes 2 records of female with young suggesting there is a breeding population in the area –. Generation persistence modelling undertaken in 2017 (Biolink) shows presence of koalas for at least last 3 koala generations. This evidence is indicative of core koala habitat.</p>

<p>Over-cleared vegetation communities.</p> <ol style="list-style-type: none"> 1. over-cleared vegetation communities, where more than 70% of the original (pre 1750) extent of the native vegetation type has been cleared⁷ and 2. Native vegetation in over-cleared Mitchell landscapes⁸. The Far North Coast Regional Conservation Plan lists the following as examples of: <ul style="list-style-type: none"> •Over-cleared vegetation communities on the Far North Coast⁹: <ul style="list-style-type: none"> – Rainforests, Wet sclerophyll forests (shrubby and grassy subformations), Dry Sclerophyll forests (shrubby and shrub/grass subformations), Grassy woodlands, Grasslands (<i>Themeda australis</i> sod tussock), Heathlands, Forested wetlands, Freshwater wetlands, Saline wetlands; and •Over-cleared Mitchell landscapes⁹: <ul style="list-style-type: none"> – Byron–Tweed Alluvial Plains, Byron–Tweed Coastal Barriers, Clarence–Richmond Alluvial Plains and Upper Clarence Channels and Floodplains. 	Yes	Rainforest vegetation communities occurring on site are identified as over-cleared vegetation communities.
<p>Culturally significant lands.</p> <p>Areas of culturally significant lands such as Aboriginal object sites, Aboriginal places of heritage significance, and other significant objects identified by the local Aboriginal community¹⁰.</p>	unknown	Not assessed
E3 Criteria	Present (Y/N)	Assessment Comments
<p>Riparian and estuarine vegetation and wetlands.</p> <p>Land comprising riparian and estuarine vegetation on <i>waterfront land</i>, defined under the NSW <i>Water Management Act 2000</i>, or wetland areas other than those mapped as SEPP 14 Coastal Wetlands. Waterfront land is defined under the NSW <i>Water</i></p>	Yes	A creek line runs along the south western edge of the property and rainforest vegetation occurs in the riparian areas adjoining this creek.

<i>Management Act 2000</i> as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark.		
Rare, Endangered and Vulnerable Forest Ecosystems. Land comprising areas of rare, endangered and vulnerable forest ecosystems as defined by the <i>Joint ANZEC/MCFFA National Forest Policy Statement Implementation sub-committee (JANIS)</i> (Commonwealth of Australia 1997) .	Yes	Wet Bangalow – Brushbox
Native vegetation on coastal foreshores. Native vegetation on land with frontage, or adjoining or adjacent to, a beach, estuary, coastal lake, headland, cliff or rock platform.	No	Not present

4 <http://www.epa.nsw.gov.au/resources/pnf/OGRPreviewFieldIdent.pdf>

5 Scotts, D 2003, Key Habitats and Corridors for Forest Fauna: A Landscape Framework for Conservation in Northeast New South Wales, NPWS Occasional Paper no. 32, National Parks and Wildlife Service, Sydney, NSW.

6 NSW Office of Environment and Heritage 'Threatened Species Profiles Database' <http://www.bionet.nsw.gov.au>

7 Keith, DA 2006, Ocean Shores to Desert Dunes the Native Vegetation of New South Wales and the ACT, Department of Environment and Climate Change, Hurstville.

8 Mitchell, PB 2002, 'NSW Ecosystems Study: Background and Methodology', report prepared for National Parks and Wildlife Service, Hurstville, NSW and Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p27.

9 Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p26

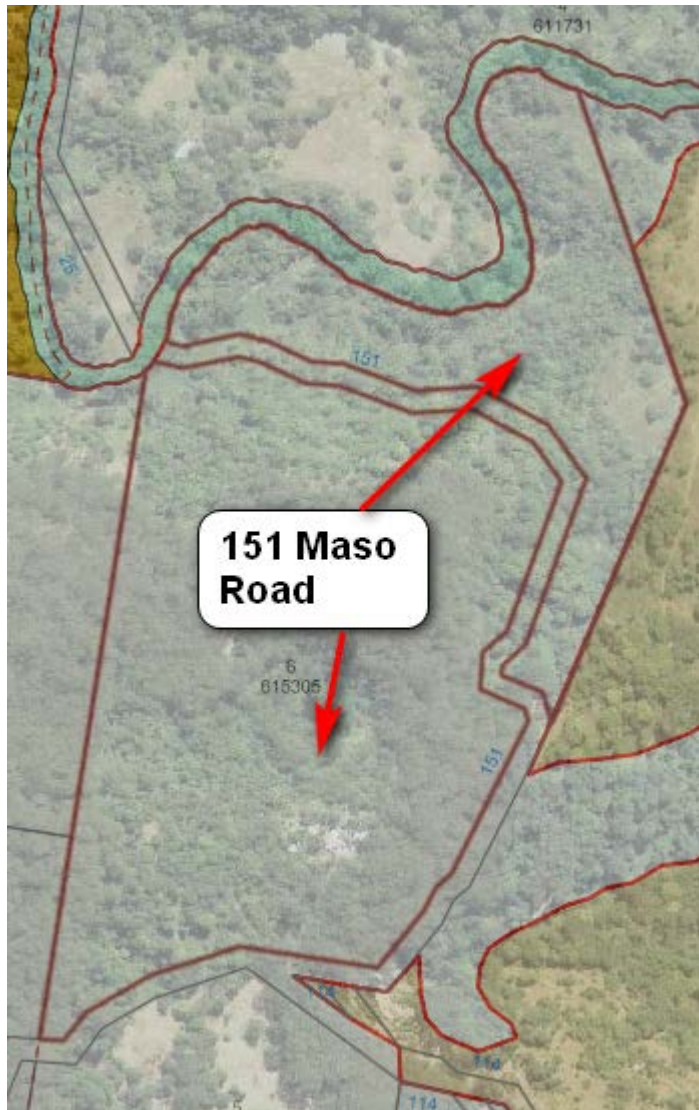
10 Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW, NSW Department of Environment, Climate Change & Water (2011)

Summary

- The Deferred Matter areas incorporating woody vegetation meet the criteria of either E2 or E3 , as shown in table 1 due to presence of:
 - areas of the Endangered ecological community Lowland Subtropical Rainforest (E2)
 - part of the site is mapped as high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates (E2)
 - Core koala habitat occurring on the site (E2)
 - Over cleared vegetation community – Rainforest (E2)
 - Riparian vegetation (E3)
 - Rare, Endangered and Vulnerable Forest Ecosystems (E3)
- Cleared Deferred Matter areas on the allotment are inconsistent with E zone criteria.
- The primary land use is not agriculture, but is better described as environmental management or environmental conservation.
- The landholder is supportive or applying an environmental protection zone and has expressed some interest in undertaking small scale eco-tourism on the property.
- Environmental zoning should be applied over all areas of native vegetation on the property. This may include the application of E3 over the entire property, or a split zoning which zones areas of native vegetation as E2, and cleared grassy areas as RU1 or E3.

Ecological Report – Lismore LEP 2012 Deferred Matter (Non-Urban)

Property: 151 Maso Road, Repentance Creek (Lot 6 DP 615301)



Site inspection date: 3 May 2018

Inspection officer: Greg Yopp (Senior Strategic Planner - Lismore City Council)

File reference: EF17/65:ED18/12325

Site description

151 Maso Road, Repentance Creek has an area of 26ha all of which is Deferred Matter (DM) under Lismore LEP 2012. The land is within Zone 1(a) General Rural under Lismore LEP 2000. The land is in close proximity to the Nightcap Range National Park with its closest point at less than 100m. The entire lot was proposed for Zone E3 in 2010 as part of the then draft LEP process.

Vegetation

Two main vegetation communities were observed on site including North Coast Wet Sclerophyll Forest and Lowland Subtropical Rainforest. The most intact rainforest was located in the northern riparian area adjacent to Repentance Creek with another area of rainforest located to the north and north west of the dwelling, which has a higher level of exotic landscape and weed species. The landholder indicated that the vegetation had not been burnt for many years and there appeared to be an increasing rainforest understory throughout some of the sclerophyll forest. Some understory rainforest species were evident at the time of inspection probably due to the low frequency of burning.

Some of the endemic sclerophyllous trees observed on site included, but are not limited to: Sally Wattle (*Acacia melanoxylon*), Tallowwood (*Eucalyptus microcorys*), Brushbox (*Lophostemon confertus*), Pink Bloodwood (*Corymbia intermedia*), Blackbutt (*Eucalyptus pilularis*), Turpentine (*Syncarpia glomulifera*) and Forest Oak (*Allocasuarina torulosa*).

Rainforest species included, but are not limited to: Foam Bark (*Jagera pseudorhus*), Cudgerie (*Flindersia schottiana*), Native Daphne (*Pittosporum undulatum*), Blueberry Ash (*Elaeocarpus reticulatus*), Black Wattle (*Callicoma serratifolia*), Brown Kurrajong (*Commersonia bartramia*), Pink Euodia (*Melicope elleryana*), Native Tamarind (*Diploglottis australis*), Blue Quondong (*Elaeocarpus grandis*), Bangalow Palm (*Archontophoenix cunninghamiana*), Guioa (*Guioa semiglauca*), Red Cedar (*Toona ciliata*), Rough-shelled Bush Nut (*Macadamia tetraphylla*), Walking Stick Palm (*Linospadix monostachya*), White Cedar (*Melia azedarach*), Palm Lily (*Cordyline spp*) and various liana vines.

Basket Grass (*Oplismenus spp*) appeared to be the dominant ground cover on the internal track network within 100m of the dwelling. Woody vegetation in this location consisted of both wet sclerophyll, rainforest and some exotic planted landscape species. Numerous patches of Giant Moss (*Dawsonia superba*) were also observed within the cleared track network.

Threatened species

The landholders are long standing members of WIRES (Wildlife Information, Rescue and Education Service) and have an extensive knowledge of local flora and fauna. The landholders have reported the presence of the following threatened species (vulnerable pursuant to the *Biodiversity Conservation Act 2016*) at 151 Maso Road:

- Pouched Frog (*Assa darlingtoni*);
- Koala (*Phascolarctos cinereus*);
- Red-legged Pademelon (*Thylogale stigmatica*);
- Squirrel Glider (*Petaurus norfolcensis*);
- Wompoo Fruit Dove (*Ptilinopus magnificus*);

The NSW Office of Environment and Heritage online threatened species search tool (<http://www.environment.nsw.gov.au/threatenedspeciesapp/geohabitatsearch.aspx>) indicates numerous other threatened species are known or predicted to occur in this location.

Northern Councils E Zone Review – Final Report Recommendations

The vegetation located on the site is assessed against the E Zone Criteria under the Northern Councils E Zone Review – Final Report Recommendations. The assessment is located in Table 1.

Table 1 - E Zone Criteria

Criteria	Assessment comments
Zone E2 Environmental Conservation	
SEPP 26 Littoral Rainforests	No
SEPP 14 Coastal Wetlands	No
Endangered Ecological Communities	Yes – Lowland Rainforest
Key Threatened Species Habitat	Yes

	Area of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates.
Over-cleared vegetation communities	Yes - Rainforest
Culturally significant lands	No No AHIMS Not listed in other Council study
Zone E3 Environmental Management	
Riparian and estuarine vegetation and wetlands	Yes – partial Repentance Creek (Order 4 stream Strahler Stream Order) forms the northern boundary of the allotment.
Rare, Endangered and Vulnerable Forest Ecosystems	Yes – Wet Bangalow - Brushbox
Native Vegetation on Coastal Foreshores	No

In accordance with Part 3, Clause 7 of the Northern Council's E zone Review, private land may be zoned E2 or E3 despite being inconsistent with the criteria. The landholders formerly requested Council to apply an E zone in the DM area of the lot in an email dated 1 May 2018. Extract of Clause 7 follows:

Private land may be zoned E2 or E3 despite being inconsistent with the criteria, only if it is consistent with a negotiated development outcome (master plan, rezoning, development consent, designated offset areas) or at the request of the landholder.

Greg Yopp *BEd (ACU), BSc (UQ), GradDipNatRes (UNE), GradDipURP (UNE)*

Lismore City Council

Ecological Assessment Report – Environmental Zoning

Property Address	387 Ridgewood Road, Rosebank
Lot/DP	13/847265
Property owner	Ms. S. Heuston
Assessment date	08/03/18
Assessor/s	Wendy Neilan and Greg Yopp
Document Ref	ED18/19905

The site inspection involved a discussion with the property owner regarding the management of the site and the wildlife observed. This was followed by a random meander survey by foot over all accessible areas of the property. Species were recorded on a field data sheet, as well as habitat features, weeds and other relevant observations. The survey included searching for signs of any threatened species known or likely to occur on the property.

Site Description

The dominant vegetation community on site is advanced regrowth subtropical rainforest which is under active ecological restoration.

- Underlying Geology - Basalts
- Erosional soil landscape – Rosebank (Morand 1994)
- Soils – krasnozems
- Riparian zone is mapped as North Coast High Environmental Value 2014 (OEH)
- Entire parcel falls within the mapped priority 2-1 wildlife corridor ‘Repentance Creek Connector’ which provides a subregional link connecting through to Goonengerry and Mt Jerusalem National Parks and Andrew Johnston Big Scrub Nature Reserve (Milledge 2012).
- Habitat features occurring on site included mature trees, fruiting plants, vine thickets, moist litter layer, and woody debris.
- 36 threatened fauna species and 18 threatened flora species have been recorded within 10 km of the site (Bionet atlas data accessed 23/07/18)

Assessment against Environmental zone criteria

Table 1. Assessment against E2 Zone and E3 Zone criteria

E2 Zone Criteria	Present? (Y/N)	Assessment comments
SEPP 26 Littoral Rainforests Land mapped as littoral rainforest in accordance with the state wide policy for littoral rainforest protection (State Environmental Planning Policy 26 – Littoral Rainforests).	N	Site is not within range of distribution of Littoral rainforest (i.e. not with 2 km of sea or maritime influence)
SEPP 14 Coastal Wetlands. Land mapped as coastal wetlands in accordance with the state wide policy for coastal wetland protection (State Environmental Planning Policy 14 – Coastal Wetlands).	N	Site is not within range of distribution of SEPP 14 Coastal Wetlands (i.e. coastline and up to 30 km inland)
Endangered Ecological Communities (EECs') listed under Threatened Species Conservation Act 1995 and/ or Environmental Protection and Biodiversity Conservation Act 1999.	Y	EEC's present on the site –Lowland Subtropical Rainforest
Key Threatened Species Habitat. <ul style="list-style-type: none"> old-growth forests where the over-storey or canopy trees are in the late mature stage of growth ⁴ areas of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates ⁵ habitats for threatened species or endangered populations that cannot withstand further loss where the threatened species or endangered population is present⁶. 	Y	<p>The site meets the criteria for key threatened species habitat for the following reasons:</p> <p>The land parcel is predicted to be high conservation value for forest fauna as it is located within the “Repentance Creek Connector” fauna corridor which has “high significance as a sub-regional link connecting through to Goonengerry and Mount Jerusalem National Parks and Andrew Johnston Big Scrub Nature Reserve” (Milledge 2012, p.53). This corridor is identified as key habitat for nine of the twelve prioritised vertebrate assemblages with key habitat in the Lismore LGA.</p> <p>The riparian zone is mapped as high environmental value by OEH (2014) (see appendix 1 for definitions).</p> <p>There is habitat present on the land parcel for the following threatened species that have been recorded as present within 10 km radius of the land parcel:</p> <p>Flora</p>

		<ul style="list-style-type: none"> • Coolamon (<i>Syzygium moorei</i>) occurs on-site • <i>Isoglossa eranthemoides</i> • <i>Ochrosia moorei</i> • Rusty Rose Walnut (<i>Endiandra hayesii</i>) • Onion Cedar (<i>Owenia cepiodora</i>) • Arrow-head Vine (<i>Tinospora tinoporoides</i>) • Red Lilly Pilly (<i>Syzygium hodgkinsoniae</i>) • Ball Nut (<i>Floydia praealta</i>) • Red Boppel Nut (<i>Hicksbeachia pinnatifolia</i>) • Rough-shelled Bush Nut (<i>Macadamia tetraphylla</i>) • Small-leaved Tamarind (<i>Diploglottis campbellii</i>) <p>Fauna</p> <ul style="list-style-type: none"> • Wompoo Fruit-dove (<i>Ptilinopus magnificus</i>) recorded on site • Rose-crowned Fruit-dove (<i>Ptilinopus regina</i>) recorded on site • Superb Fruit-Dove (<i>Ptilinopus superbus</i>) • White-eared Monarch (<i>Carterornis leucotis</i>) • Common Planigale (<i>Planigale maculate</i>) • Eastern Tube-nosed Bat (<i>Nyctimene robinsoni</i>) • Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>) • Little Bentwing-bat (<i>Miniopterus australis</i>) • Southern Pink Underwing Moth (<i>Phyllodes imperialis</i> southern subspecies) • Eastern Long-eared Bat (<i>Nyctophilus bifax</i>) <p>These criteria were verified as being met during the site assessment.</p>
Over-cleared vegetation communities. <ol style="list-style-type: none"> 1. over-cleared vegetation communities, where more than 70% of the original (pre 1750) extent of the native vegetation type has been cleared⁷ and 2. Native vegetation in over-cleared Mitchell landscapes⁸. <p>Clarence–Richmond Alluvial Plains.</p>	Y	<p>The subtropical rainforest under restoration is representative of an over-cleared vegetation community listed in (DECCW 2010).</p> <p>The land is not located within the Clarence-Richmond Alluvial Plain.</p>
Culturally significant lands. Areas of culturally significant lands such as Aboriginal object sites, Aboriginal places of heritage significance, and other	Not assessed	Not assessed under this criteria by the LCC Ecologist and Strategic Planner.

significant objects identified by the local Aboriginal community ¹⁰ .		
E3 Zone Criteria	Present? (Y/N)	Assessment comments
Riparian and estuarine vegetation and wetlands. Land comprising riparian and estuarine vegetation on waterfront land, defined under the NSW Water Management Act 2000, or wetland areas other than those mapped as SEPP 14 Coastal Wetlands. Waterfront land is defined under the NSW Water Management Act 2000 as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark.	Y	Riparian vegetation present along third order stream in south west corner of land parcel
Rare, Endangered and Vulnerable Forest Ecosystems. Land comprising areas of rare, endangered and vulnerable forest ecosystems as defined by the Joint ANZEC/MCFFA National Forest Policy Statement Implementation sub-committee (JANIS) (Commonwealth of Australia 1997).	N	None of the forest ecosystems listed in Appendix 1 of <i>Northern Councils E-Zone Review: Final recommendations report</i> were recorded at the site
Native vegetation on coastal foreshores. Native vegetation on land with frontage, or adjoining or adjacent to, a beach, estuary, coastal lake, headland, cliff or rock platform.	N	Site is not on a coastal foreshore

4 <http://www.epa.nsw.gov.au/resources/pnf/OGRFreviewFieldIdent.pdf>

5 Scotts, D 2003, Key Habitats and Corridors for Forest Fauna: A Landscape Framework for Conservation in Northeast New South Wales, NPWS Occasional Paper no. 32, National Parks and Wildlife Service, Sydney, NSW.

6 NSW Office of Environment and Heritage 'Threatened Species Profiles Database' <http://www.bionet.nsw.gov.au>

7 Keith, DA 2006, Ocean Shores to Desert Dunes the Native Vegetation of New South Wales and the ACT, Department of Environment and Climate Change, Hurstville.

8 Mitchell, PB 2002, 'NSW Ecosystems Study: Background and Methodology', report prepared for National Parks and Wildlife Service, Hurstville, NSW and Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p27.

9 Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p26

10 Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW, NSW Department of Environment, Climate Change & Water (2011)

Summary

The majority of the site is consistent with E2 and E3 criteria. The regenerating Lowland Subtropical Rainforest is of high conservation value. The owner has requested that the eastern and south eastern portions of the land (not Deferred Matter) are also included in an E zone. The land is located in the Blue Knob Connector which links Nightcap Range to McKellar Range through to Boorabee State Forest, a wildlife corridor of very high significance (Milledge 2012). The land is habitat for threatened species as evidenced by the records of threatened fauna present on and around the property.

References

Milledge, D.R. 2012. *Lismore Local Government Area key habitats and corridors system: development and application of a methodology to identify key habitats and corridors for terrestrial vertebrate species to inform planning for biodiversity conservation in the Lismore Local Government Area*. Unpublished Report to Lismore City Council. Landmark Ecological Services, Suffolk Park, NSW.

Morand DT, 1994, *Soil Landscapes of the Lismore-Ballina 1:100,000 Sheet report*, NSW Department of Land and Water Conservation, Sydney.

North Coast High Environmental Value 2014 mapping OEH

NSW Department of Planning and Environment, 2015. *Northern Councils E Zone Review Final Recommendations Report*, unpublished report. Available online <http://www.planning.nsw.gov.au/Policy-and-Legislation/Environment-and-Heritage/~media/70C33DB9E53B41738B7591A8EEEEAA238.ashx>

Appendix 1

High Environmental Value areas were identified outside National Parks and Wildlife Service (NPWS) managed lands and State Forests that meet one or more of the following criteria:

1. Native vegetation of high conservation value including; over-cleared vegetation types, all native vegetation in over-cleared Mitchell Landscapes, SEPP26 littoral rainforest (including 100m buffer), all rainforest, JANIS (Joint ANZECC/MCFFA National Forest Policy) rare, endangered or vulnerable vegetation, riparian vegetation including waterfront land within 40m of estuaries, lakes and stream orders 3 and above.

2. Threatened species, populations and ecological communities; including mapped areas of NSW and EPBC listed Endangered Ecological Communities (EEC), Koala habitats, key habitats for forest fauna (Scotts 2003), important shorebird habitat, old growth forest and records from the NSW Wildlife Atlas for species-credit threatened flora and fauna (except Koala) in the Threatened Species Database (TSPD) not on NPWS managed lands, State Forest or land with other HEV values and buffered to 200m (only records since 1989 with an accuracy of 200m or less) .

3. Wetlands, Coastal Lakes and Lagoons including; mapped coastal wetlands (SEPP14), Sensitive Estuaries, Nationally Important Wetlands, important wetland vegetation.

High Environmental Value lands were identified, outside of NPWS managed lands and State Forest, where one or more of the following criteria were present:

- Littoral Rainforest (SEPP 26) including the 100m buffer area
- Over-cleared vegetation types
- All native vegetation in over-cleared Mitchell Landscapes
- NSW and EPBC listed EECs
- Coastal Wetlands (SEPP 14)
- All rainforest
- Important shorebird habitats
- Other wetlands of importance – directory of important wetlands
- Threatened species habitats (Koala habitats, Old Growth Forests, Fauna Key

Habitats for North East NSW (Scotts 2003)

- Wetland vegetation of importance
- JANIS vegetation
- Sensitive estuaries
- Threatened flora and fauna records from the NSW Wildlife Atlas for species-credit species (except Koala) in the Threatened Species Database (TSPD). Records were only included where they did not fall on NPWS managed lands, State Forest or land with other HEV values. Records were only included from the last 25 years (records since 1989) and if they had an accuracy of 200m or less. These records were buffered to 200 m.
- Waterfront land – within 40 m of streams with order GE3 and LT99 (DECCW Stream Ordering), and within 40 m of lakes and estuaries (OEH MER Estuaries)

Appendix 2. Definition of waterfront land from the Dictionary of the Water Management Act 2000 No 92

waterfront land means:

(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary, or

(b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters,

where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.

Where river is defined as

(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and

(b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and

(c) anything declared by the regulations to be a river,

whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.

<https://www.legislation.nsw.gov.au/#/view/act/2000/92/dict1>

Appendix 3 Bionet Search results

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Animals in selected area [North: -28.63 West: 153.36 East: 153.46 South: -28.73] returned a total of 910 records of 36 fauna species and 394 records of 18 flora species.

Fauna

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Amphibia	Myobatrachidae	<i>Assa darlingtoni</i>	Pouched Frog	V,P		6
Reptilia	Elapidae	<i>Hoplocephalus stephensii</i>	Stephens' Banded Snake	V,P		2
Aves	Columbidae	<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	V,P		169
Aves	Columbidae	<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V,P		144
Aves	Columbidae	<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V,P		34
Aves	Podargidae	<i>Podargus ocellatus</i>	Marbled Frogmouth	V,P		13
Aves	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		5
Aves	Ardeidae	<i>Ixobrychus flavicollis</i>	Black Bittern	V,P		23
Aves	Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P	C	20
Aves	Accipitridae	<i>Hieraaetus morphnoides</i>	Little Eagle	V,P		10
Aves	Accipitridae	^^ <i>Pandion cristatus</i>	Eastern Osprey	V,P,3		1
Aves	Falconidae	<i>Falco subniger</i>	Black Falcon	V,P		7

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Aves	Rallidae	<i>Amaurornis moluccana</i>	Pale-vented Bush-hen	V,P		24
Aves	Jacanidae	<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P		2
Aves	Cacatuidae	<i>^Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V,P,2		29
Aves	Psittacidae	<i>Glossopsitta pusilla</i>	Little Lorikeet	V,P		1
Aves	Strigidae	<i>^Ninox connivens</i>	Barking Owl	V,P,3		1
Aves	Strigidae	<i>^Ninox strenua</i>	Powerful Owl	V,P,3		1
Aves	Tytonidae	<i>^Tyto novaehollandiae</i>	Masked Owl	V,P,3		5
Aves	Tytonidae	<i>^Tyto tenebricosa</i>	Sooty Owl	V,P,3		17
Aves	Menuridae	<i>Menura alberti</i>	Albert's Lyrebird	V,P		53
Aves	Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		1
Aves	Monarchidae	<i>Carterornis leucotis</i>	White-eared Monarch	V,P		38
Aves	Petroicidae	<i>Petroica boodang</i>	Scarlet Robin	V,P		1
Mammalia	Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	5
Mammalia	Dasyuridae	<i>Planigale maculata</i>	Common Planigale	V,P		1
Mammalia	Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	V,P	V	277
Mammalia	Potoroidae	<i>Potorous tridactylus</i>	Long-nosed Potoroo	V,P	V	2
Mammalia	Pteropodidae	<i>Nyctimene robinsoni</i>	Eastern Tube-nosed Bat	V,P		2
Mammalia	Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	2
Mammalia	Pteropodidae	<i>Syconycteris australis</i>	Common Blossom-bat	V,P		1

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Mammalia	Vespertilionidae	<i>Miniopterus australis</i>	Little Bentwing-bat	V,P		4
Mammalia	Vespertilionidae	<i>Myotis macropus</i>	Southern Myotis	V,P		6
Mammalia	Vespertilionidae	<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V,P		1
Mammalia	Vespertilionidae	<i>Vespadelus troughtoni</i>	Eastern Cave Bat	V,P		1
Insecta	Noctuidae	<i>Phyllodes imperialis</i> <i>southern subspecies</i>	Southern Pink Underwing Moth	E1	E	1

Flora

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Acanthaceae	<i>Isoglossa eranthemoides</i>	Isoglossa	E1,P	E	18
Flora	Apocynaceae	<i>Ochrosia moorei</i>	Southern Ochrosia	E1,P	E	7
Flora	Elaeocarpaceae	[^] <i>Elaeocarpus sedentarius</i>	Minyon Quandong	E1,P,3	E	7
Flora	Fabaceae (Caesalpinioideae)	<i>Senna acclinis</i>	Rainforest Cassia	E1,P		2
Flora	Fabaceae (Faboideae)	<i>Desmodium acanthocladum</i>	Thorny Pea	V,P	V	19

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Lauraceae	<i>Endiandra hayesii</i>	Rusty Rose Walnut	V,P	V	3
Flora	Lauraceae	<i>Endiandra muelleri</i> subsp. <i>bracteata</i>	Green-leaved Rose Walnut	E1,P		2
Flora	Meliaceae	<i>Owenia cepiodora</i>	Onion Cedar	V,P	V	20
Flora	Menispermaceae	<i>Tinospora tinosporoides</i>	Arrow-head Vine	V,P		76
Flora	Myrtaceae	<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V,P	V	40
Flora	Myrtaceae	<i>Syzygium moorei</i>	Durobby	V,P	V	13
Flora	Poaceae	<i>Arthraxon hispidus</i>	Hairy Jointgrass	V,P	V	1
Flora	Proteaceae	<i>Floydia praealta</i>	Ball Nut	V,P	V	6
Flora	Proteaceae	<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	V,P	V	131
Flora	Proteaceae	<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V,P	V	5
Flora	Sapindaceae	<i>Diploglottis campbellii</i>	Small-leaved Tamarind	E1,P,2	E	2
Flora	Symplocaceae	<i>Symplocos baeuerlenii</i>	Small-leaved Hazelwood	V,P	V	37
Flora	Argophyllaceae	<i>Corokia whiteana</i>	Corokia	V,P	V	5

Lismore City Council

Ecological Assessment Report – Environmental Zoning

Property Address	67 Gray Road Eltham
Lot/DP	2/619965
Property owner	Ms. S. and Mr. I. Lennon
Assessment date	22/05/18
Assessor/s	Wendy Neilan and Greg Yopp
Document Ref	ED18/19874

The site inspection involved a discussion with the property owner regarding the ecological restoration works on the site, history of land use and the wildlife observed. This was followed by a random meander survey by foot throughout the rainforest remnant vegetation. Species were recorded on a field data sheets, as well as habitat features, weeds and other relevant observations. The survey included searching for signs of any threatened species known or likely to occur on the property.

Site Description

The site supports a remnant of the EEC Lowland Subtropical Rainforest known as “Dawes Scrub” one of the “Big Scrub” remnants. This remnant is under active and ongoing restoration by professional bush regenerators and the landholders.

- Underlying Geology - Basalts
- Erosional soil landscape – Bangalow (Morand 1994)
- Soils – kraznozems
- Entire parcel mapped as North Coast High Environmental Value 2014 (OEH)
- Entire parcel falls within the mapped priority 2 wildlife corridor “Clunes-McLeans Ridges Connector” which provides a sub-regional link between Dorroughby and Richmond Hill Connectors and Booyong Reserve (Milledge 2012).
- Habitat features occurring on site included: mature trees, woody debris, dense moist litter layer, fruiting plants, vine tangles, moss and epiphytes.
- 18 threatened fauna species and 15 threatened flora species have been recorded within 10 km of the site (Bionet atlas data accessed 23/07/18) including Arrow-head vine (*Tinospora tinoporoides*) and Isoglossa (*Isoglossa eranthemoides*) occurring on-site

Assessment against Environmental zone criteria

Table 1. Assessment against E2 Zone and E3 Zone criteria

E2 Zone Criteria	Present? (Y/N)	Assessment comments
SEPP 26 Littoral Rainforests Land mapped as littoral rainforest in accordance with the state wide policy for littoral rainforest protection (State Environmental Planning Policy 26 – Littoral Rainforests).	N	Site is not within range of distribution of Littoral rainforest (i.e. not with 2 km of sea or maritime influence)
SEPP 14 Coastal Wetlands. Land mapped as coastal wetlands in accordance with the state wide policy for coastal wetland protection (State Environmental Planning Policy 14 – Coastal Wetlands).	N	Site is not within range of distribution of SEPP 14 Coastal Wetlands (i.e. coastline and up to 30 km inland)
Endangered Ecological Communities (EECs') listed under Threatened Species Conservation Act 1995 and/ or Environmental Protection and Biodiversity Conservation Act 1999.	Y	The site supports a Big Scrub remnant – Dawes Scrub, which is a remnant of EEC Lowland Subtropical Rainforest.
Key Threatened Species Habitat. <ul style="list-style-type: none"> old-growth forests where the over-storey or canopy trees are in the late mature stage of growth ⁴ areas of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates ⁵ habitats for threatened species or endangered populations that cannot withstand further loss where the threatened species or endangered population is present⁶. 	Y	<p>The site meets the criteria for key threatened species habitat for the following reasons:</p> <p>The land parcel is predicted to be high conservation value for forest fauna as it is located within the “Clunes-McLeans Ridges Connector” which provides a sub-regional link between Dorroughby and Richmond Hill Connectors and Booyong Reserve fauna corridor (Milledge 2012). This corridor is identified as key habitat for Sooty Owl; Barred Cuckoo-shrike; Little Bent-winged Bat; Large-eared Pied Bat; and Greater Broad-nosed Bat.</p> <p>The EEC remnant is habitat for Arrow-head vine (<i>Tinospora tinoporoides</i>) and Isoglossa (<i>Isoglossa eranthemoides</i>) which are both threatened species occurring on site.</p> <p>The land is known habitat for the following threatened species based on positively identified records within 10km of the site (Bionet atlas data accessed 23/07/18): Rose-crowned Fruit-Dove (<i>Ptilinopus regina</i>) – recorded on site; Superb Fruit-Dove (<i>Ptilinopus superbus</i>) – recorded on site; Wompoo</p>

		<p>Fruit-Dove (<i>Ptilinopus magnificus</i>); Eastern Long-eared Bat (<i>Nyctophilus bifax</i>) and Southern Pink Underwing Moth (<i>Phyllodes imperialis</i> southern subspecies).</p> <p>These criteria were verified as being met during the site assessment.</p>
<p>Over-cleared vegetation communities.</p> <ol style="list-style-type: none"> 1. over-cleared vegetation communities, where more than 70% of the original (pre 1750) extent of the native vegetation type has been cleared⁷ and 2. Native vegetation in over-cleared Mitchell landscapes⁸. <p>Clarence–Richmond Alluvial Plains.</p>	Y	<p>The remnant vegetation on-site is not representative of any of the over-cleared rainforest type listed in (DECCW 2010).</p> <p>The land is, adjacent to, but not located within the Clarence-Richmond Alluvial Plain.</p>
<p>Culturally significant lands.</p> <p>Areas of culturally significant lands such as Aboriginal object sites, Aboriginal places of heritage significance, and other significant objects identified by the local Aboriginal community¹⁰.</p>	Not assessed	Not assessed under this criteria by the LCC Ecologist and Strategic Planner.
E3 Zone Criteria	Present? (Y/N)	Assessment comments
<p>Riparian and estuarine vegetation and wetlands.</p> <p>Land comprising riparian and estuarine vegetation on waterfront land, defined under the NSW Water Management Act 2000, or wetland areas other than those mapped as SEPP 14 Coastal Wetlands.</p> <p>Waterfront land is defined under the NSW Water Management Act 2000 as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark.</p>	N	No riparian vegetation or waterfront present
<p>Rare, Endangered and Vulnerable Forest Ecosystems.</p> <p>Land comprising areas of rare, endangered and vulnerable forest ecosystems as defined by the Joint ANZEC/MCFFA National Forest Policy Statement Implementation sub-committee (JANIS) (Commonwealth of Australia 1997).</p>	N	None of the forest ecosystems listed in Appendix 1 of <i>Northern Councils E-Zone Review: Final recommendations report</i> were recorded at the site

Native vegetation on coastal foreshores. Native vegetation on land with frontage, or adjoining or adjacent to, a beach, estuary, coastal lake, headland, cliff or rock platform.	N	Land does not occur on a coastal foreshore
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4 <http://www.epa.nsw.gov.au/resources/pnf/OGRFreviewFieldIdent.pdf>

5 Scotts, D 2003, Key Habitats and Corridors for Forest Fauna: A Landscape Framework for Conservation in Northeast New South Wales, NPWS Occasional Paper no. 32, National Parks and Wildlife Service, Sydney, NSW.

6 NSW Office of Environment and Heritage 'Threatened Species Profiles Database' <http://www.bionet.nsw.gov.au>

7 Keith, DA 2006, Ocean Shores to Desert Dunes the Native Vegetation of New South Wales and the ACT, Department of Environment and Climate Change, Hurstville.

8 Mitchell, PB 2002, 'NSW Ecosystems Study: Background and Methodology', report prepared for National Parks and Wildlife Service, Hurstville, NSW and Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p27.

9 Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p26

10 Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW, NSW Department of Environment, Climate Change & Water (2011)

Summary

The Deferred Matter area within the allotment is consistent with E2 criteria due to the significant stand of Lowland Subtropical Rainforest which is an Endangered Ecological Community. The vegetation community provides habitat for a number of threatened species including, but not limited to, *Isoglossa* and Arrow head Vine found on site and three species of fruit doves and the endangered Southern Pink Underwing Moth.

References

Milledge, D.R. 2012. *Lismore Local Government Area key habitats and corridors system: development and application of a methodology to identify key habitats and corridors for terrestrial vertebrate species to inform planning for biodiversity conservation in the Lismore Local Government Area*. Unpublished Report to Lismore City Council. Landmark Ecological Services, Suffolk Park, NSW.

Morand DT, 1994, *Soil Landscapes of the Lismore-Ballina 1:100,000 Sheet report*, NSW Department of Land and Water Conservation, Sydney.

North Coast High Environmental Value 2014 mapping OEH

NSW Department of Planning and Environment, 2015. *Northern Councils E Zone Review Final Recommendations Report*, unpublished report. Available online http://www.planning.nsw.gov.au/Policy-and-Legislation/Environment-and-Heritage/~/_media/70C33DB9E53B41738B7591A8EEEEAA238.ashx

Appendix 1

High Environmental Value areas were identified outside National Parks and Wildlife Service (NPWS) managed lands and State Forests that meet one or more of the following criteria:

1. Native vegetation of high conservation value including; over-cleared vegetation types, all native vegetation in over-cleared Mitchell Landscapes, SEPP26 littoral rainforest (including 100m buffer), all rainforest, JANIS (Joint ANZECC/MCFFA National Forest Policy) rare, endangered or vulnerable vegetation, riparian vegetation including waterfront land within 40m of estuaries, lakes and stream orders 3 and above.

2. Threatened species, populations and ecological communities; including mapped areas of NSW and EPBC listed Endangered Ecological Communities (EEC), Koala habitats, key habitats for forest fauna (Scotts 2003), important shorebird habitat, old growth forest and records from the NSW Wildlife Atlas for species-credit threatened flora and fauna (except Koala) in the Threatened Species Database (TSPD) not on NPWS managed lands, State Forest or land with other HEV values and buffered to 200m (only records since 1989 with an accuracy of 200m or less) .

3. Wetlands, Coastal Lakes and Lagoons including; mapped coastal wetlands (SEPP14), Sensitive Estuaries, Nationally Important Wetlands, important wetland vegetation.

High Environmental Value lands were identified, outside of NPWS managed lands and State Forest, where one or more of the following criteria were present:

- Littoral Rainforest (SEPP 26) including the 100m buffer area
- Over-cleared vegetation types
- All native vegetation in over-cleared Mitchell Landscapes
- NSW and EPBC listed EECs
- Coastal Wetlands (SEPP 14)
- All rainforest
- Important shorebird habitats
- Other wetlands of importance – directory of important wetlands
- Threatened species habitats (Koala habitats, Old Growth Forests, Fauna Key

Habitats for North East NSW (Scotts 2003)

- Wetland vegetation of importance
- JANIS vegetation
- Sensitive estuaries
- Threatened flora and fauna records from the NSW Wildlife Atlas for species-credit species (except Koala) in the Threatened Species Database (TSPD). Records were only included where they did not fall on NPWS managed lands, State Forest or land with other HEV values. Records were only included from the last 25 years (records since 1989) and if they had an accuracy of 200m or less. These records were buffered to 200 m.
- Waterfront land – within 40 m of streams with order GE3 and LT99 (DECCW Stream Ordering), and within 40 m of lakes and estuaries (OEH MER Estuaries)

Appendix 2. Definition of waterfront land from the Dictionary of the Water Management Act 2000 No 92

waterfront land means:

(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary, or

(b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters,

where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.

Where river is defined as

(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and

(b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and

(c) anything declared by the regulations to be a river,

whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.

<https://www.legislation.nsw.gov.au/#/view/act/2000/92/dict1>

Appendix 3 Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Animals in selected area [North: -28.70 West: 153.36 East: 153.46 South: -28.80] returned a total of 199 records of 18 fauna species and 122 records of 15 flora species..

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Aves	Columbidae	<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	V,P		5
Aves	Columbidae	<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V,P		87
Aves	Columbidae	<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V,P		2
Aves	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		11
Aves	Ardeidae	<i>Ixobrychus flavicollis</i>	Black Bittern	V,P		1
Aves	Accipitridae	<i>Circus assimilis</i>	Spotted Harrier	V,P		9
Aves	Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P	C	3
Aves	Accipitridae	<i>Hieraaetus morphnoides</i>	Little Eagle	V,P		12
Aves	Laridae	<i>Gygis alba</i>	White Tern	V,P		1
Aves	Campephagidae	<i>Coracina lineata</i>	Barred Cuckoo-shrike	V,P		1
Aves	Artamidae	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P		1
Aves	Monarchidae	<i>Carterornis leucotis</i>	White-eared Monarch	V,P		1
Mammalia	Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	2
Mammalia	Dasyuridae	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P		1
Mammalia	Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	V,P	V	34

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Mammalia	Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	22
Mammalia	Vespertilionidae	<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V,P		2
Insecta	Noctuidae	<i>Phyllodes imperialis</i> <i>southern subspecies</i>	Southern Pink Underwing Moth	E1	E	4

Flora

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Acanthaceae	<i>Isoglossa eranthemoides</i>	Isoglossa	E1,P	E	21
Flora	Apocynaceae	<i>Ochrosia moorei</i>	Southern Ochrosia	E1,P	E	12
Flora	Euphorbiaceae	<i>Acalypha eremorum</i>	Acalypha	E1,P		7
Flora	Fabaceae (Caesalpinioideae)	<i>Senna acclinis</i>	Rainforest Cassia	E1,P		2
Flora	Fabaceae (Faboideae)	<i>Desmodium acanthocladum</i>	Thorny Pea	V,P	V	10
Flora	Meliaceae	<i>Owenia cepiodora</i>	Onion Cedar	V,P	V	6
Flora	Menispermaceae	<i>Tinospora tinosporoides</i>	Arrow-head Vine	V,P		39
Flora	Myrtaceae	<i>Gossia fragrantissima</i>	Sweet Myrtle	E1,P	E	2

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Myrtaceae	<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V,P	V	7
Flora	Phyllanthaceae	<i>Phyllanthus microcladus</i>	Brush Sauropus	E1,P		3
Flora	Poaceae	<i>Arthraxon hispidus</i>	Hairy Jointgrass	V,P	V	1
Flora	Proteaceae	<i>Floydia praealta</i>	Ball Nut	V,P	V	8
Flora	Proteaceae	<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	V,P	V	1
Flora	Proteaceae	<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V,P	V	2
Flora	Psilotaceae	<i>Psilotum complanatum</i>	Flat Fork Fern	E1,P,3		1

CONSERVATION AGREEMENT

BETWEEN

**THE MINISTER ADMINISTERING
THE NATIONAL PARKS AND WILDLIFE ACT 1974 (NSW)**

AND

Katrina Sommers

FOR

Koala Gardens

Katrina Sommers

Australia and New Zealand Banking Group Limited

Minister

CONSERVATION AGREEMENT UNDER PART 4 DIVISION 12 OF THE NATIONAL PARKS AND WILDLIFE ACT 1974

THIS AGREEMENT is between the **Minister** administering the *National Parks and Wildlife Act 1974* (**Minister**) and **Katrina Jeffery (Owner)**, the owner of Lot 11 in Deposited Plan 136070 (**Land**), being the property known as Koala Gardens.

BACKGROUND

- A The Owner is the registered proprietor of the Land. That part of the Land shown by hatching on Diagram A of Annexure A to the Conservation Agreement is the conservation area (Conservation Area). The Conservation Area is 4.055 hectares.
- B The Conservation Area is to be managed to restore and protect the Conservation Values.
- C The Owner and the Minister recognise:
- i) The Conservation Area contains;
 - “Forest Red Gum - Pink Bloodwood open forest of the foothills and ranges of the North Coast”;
 - “Pink Bloodwood - Tallowwood moist open forest of the far northern ranges of the North Coast” with a regenerating dry rainforest understorey.
 - ii) The Conservation Area contains habitat for thirteen threatened fauna species, including the Spotted-tailed Quoll (*Dasyurus maculatus*), listed as Vulnerable under Schedule 2 of the *Threatened Species Conservation Act 1995* (TSC Act) and Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Koala (*Phascolarctos cinereus*), listed as Vulnerable under Schedule 2 of the TSC Act and Vulnerable under the EPBC Act; and the Little Lorikeet (*Glossopsitta pusilla*), listed as Vulnerable under the Schedule 1 of the TSC Act, have been recorded in the Conservation Area (refer Table 1, Annexure B).
 - iii) The Conservation Area contains habitat for three threatened flora species, including Sweet Myrtle (*Gossia fragrantissima*) and Thorny Pea (*Desmodium acanthocladum*), both listed as Vulnerable under Schedule 2 of the TSC Act. Hairy Jointgrass (*Arthraxon hispidus*), listed as Vulnerable under the EPBC Act and Vulnerable on Schedule 2 of the TSC Act, has been recorded on site (refer Table 1, Annexure B).
 - iv) The Conservation Area is within and adjacent to the “Uralba-Tuckean Swamp” coastal climate change corridor (refer Diagram A, Annexure B). It also forms part of a Koala habitat corridor along the Tuckurimba ridge linking two separate parts of Tucki Tucki Nature Reserve

1 DEFINITIONS AND INTERPRETATION

1.1 Definitions

In the Conservation Agreement, unless the contrary intention appears:

"**Aboriginal Object**" has the same meaning as in section 5 of the NPW Act;

"**Aboriginal Place**" has the same meaning as in section 5 of the NPW Act;

"**Chief-Executive**" means the Chief-Executive of OEH;

"**Commencement date**" means the date on which the Minister signs the Conservation Agreement;

"**Conservation Agreement**" means this Conservation Agreement entered into under section 69B of the NPW Act;

"**Conservation Area**" means that part of the Land shown by hatching on Diagram A of Annexure A to the Conservation Agreement;

"**Conservation Values**" means the biodiversity values of the Conservation Area specified in Annexure B to the Conservation Agreement;

"**control**", in relation to the Land, means lawful occupation, possession or management of the Conservation Area;

"**controlled burning**" means the controlled application of fire under specified environmental and weather conditions to a predetermined area and at the time, intensity and rate of spread required to attain planned resource management objectives;

"**critical habitat**" has the same meaning as in section 4 of the TSC Act;

"**cultural heritage**" refers to the aesthetic, historic, scientific, social, spiritual or other values of a place and associated physical evidence and traditions held by past, present or future generations of peoples, including Aboriginal peoples;

"**damage**" has the same meaning as in section 5 of the NPW Act;

"**development**" has the same meaning as in section 69A of the NPW Act;

"**EPBC Act**" refers to the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth);

"**exotic plant**" means an introduced, alien, exotic, non-indigenous, non-native or a plant species living outside its native distributional range;

"**fauna**" has the same meaning as in section 5 of the NPW Act;

"**geo-heritage**" means any karst environment and any geological deposits and landforms that provide habitat for indigenous fauna and includes values identified as geo-heritage under the heading Conservation Values in Annexure B to the Conservation Agreement;

"**harm**" has the same meaning as in section 5 of the NPW Act;

"**indigenous fauna**" means a species of animal that was established in, or started regularly migrating to, New South Wales prior to European settlement and includes fauna listed in Annexure B to the Conservation Agreement;

"**indigenous plants**" means a species of plant that was established in New South Wales prior to European settlement and includes plants listed in Annexure B to the Conservation Agreement;

"**Land**" means the land in folio identifier Lot 11 Deposited Plan 136070;

"**Minister**" means the Minister for the time being administering the NPW Act and where not repugnant to the context includes the servants and agents of the Minister;

"**Mortgagee**" means person making a loan that is secured by real property indicated in the folio identifier Lot 11 Deposited Plan 136070 at the date of this Conservation Agreement, being

Australia and New Zealand Banking Group Limited, and includes its successors in title and any person appointed as its attorney or receiver in relation to that real property;

"**NPW Act**" means the *National Parks and Wildlife Act 1974* (NSW) and any regulations from time to time in force thereunder;

"**native fauna**" has the same meaning as "protected fauna" in section 5 of the NPW Act;

"**native plant**" has the same meaning as in section 5 of the NPW Act;

"**native vegetation**" has the same meaning as in the *Native Vegetation Act 2003* (NSW);

"**OEH**" means the Office of Environment and Heritage, the NSW Government Public Service agency responsible for administering the NPW Act;

"**Owner**" means the registered proprietor(s) of the Land from time to time, being Katrina Sommers, as at the date of the Conservation Agreement, and includes any successors in title within the meaning of section 69E of the NPW Act;

"**pest animal**" means any non-native animal having, or with the potential to have, an adverse economic, environmental or social impact on the Conservation Area;

"**pesticide**" has the same meaning as in section 5 of the *Pesticides Act 1999* (NSW);

"**reasonable**" in relation to carrying out an activity, means making a concerted effort and carrying out the activity in such a way as to have a minimal negative impact on the Conservation Values of the Conservation Area;

"**recovery plan**" has the same meaning as in section 4 of the TSC Act;

"**road**" allows the passage of vehicles and persons and may be of more developed construction and surface improvement;

"**threatened species, populations and ecological communities**" and "**threatened species, population or ecological community**" have the same meaning as in the TSC Act;

"**TSC Act**" means the *Threatened Species Conservation Act 1995* (NSW);

"**track**" allows non-vehicular access only;

"**trail**" allows the passage of vehicles and persons and is of minimal construction, being of limited width and minimal surface improvement.

1.2 Interpretation

In the Conservation Agreement, except where the context otherwise requires:

- (a) words importing the singular number shall include the plural and masculine gender the feminine or neuter and vice versa; and
- (b) any reference to a person shall be deemed to include a corporate body and vice versa.

2 CONSERVATION AGREEMENT UNDER THE NPW ACT

The Minister enters into the Conservation Agreement relating to the Land with the Owner under section 69B of the NPW Act.

3 TERM

The Conservation Agreement shall operate in perpetuity.

4 OBTAINING OF CONSENTS, PERMITS AND AUTHORISATIONS

The Owner is responsible for obtaining all necessary licenses, consents, authorisations, permits or approvals in order to lawfully comply with and carry out their obligations under the Conservation Agreement or to undertake or enable any other identified activity or development under clauses 5 or 6.

5 USE OF THE CONSERVATION AREA

The Owner must not undertake, consent to or permit the following activities on or in the Conservation Area, unless provided for under the Conservation Agreement or with prior written consent of the Chief-Executive:

- (a) the sowing or planting of trees, grasses or other plants;
- (b) the introduction of any non-indigenous plants or non-indigenous fauna;
- (c) the entry of domestic animals including pets (except for the Owner's domestic pets, and only if kept under control/on a leash) and domestic livestock;
- (d) the use or application of fertilisers or pesticides;
- (e) the use of trail bikes, four wheel drive vehicles or any other vehicle off any formed road (except for management purposes, research, firefighting and/or any emergency requirements);
- (f) any works, especially any revegetation work, or any development which has the potential to adversely impact on any of the Conservation Values;
- (g) the removal of any biological or inorganic component of the Conservation Area;
- (h) any works which will adversely affect the natural flows of water;
- (i) grazing of domestic livestock;
- (j) any act or omission that may harm any native fauna, native plants, their habitats, cultural heritage or geo-heritage in the Conservation Area or the Conservation Values;
- (k) the construction of any new road, access track, trail, building or internal fencing; and
- (l) subdivide the Conservation Area.

6 MANAGEMENT OF THE CONSERVATION AREA

- 6.1 The Owner must undertake the management activities listed in Item 1 of Annexure C to the Conservation Agreement on or in the Conservation Area, for the duration of the Conservation Agreement.
- 6.2 The Owner may undertake the management activities listed in Item 2 of Annexure C to the Conservation Agreement on or in the Conservation Area, if carried out in the manner prescribed in Item 2 of Annexure C to the Conservation Agreement.
- 6.3 The Owner must notify the Chief-Executive in writing as soon as possible after becoming aware of the deterioration of any of the Conservation Values, or of any threat to the Conservation Values.

7 REPORTING OBLIGATIONS

The Owner should, at least every 3 years, complete a monitoring report, including photo point photos, noting changes occurring in the Conservation Area. This will form the basis for decisions about ongoing management actions for the Conservation Area. A copy of all monitoring reports should be forwarded to OEH.

8 USE OF THE CONSERVATION AREA BY SERVANTS, AGENTS, LESSEES OR LICENSEES

The Owner must incorporate the terms of the Conservation Agreement in any lease or licence issued over the Conservation Area, and at all times ensure that any servant, contractor, consultant, agent, lessee, licensee occupying the Conservation Area shall be aware of the relevant provisions of the Conservation Agreement.

9 CHANGE OF OWNERSHIP

The Owner must notify the Chief-Executive in writing of any change of ownership or control of the Land within twenty-eight (28) days after the change of ownership or control. The notice must include the name and address of the new Owner of the Land or person in control of the Land.

10 RIGHT TO INSPECT

The Minister may, at any time upon first giving reasonable notice to the Owner, enter upon the Conservation Area to ensure compliance with the Conservation Agreement.

11 OBLIGATIONS OF THE MINISTER

11.1 The Minister agrees to notify the Registrar General when the Conservation Agreement has been entered into so that the Registrar General can carry out his or her responsibilities under section 69F of the NPW Act.

11.2 The Minister will arrange for the provision of technical advice and any other assistance to the Owner as the Minister deems necessary to assist with the implementation of the Conservation Agreement.

12 NON-COMPLIANCE

In the event that the Owner fails to comply with the Conservation Agreement, including, without limitation, damaging or causing damage to the Conservation Area, OEH may issue a written notice to the Owner requiring the Owner to remedy the non-compliance or damage within a specified time period. This clause does not affect any rights of the parties under section 69G of the NPW Act.

13 DISPUTE RESOLUTION

13.1 Where there is a dispute, difference or claim (dispute), the party raising the dispute must notify the other party in writing of the nature of the dispute, including the factual and legal basis of the dispute (written notice).

13.2 Within fourteen (14) days of the written notice, the Chief-Executive of OEH and the Owner, or nominated senior representatives of the parties, must confer to attempt to resolve the dispute, and if the dispute cannot be resolved within twenty-one (21) days of the written notice, the Chief-Executive of OEH and the Owner will refer the matter to mediation.

13.3 The parties will agree on the terms of appointment of the mediator and the terms of the mediation in writing within twenty-eight (28) days, failing which the mediation will be at an end and either party may commence court proceedings in respect of the dispute.

13.4 If the matter has not been resolved within twenty-eight (28) days of the appointment of the mediator, the mediation process will be at an end and either party may commence court proceedings in respect of the dispute.

14 COSTS

Each party will bear its own costs of, and incidental to, the preparation of the Conservation Agreement, including any legal costs.

15 COMMENCEMENT

The Conservation Agreement shall have effect from the day the Minister executes the Conservation Agreement.

Executed as an agreement

SIGNED by
(The Minister administering
the *National Parks and Wildlife Act 1974*)

Minister_____
Date_____
Witness_____
Witness Name and Address_____
Date**SIGNED** by the **OWNER**_____
Katrina Sommers_____
Date_____
Witness signature_____
Witness Name and Address_____
Date**Address for service of notices on the Owner**

Katrina Sommers
1709 Whyralla Road,
Tuckurimba NSW 2480

Address for service of notices on the Chief Executive OEH

The Chief Executive
NSW Office of Environment and Heritage
PO Box A290
Sydney South NSW 1232

Address for service of notices on the Minister

NSW Minister for the Environment
GPO Box 5341
Sydney NSW 2001

The “Australia and New Zealand Banking Group Limited”, the first mortgagee of the conservation area, consents to this Agreement

Signed By: _____

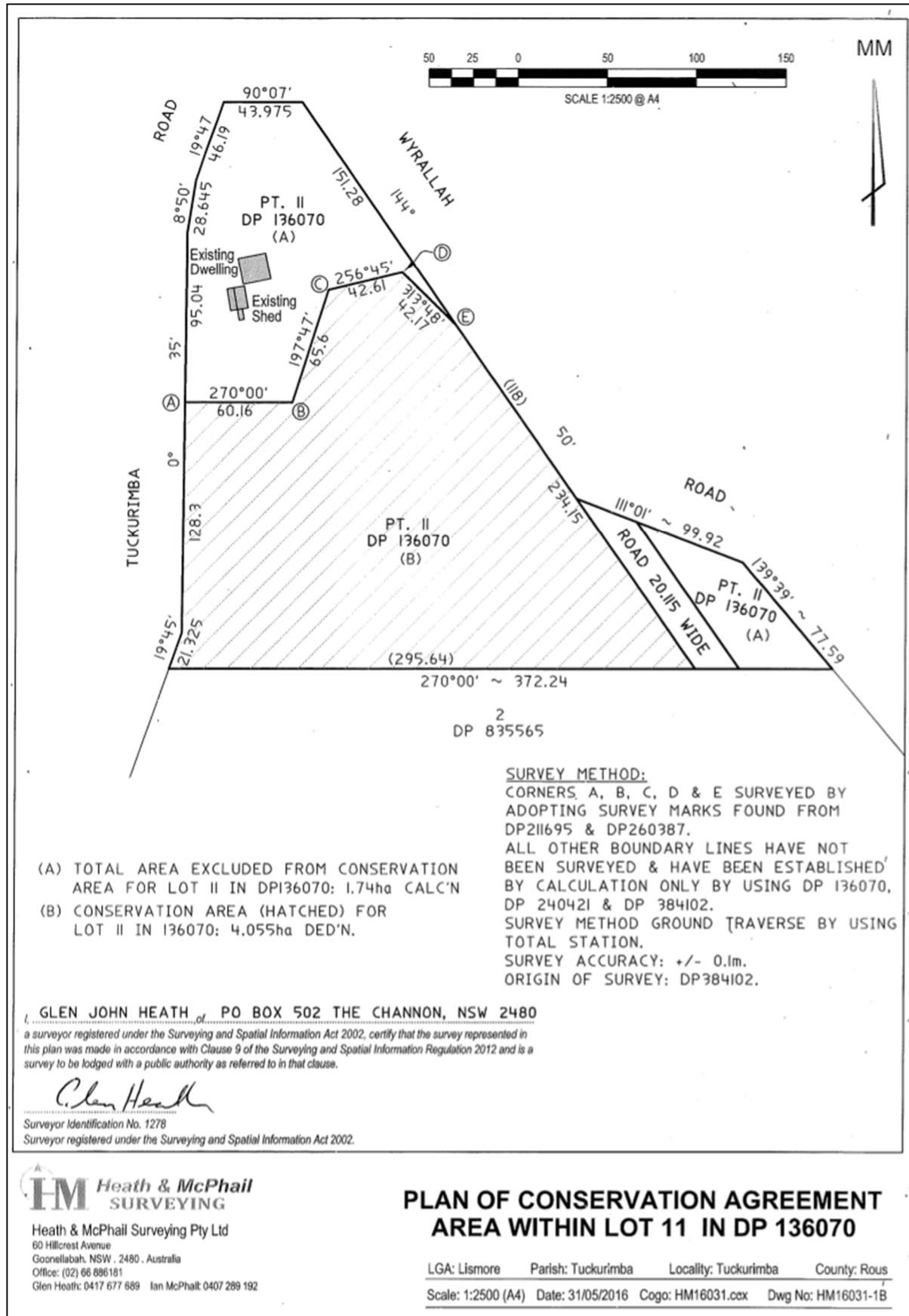
Date: _____

Witness: _____

Date: _____

DRAFT

ANNEXURE A, DIAGRAM A



ANNEXURE B - CONSERVATION VALUES

1. CONSERVATION VALUES

The Owner and the Minister recognise that the Conservation Area contains the following conservation values:

A The Conservation Area contains:

- Forest Red Gum - Pink Bloodwood open forest of the foothills and ranges of the North Coast (Keith no. 6). The community on this property is relatively simple and the canopy is dominated by Forest Red Gum (*Eucalyptus tereticornis*) and Pink Bloodwood (*Corymbia intermedia*) with occasional Turpentine (*Syncarpia glomulifera*). The mid-storey is relatively sparse and is dominated by *Eucalyptus* and *Corymbia* spp. regrowth. The shrub layer is relatively simple and includes Hickory Wattle (*Acacia disparrima*) Black Wattle (*Acacia melanoxylon*) and Coffee Bush (*Breynia oblongifolia*). The groundcover is moderately diverse and is dominated by a variety of grasses, including Windmill Grass (*Chloris gayana*), Bladey Grass (*Imperata cylindrical*), Kangaroo Grass (*Themeda triandra*), Native Sorghum (*Sorghum leiocladum*), Scented Top Grass (*Capillipedium spicigerum*), Swamp Foxtail (*Pennisetum alopecuroides*) and other herbaceous plants such as Purple Top (*Verbena rigida*), Barbed Wire Grass (*Cymbopogon refractus*) and Spiny-headed Mat-rush (*Lomandra longifolia*). Patches of Lantana (*Lantana camara*) occur here.
- Pink Bloodwood - Tallowwood moist open forest of the far northern ranges of the North Coast" with a regenerating dry rainforest understory. The community on this property is relatively simple and the canopy is dominated by Pink Bloodwood (*Corymbia intermedia*) and Brush Box (*Lophostemon confertus*) with some Forest Oak (*Allocasuarina torulosa*), Swamp Box (*Lophostemon suaveolens*), Black Wattle (*Acacia melanoxylon*) and Hickory Wattle (*Acacia disparrima*) occurring on the lower slopes and in the gully. The mid-storey is relatively diverse and is dominated by Brush Box and Pink Bloodwood, regrowth Hickory Wattle (*Acacia disparrima*), Black Wattle, Red Ash (*Alphitonia excelsa*) and scattered Forest Oak. The shrub layer includes numerous rainforest species including Murrogun (*Cryptocarya glaucescens*), Scrub Turpentine (*Rhodamnia rubescens*), Veiny Wilkiea (*Wilkiea huegeliana*), Boxwood (*Denhamia celastroides*), Bolwarra (*Eupomatia laurina*) and Coffee Bush (*Breynia oblongifolia*). The groundcover is moderately diverse and in the more open forest it is dominated by a variety of grasses, including Bladey Grass (*Imperata cylindrical*), Kangaroo Grass (*Themeda triandra*), Native Sorghum (*Sorghum leiocladum*) and Scented Top Grass (*Capillipedium spicigerum*). In the gully other herbaceous plants such as Gristle Fern (*Blechnum cartilagineum*), Rasp Fern (*Doodia aspera*), Spiny-headed Mat-rush (*Lomandra longifolia*), Settlers Flax (*Gymnostachys anceps*) and Scrambling Lily (*Geitonoplesium cymosum*) occur. Vines are numerous and include Snake Vine (*Stephania aculeata*), Native Grape (*Cissus hypoglauca*), Sarsaparilla (*Smilax australis*) and Morinda (*Morinda jasminoides*). Areas of dense Lantana (*Lantana camara*) occur on the lower slopes and in the gully.

B The Conservation Area contains habitat for thirteen threatened fauna species, including the Spotted-tailed Quoll (*Dasyurus maculatus*), listed as Vulnerable under Schedule 2 of the TSC Act and Endangered under the EPBC Act. The Koala (*Phascolarctos cinereus*), listed as Vulnerable under Schedule 2 of the TSC Act and Vulnerable under the EPBC Act and the Little Lorikeet (*Glossopsitta pusilla*), listed as Vulnerable under the Schedule 2 of the TSC Act, have been recorded in the Conservation Area (refer Table 1 Annexure B).

C The Conservation Area contains habitat for three threatened flora species, including Sweet Myrtle (*Gossia fragrantissima*) and Thorny Pea (*Desmodium acanthocladum*), both listed as Vulnerable under Schedule 2 of the TSC Act. Hairy Jointgrass (*Arthraxon hispidus*), listed as Vulnerable under the EPBC Act and Schedule 2 of the TSC Act, has been recorded in the Conservation Area (refer to Table 1 Annexure B).

D The Conservation Area is within and adjacent to the "Uralba-Tuckean Swamp" coastal climate change corridor. It also forms part of a Koala habitat corridor along the Tuckurimba ridge linking the two parts of Tucki Tucki Nature Reserve (refer Diagram B, Annexure B).

Table 1 Annexure B Threatened species found within 10 km radius of site which may occur within the Conservation Area due to the presence of suitable habitat.

Common Species Name	Scientific Species Name	TSC Act Listing	EPBC Act Listing	Confirmed on site Y/N
Hairy Joint Grass	<i>Arthraxon hispidus</i>	V	V	Y
Thorny Pea	<i>Desmodium acanthocladum</i>	V	V	
Sweet Myrtle	<i>Gossia fragrantissima</i>	E	E	
Wompoo Fruit-Dove	<i>Ptilinopus magnificus</i>	V		
Rose-crowned Fruit-Dove	<i>Ptilinopus regina</i>	V		
Little Lorikeet	<i>Glossopsitta pusilla</i>	V		Y
Red-backed Button-Quail	<i>Turnix maculosus</i>	V		
Pale-vented Bush-hen	<i>Amaurornis moluccana</i>	V		
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	V		
Koala	<i>Phascolarctos cinereus</i>	V	V	Y
Squirrel Glider	<i>Petaurus norfolcensis</i>			
Grey-headed Flying-Fox	<i>Pteropus poliocephalus</i>	V	V	
Southern Myotis	<i>Myotis macropus</i>	V		
Little Bentwing-bat	<i>Miniopterus australis</i>	V		
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	V		
Eastern Long-eared Bat	<i>Nyctophilus bifax</i>	V		

2. AERIAL PHOTOGRAPHS AND MAPPING

Diagram A – Conservation Area, trails and photo point locations



Diagram B – Regional location of property

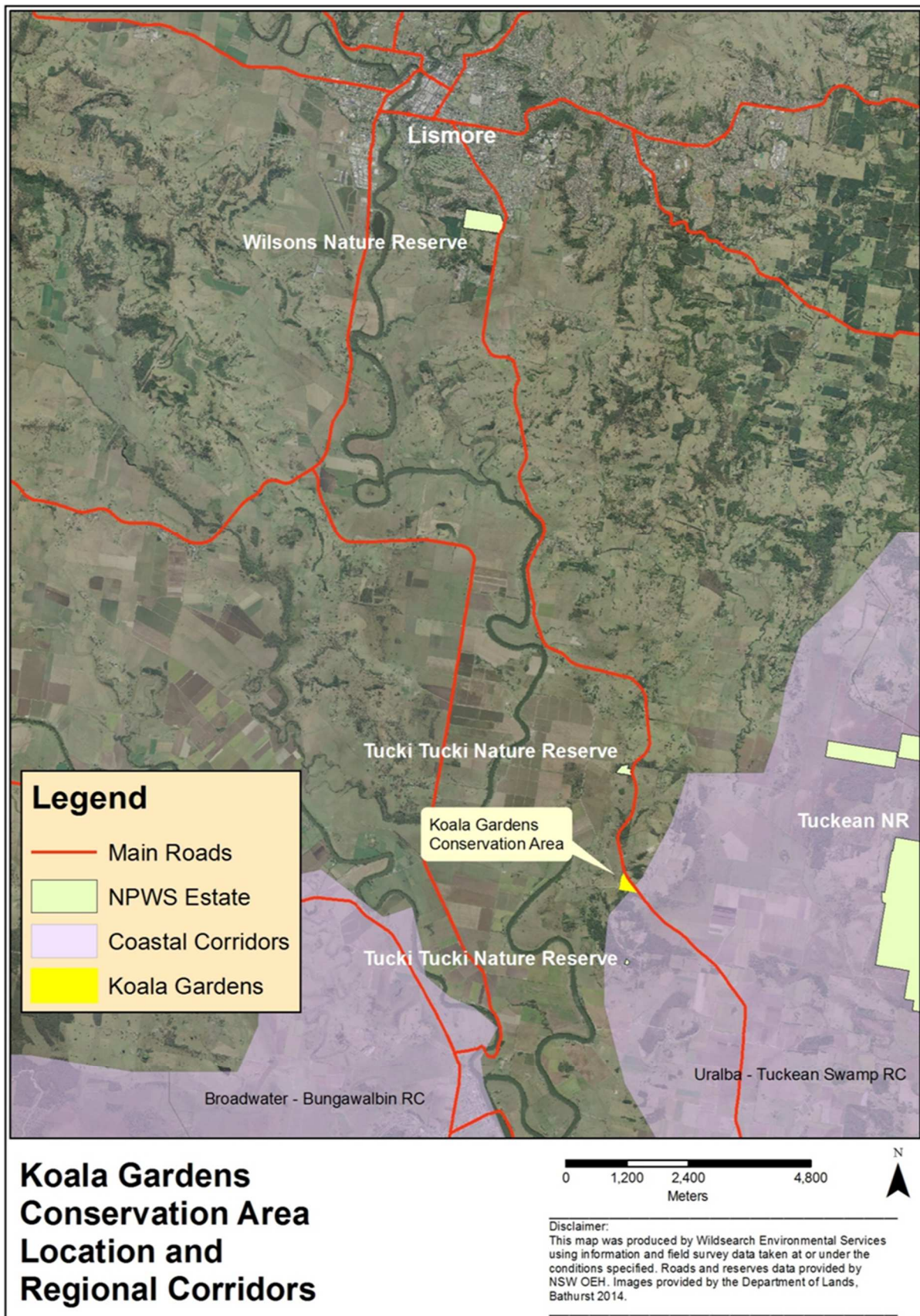


Diagram C – Threatened Species Records



3. PHOTO POINT PHOTOGRAPHS

Monitoring Point 1: April 2016. Lat: -28° 56' 59.5" Long: 153° 18' 58.7"

GDA 94 Zone 56: Easting 530824 Northing 6797528

Monitoring Point 1: North view



Monitoring Point 1: East view



Monitoring Point 1: South view



Monitoring Point 1: West view



Monitoring Point 1 is located in an area of regenerating Forest Red Gum open forest. Dominant species present include Forest Red Gum (*Eucalyptus tereticornis*) with the occasional Pink Bloodwood (*Corymbia intermedia*). The mid-storey and shrub layers are relatively open and dominated by Eucalyptus regrowth, Black Wattle (*Acacia melanoxylon*) and the occasional Sweet Pittosporum (*Pittosporum undulatum*). Ground cover species include Kangaroo Grass (*Themeda triandra*), Bladey Grass (*Imperata cylindrical*), Native Sorghum (*Sorghum leiocladum*), Scented Top Grass (*Capillipedium spicigerum*), Rhodes Grass (*Chloris gayana*), Swamp Foxtail (*Pennisetum alopecuroides*), Paspalum (*Paspalum* sp.) and Spiny-headed Mat-rush (*Lomandra longifolia*). The area was generally free of weed species with only isolated Lantana plants.

Monitoring Point 2: April 2016. Lat: -28° 56' 57.3" Long: 153° 19' 02.2"

GDA 94 Zone 56 Easting 530919 Northing 6797595

Monitoring Point 2: North view



Monitoring Point 2: East view



Monitoring Point 2: South view



Monitoring Point 2: West view



Monitoring Point 2 is located in an area of regenerating Pink Bloodwood and Forest Red Gum open forest. Dominant species include Pink Bloodwood (*Corymbia intermedia*) with a lesser number of Forest Red Gum (*Eucalyptus tereticornis*). The mid-storey and shrub layers are relatively open and dominated by Eucalyptus and Bloodwood regrowth, Black Wattle (*Acacia melanoxylon*), Hickory Wattle (*Acacia disparrima*) and the occasional Sweet Pittosporum (*Pittosporum undulatum*). Ground cover species include Kangaroo Grass (*Themeda triandra*), Rhodes Grass (*Chloris gayana*), Swamp Foxtail (*Pennisetum alopecuroides*), Bladey Grass (*Imperata cylindrical*), Paspalum (*Paspalum* sp.) and Spiny-headed Mat-rush (*Lomandra longifolia*). The area was generally free of weed species with only isolated Lantana plants and annual weed species.

Monitoring Point 3: April 2016. Lat: -28° 56' 59.3" Long: 153° 19' 04.4"

GDA 94 Zone 56 Easting 530977 Northing 6797533

Monitoring Point 3: North view



Monitoring Point 3: East view



Monitoring Point 3: South view



Monitoring Point 3: West view



Monitoring Point 3 is located in an area of Pink Bloodwood dominated open forest. Dominant species include Pink Bloodwood (*Corymbia intermedia*) with a lesser number of Forest Red Gum (*Eucalyptus tereticornis*), Brush Box (*Lophostemon confertus*) and Pink Bloodwood (*Corymbia intermedia*) with some Forest Oak (*Allocasuarina torulosa*), Swamp Box (*Lophostemon suaveolens*), Black Wattle (*Acacia melanoxylon*) and Hickory Wattle (*Acacia disparrima*). The mid-storey and shrub layers are relatively open and dominated by Eucalyptus and Acacia regrowth, Red Ash (*Alphitonia excelsa*) and scattered Forest Oak. The shrub layer also includes numerous rainforest species including Murrogun (*Cryptocarya glaucescens*), Scrub Turpentine (*Rhodamnia rubescens*), Veiny Wilkiea (*Wilkiea huegeliana*), Boxwood (*Denhamia celastroides*), Bolwarra (*Eupomatia laurina*) and Coffee Bush (*Breynia oblongifolia*). Ground cover species include leaf litter, extensive Beard Grass (*Oplismenus undulatifolius*) mats, Kangaroo Grass (*Themeda triandra*), Bladey Grass (*Imperata cylindrical*), Barbwire Vine (*Smilax australis*) and Spiny-headed Mat-rush (*Lomandra longifolia*). The area was generally free of weed species other than thickets of Lantana. Bush regeneration is taking place in this area.

ANNEXURE C MANAGEMENT OF THE CONSERVATION AREA

ITEM 1: Management actions required for the duration of the Conservation Agreement.

Issue	Management action
Exotic plants	<p>The Owner must take reasonable measures in relation to the control of exotic plants.</p> <p>Techniques used to control exotic plants should include:</p> <ul style="list-style-type: none"> i) Removal of weeds by hand ensuring that all plant parts which can reproduce are removed and that soils do not become prone to erosion. ii) Use of carefully selected herbicide according to label directions and/or current off label permit, ensuring minimal off target damage. iii) Use of appropriate control measures as recommended in the Department of Primary Industries <i>Noxious and Environmental Weed Control Handbook 6th Edition 2014</i> or equivalent replacements for control of weeds, ensuring minimal off target damage. iv) Use of forestry mulching or slashing machinery only with prior written permission from OEH. v) Ensure control programs are commenced when timing and extent of weed removal will minimise adverse effects on wildlife (weeds may provide protection or habitat for native fauna). Dense thickets of lantana should be removed gradually in mosaic patterns to minimise disturbance to the habitat of native animals. <p>Contact OEH if any uncertainty exists regarding weed control methods.</p> <p>Other weed control methods may be undertaken with prior written permission of OEH.</p>
Pest animals	<p>The Owner must take reasonable measures in relation to the monitoring of pest animals.</p> <p>Methods for monitoring pest animal activity may include:</p> <ul style="list-style-type: none"> - observations and/or hearing calls, - the use of standard “sand plots”, - the use of non-poisoned “bait stations”, - scat counts, and - other quantitative techniques which can be designed in discussion with OEH or Local Land Services (LLS). <p>Results of pest animal monitoring activities should be discussed with OEH.</p>

Issue	Management action
Threatened species, populations and endangered ecological communities (EEC)	The Owner must follow current best practice advice regarding the management of threatened species when carrying out any activities within the Conservation Area. This advice may be provided by OEH, LLS or subsequent NSW authority.
Managing visitor impacts (visitors include OEH inspectors; weed control contractors; fire maintenance contractors; NSW Rural Fire Service; fencing and maintenance contractors and the Owner)	The Owner must take reasonable measures to ensure that visitor disturbance to the Conservation Area is minimised by keeping visitors to tracks and trails where possible and ensuring all visitor vehicles and equipment are clean and free from weeds and/or seeds.
Livestock	The Owner must remove any livestock which have entered the Conservation Area as soon as is practical.
Aboriginal Places and Aboriginal Objects	The Owner must preserve and protect Aboriginal Places and Aboriginal Objects and other sites of cultural heritage significance on or in the Conservation Area.
Fencing	The Owner must take reasonable measures to construct and maintain fences along the boundaries of the Conservation Area where adjacent land use cause or are likely to cause adverse impacts on or in the Conservation Area.

ITEM 2: Permitted activities

Control of pest animals and non-indigenous fauna (in addition to pest animal monitoring actions in Item 1 of Annexure C to the Conservation Agreement)

- a) Participate in community pest animal control programs, and encourage neighbours to implement pest animal control programs. Contact your local LLS or National Parks and Wildlife Service Area office to find out where community control programs are occurring.
- b) Methods for pest animal control can include shooting, trapping and use of poisonous baits consistent with advice from OEH and LLS. Use control methods identified as 'humane' as defined in the NSW Codes of Practice and Standard Operating Procedures for Humane Pest Vertebrate Control (*Control Capture and Destruction of Feral Animals in Australia*) as developed by the NSW Department of Primary Industries.

Fencing, tracks and trails

- c) Maintaining all existing fences within the Conservation Area.
- d) Maintaining existing access tracks in the Conservation Area to a maximum width of 2m.
- e) Maintaining existing access trails in the Conservation Area to a maximum width of 4m with 1m either side permissible for clearing, along the routes illustrated in Diagram A, Annexure B.
- f) Constructing any new internal fence, access track or trail only with prior written approval from OEH.
- g) Maintaining or permitting maintenance of the powerline along route shown on Diagram A, Annexure B.

Fire management

- h) Using fire hazard reduction burns and controlled burning which take into account the recommended fire intervals given in the *Bush Fire Environmental Assessment Code for New South Wales* (Rural Fire Service February 2006) and the guidelines contained in the *Threatened Species Hazard Reduction Lists for the Bush Fire Environmental Assessment Code* or equivalent replacements.

Current recommendations are:

- In grassy dry sclerophyll communities and open grassy forest vegetation, fire should not occur within 5 years of a previous fire, and should be burnt within 50 years of any previous fire.
 - fire should be excluded from all rainforest communities.
 - where possible canopy or crown fires should be avoided.
 - where possible no more than 50% of the Conservation Area should be burnt in any twelve month period.
 - where possible both live and dead trees with hollows should be protected from burning to preserve nesting habitat for hollow dwelling animals.
- i) Lighting a fire, or causing a fire to be lit on the Conservation Area if it complies with the *Rural Fires Act 1997* (NSW), and:
 - the lighting of the fire is for the purposes of controlled burning and is carried out in accordance with any fire guidelines for controlled burning as provided for above; or
 - the lighting of the fire is a necessary component of bush fire hazard reduction work carried out in accordance with a notice served on the Owner under the *Rural Fires Act 1997* (NSW) or other applicable legislation; or

- life or property is in immediate threat by bush fire and the lighting of the fire is reasonably necessary to protect life or property; or
- the fire is a camp fire, subject to the compliance with the *Rural Fires Act 1997* (NSW), or
- the Chief-Executive gives prior written consent to the lighting of the fire.

Threatened species (in addition to management actions in Item 1 of Annexure C to the Conservation Agreement)

- j) Implementing any measures included in Recovery Plans, Saving our Species Conservation Projects or Action Statements for any threatened species, population or ecological communities which are or may be found in the Conservation Area.
- k) Implementing other specific management advice from OEH for any threatened species, populations or ecological communities which are or may be found in the Conservation Area.

Restoration of indigenous vegetation

- l) Restoration of native vegetation on the Conservation Area using a preferred method of encouraging and retaining natural regeneration. Preferred methods include:
 - i) planting
 - ii) brush mulching; and/or
 - iii) direct seeding.
- m) Revegetation to establish indigenous plants to maintain the vegetation structure in keeping with the identified vegetation community, using species produced from material sourced locally and without the use of fertilisers in the planting and establishment period, where the ability to regenerate naturally within a reasonable time frame has been lost, or to prevent soil erosion.

Seed collection

- n) Collection of seed on the Conservation Area for non-commercial use in accordance with Guidelines and Codes of Practice developed by Florabank (www.florabank.org.au), or subsequent equivalent and with the following limitations and permissions:
 - i) Collect seed in the Conservation Area only if seed of the particular species and genotype is not available elsewhere, or if the seed collected is intended for seedlings that will be planted within the Conservation Area or adjacent to the Conservation Area.
 - ii) Seeds may be collected from within endangered ecological communities.
 - iii) Seeds may not be collected from species individually listed in Schedules 1, 1A or 2 to the TSC Act without prior written approval from the Chief-Executive, or under a licence granted under section 132C of the NPW Act or section 91 of the TSC Act.
 - iv) Seeds may be collected from any protected species listed in Schedule 13 to the NPW Act.
 - v) Seeds may be collected from any other native species.

Thinning of indigenous vegetation

- o) Thinning of regenerating indigenous species which are altering the structure of the vegetation in the Conservation Area and/or reducing the Conservation Values only with prior written approval from the Chief-Executive.

Cultural heritage

- p) Recording and management of any newly identified Aboriginal Objects, in consultation with OEH (and the Aboriginal community where applicable).

Visitation and research

- q) Visitation, research and community use at a level that does not adversely impact on the Conservation Values or the amenity of the Owner. Research projects must be discussed with OEH before being carried out.

Development

- r) Carrying out any development as described in the Conservation Agreement and maintaining development (including existing fire trails, access trails and infrastructure), with the following conditions:
 - i) clear a corridor not greater than 3 metres wide during construction or for maintenance for the installation of fences or other agreed rural structures;
 - ii) construct and maintain fences to ensure they are stockproof, using wildlife friendly materials (i.e. no barbs top and bottom) where feasible;
 - iii) move fallen timber and any other obstructions to maintain access;
 - iv) where clearing is necessary, undertake all works in a manner that minimises disturbance to soil and hydrological characteristics; and
 - v) remove old fences and close unwanted tracks within the Conservation Area and facilitate restoration of native vegetation by allowing natural regeneration.
 - vi) maintain or permit vegetation clearances around powerlines within the Conservation Area along route shown on Diagram A, Annexure B making all efforts to carryout routine maintenance during the months of June and July in any given year and to minimise non-essential disturbance to vegetation.

Katrina Sommers

Australia and New Zealand Banking Group Limited

Minister

Lismore City Council

Ecological Assessment Report – Environmental Zoning

Property Address	708 Broadwater Road, Broadwater
Lot/DP	Lot 31 DP 627286
Property owners	Mr. Allen Stevenson and Mrs. Claire Stevenson
Assessment date	27/02/18
Assessor/s	Wendy Neilan and Greg Yopp
Document Ref	ED18/19816

The site inspection involved a discussion with the property owners regarding the land use history and wildlife they have observed during their tenure and aspirations they have for future use of the land. This was followed by a random meander survey by foot over all accessible areas of the property. Species were recorded on a field data sheets, as well as habitat features, weeds and other relevant observations. The survey included searching for signs of any threatened species known or likely to occur on the property.

Site Description

The vegetation forms part of a contiguous 70 ha area of vegetation along a sandstone ridge and slopes down to alluvial plains. Two vegetation communities were recorded during the site assessment. On the sandstone in the higher elevations of the property the vegetation community was Mature Wet Sclerophyll forest dominated by Blackbutt (*Eucalyptus pilularis*) with Pink Bloodwood (*Corymbia intermedia*) and Brush Box (*Lophostemon confertus*) sub-dominant. The vegetation shifts to a Subtropical Coastal Floodplain forest type on the floodplain in the north east portion of the parcel. Species in the midstorey on the alluvial flats included

- Underlying Geology – Kangaroo Creek/Bundamba/Woodenbong sandstone and Quaternary alluvials
- Soil landscapes – Erosional and Alluvial – Broadwater (Morand 1994)
- Soils – podzols and brown alluvials
- Entire parcel falls within the mapped priority 2 wildlife corridor 'Tuckean- Broadwater Connector' which provides a sub- regional link connecting Tuckean Swamp through to Broadwater National Park (Milledge 2012).
- Habitat features occurring on site include mature trees with branch hollows, nectar producing plants, some fruiting plants in mid storey, coarse woody debris, small permanent waterbody - artificial dam.
- 45 threatened fauna species and 12 threatened flora species have been recorded within 10 km of the site (Bionet atlas data accessed 04/03/18)

Assessment against Environmental zone criteria

Table 1. Assessment against E2 Zone and E3 Zone criteria

E2 Zone Criteria	Present? (Y/N)	Assessment comments
SEPP 26 Littoral Rainforests Land mapped as littoral rainforest in accordance with the state wide policy for littoral rainforest protection (State Environmental Planning Policy 26 – Littoral Rainforests).	N	No Littoral rainforests mapped on lot
SEPP 14 Coastal Wetlands. Land mapped as coastal wetlands in accordance with the state wide policy for coastal wetland protection (State Environmental Planning Policy 14 – Coastal Wetlands).	N	Driveway entrance is mapped as proximity area for Coastal wetlands in Coastal SEPP 2018 mapping. Mapped coastal wetlands are not within parcel boundaries but are in close proximity. Mapped coastal wetlands occur within 30 metres over road from western boundary and within 450 m from north east boundary of land parcel.
Endangered Ecological Communities (EECs') listed under Threatened Species Conservation Act 1995 and/ or Environmental Protection and Biodiversity Conservation Act 1999.	Y	In the North east portion of the property, below the 20-10 m asl contour, the vegetation is indicative of regrowth intermixed with some remnant of the Subtropical Floodplain Forest EEC.
Key Threatened Species Habitat. <ul style="list-style-type: none"> old-growth forests where the over-storey or canopy trees are in the late mature stage of growth ⁴ areas of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates ⁵ habitats for threatened species or endangered populations that cannot withstand further loss where the threatened species or endangered population is present⁶. 	Y	<p>The site meets the criteria for key threatened species habitat for the following reasons:</p> <p>The land parcel is predicted to be high conservation value for forest fauna as it is located within the “priority 2-2” Tuckean-Broadwater Connector” fauna corridor (Milledge 2012).</p> <p>There is habitat present on the land parcel for the following threatened species that have been recorded as present within 10 km radius of the land parcel:</p> <p>Fauna</p> <ul style="list-style-type: none"> Barred Cuckoo-Shrike (<i>Coracina lineata</i>) Little lorikeet (<i>Glossopsitta pusilla</i>) recorded < 1km site Eastern Osprey(<i>Pandion cristatus</i>)

		<ul style="list-style-type: none"> • Powerful Owl (<i>Ninox strenua</i>) • White-eared Monarch (<i>Carterornis leucotis</i>) • Varied Sitella (<i>Daphoenositta chrysoptera</i>) • Brush-tailed Phascogale (<i>Phascogale tapoatafa</i>) • Common Planigale (<i>Planigale maculate</i>) • Squirrel Glider (<i>Petaurus norfolcensis</i>) • Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>) recorded on site <p>Flora</p> <ul style="list-style-type: none"> • Rusty Rose Walnut (<i>Endiandra hayesii</i>) recorded < 1 km of the site • Stinking Cryptocarya (<i>Cryptocarya foetida</i>) <p>These criteria were verified as being met during the site assessment.</p>
Over-cleared vegetation communities. <ol style="list-style-type: none"> 1. over-cleared vegetation communities, where more than 70% of the original (pre 1750) extent of the native vegetation type has been cleared⁷ and 2. Native vegetation in over-cleared Mitchell landscapes⁸. <p>Clarence–Richmond Alluvial Plains.</p>	Y	The Eastern portion of the parcel is located within the Clarence-Richmond Alluvial Plain which is an over-cleared Mitchell Landscape.
Culturally significant lands. Areas of culturally significant lands such as Aboriginal object sites, Aboriginal places of heritage significance, and other significant objects identified by the local Aboriginal community ¹⁰ .	Not assessed	Not assessed under this criteria by the LCC Ecologist and Strategic Planner.
E3 Zone Criteria	Present? (Y/N)	Assessment comments
Riparian and estuarine vegetation and wetlands. Land comprising riparian and estuarine vegetation on waterfront land, defined under the NSW Water Management Act 2000, or wetland areas other than those mapped as SEPP 14 Coastal Wetlands.	Y	Entrance to the property is within 40 m of the river bank. It should be noted that there is a bitumen road between the property entrance and the river's edge which is vegetated by Mangroves.

Waterfront land is defined under the NSW Water Management Act 2000 as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark.		
Rare, Endangered and Vulnerable Forest Ecosystems. Land comprising areas of rare, endangered and vulnerable forest ecosystems as defined by the Joint ANZEC/MCFFA National Forest Policy Statement Implementation sub-committee (JANIS) (Commonwealth of Australia 1997).	N	None of the forest ecosystems listed in Appendix 1 of <i>Northern Councils E-Zone Review: Final recommendations report</i> were recorded at the site
Native vegetation on coastal foreshores. Native vegetation on land with frontage, or adjoining or adjacent to, a beach, estuary, coastal lake, headland, cliff or rock platform.	Y	Land parcel supports native vegetation adjacent to the Richmond River estuary as mapped by DPI NSW (Creese et al 2009)

4 <http://www.epa.nsw.gov.au/resources/pnf/OGRFreviewFieldIdent.pdf>

5 Scotts, D 2003, Key Habitats and Corridors for Forest Fauna: A Landscape Framework for Conservation in Northeast New South Wales, NPWS Occasional Paper no. 32, National Parks and Wildlife Service, Sydney, NSW.

6 NSW Office of Environment and Heritage 'Threatened Species Profiles Database' <http://www.bionet.nsw.gov.au>

7 Keith, DA 2006, Ocean Shores to Desert Dunes the Native Vegetation of New South Wales and the ACT, Department of Environment and Climate Change, Hurstville.

8 Mitchell, PB 2002, 'NSW Ecosystems Study: Background and Methodology', report prepared for National Parks and Wildlife Service, Hurstville, NSW and Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p27.

9 Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p26

10 Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW, NSW Department of Environment, Climate Change & Water (2011)

Summary

The Deferred Matter area meets the criteria for both E2 and E3 zoning. The land is located in the “Tuckean-Broadwater Connector” fauna corridor (Milledge 2012). The land contains important habitat resources for a range of threatened fauna and flora species known to occur with the vicinity of the site. A portion of the land parcel is on the Clarence-Richmond Alluvial Plain and supports vegetation indicative of Subtropical Floodplain Forest which is listed as an endangered ecological community in NSW.

References

Creese RG, Glasby TM, West G and Gallen C (2009) Mapping the habitats of NSW estuaries. Industry & Investment NSW Fisheries Final Report Series 113. Port Stephens, NSW, Australia. ISSN 1837-2112. 95pp.

Milledge, D.R. 2012. *Lismore Local Government Area key habitats and corridors system: development and application of a methodology to identify key habitats and corridors for terrestrial vertebrate species to inform planning for biodiversity conservation in the Lismore Local Government Area*. Unpublished Report to Lismore City Council. Landmark Ecological Services, Suffolk Park, NSW.

Morand DT, 1994, *Soil Landscapes of the Lismore-Ballina 1:100,000 Sheet report*, NSW Department of Land and Water Conservation, Sydney.

NSW Department of Planning and Environment, 2015. *Northern Councils E Zone Review Final Recommendations Report*, unpublished report. Available online http://www.planning.nsw.gov.au/Policy-and-Legislation/Environment-and-Heritage/~/_media/70C33DB9E53B41738B7591A8EEEAA238.ashx

Appendix 1

High Environmental Value areas were identified outside National Parks and Wildlife Service (NPWS) managed lands and State Forests that meet one or more of the following criteria:

1. Native vegetation of high conservation value including; over-cleared vegetation types, all native vegetation in over-cleared Mitchell Landscapes, SEPP26 littoral rainforest (including 100m buffer), all rainforest, JANIS (Joint ANZESS/MCFFA National Forest Policy) rare, endangered or vulnerable vegetation, riparian vegetation including waterfront land within 40m of estuaries, lakes and stream orders 3 and above.

2. Threatened species, populations and ecological communities; including mapped areas of NSW and EPBC listed Endangered Ecological Communities (EEC), Koala habitats, key habitats for forest fauna (Scotts 2003), important shorebird habitat, old growth forest and records from the NSW Wildlife Atlas for species-credit threatened flora and fauna (except Koala) in the Threatened Species Database (TSPD) not on NPWS managed lands, State Forest or land with other HEV values and buffered to 200m (only records since 1989 with an accuracy of 200m or less) .

3. Wetlands, Coastal Lakes and Lagoons including; mapped coastal wetlands (SEPP14), Sensitive Estuaries, Nationally Important Wetlands, important wetland vegetation.

High Environmental Value lands were identified, outside of NPWS managed lands and State Forest, where one or more of the following criteria were present:

- Littoral Rainforest (SEPP 26) including the 100m buffer area
- Over-cleared vegetation types
- All native vegetation in over-cleared Mitchell Landscapes
- NSW and EPBC listed EECs
- Coastal Wetlands (SEPP 14)
- All rainforest
- Important shorebird habitats
- Other wetlands of importance – directory of important wetlands
- Threatened species habitats (Koala habitats, Old Growth Forests, Fauna Key

Habitats for North East NSW (Scotts 2003)

- Wetland vegetation of importance
- JANIS vegetation
- Sensitive estuaries
- Threatened flora and fauna records from the NSW Wildlife Atlas for species-credit species (except Koala) in the Threatened Species Database (TSPD). Records were only included where they did not fall on NPWS managed lands, State Forest or land with other HEV values. Records were only included from the last 25 years (records since 1989) and if they had an accuracy of 200m or less. These records were buffered to 200 m.
- Waterfront land – within 40 m of streams with order GE3 and LT99 (DECCW Stream Ordering), and within 40 m of lakes and estuaries (OEH MER Estuaries)

Appendix 2. Definition of waterfront land from the Dictionary of the Water Management Act 2000 No 92

waterfront land means:

(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary, or

(b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters,

where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.

Where river is defined as

(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and

(b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and

(c) anything declared by the regulations to be a river,

whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.

<https://www.legislation.nsw.gov.au/#/view/act/2000/92/dict1>

Appendix 3 Results of Bionet Atlas Search of 10 km grid centred on 708 Broadwater Rd, Broadwater

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Animals in selected area [North: -28.95 West: 153.36 East: 153.46 South: -29.05] returned a total of 568 records of 45 species. Report generated on 18/07/2018 4:16 PM

Fauna

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Amphibia	Myobatrachidae	<i>Crinia tinnula</i>	Wallum Froglet	V,P		33
Amphibia	Hylidae	<i>Litoria olongburensis</i>	Olongburra Frog	V,P	V	5
Aves	Anseranatidae	<i>Anseranas semipalmata</i>	Magpie Goose	V,P		1
Aves	Columbidae	<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	V,P		21
Aves	Columbidae	<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V,P		26
Aves	Diomedidae	<i>Thalassarche cauta steadi</i>	White-capped Albatross	P	V	1
Aves	Diomedidae	<i>Thalassarche melanophris</i>	Black-browed Albatross	V,P	V	1
Aves	Procellariidae	<i>Ardenna carneipes</i>	Flesh-footed Shearwater	V,P	J,K	2
Aves	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		26
Aves	Ardeidae	<i>Ixobrychus flavicollis</i>	Black Bittern	V,P		2
Aves	Accipitridae	<i>Circus assimilis</i>	Spotted Harrier	V,P		1

Aves	Accipitridae	<i>^Erythrorhynchus radiatus</i>	Red Goshawk	E4A,P,2	V	1
Aves	Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P	C	10
Aves	Accipitridae	<i>^Pandion cristatus</i>	Eastern Osprey	V,P,3		7
Aves	Gruidae	<i>Grus rubicunda</i>	Brolga	V,P		7
Aves	Haematopodidae	<i>Haematopus longirostris</i>	Pied Oystercatcher	E1,P		21
Aves	Jacanidae	<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P		6
Aves	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern Curlew	P	CE,C,J,K	1
Aves	Laridae	<i>Sternula albifrons</i>	Little Tern	E1,P	C,J,K	1
Aves	Cacatuidae	<i>^Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V,P,2		4
Aves	Psittacidae	<i>Glossopsitta pusilla</i>	Little Lorikeet	V,P		3
Aves	Psittacidae	<i>^Pezoporus wallicus wallicus</i>	Eastern Ground Parrot	V,P,3		2
Aves	Tytonidae	<i>^Tyto longimembris</i>	Eastern Grass Owl	V,P,3		7
Aves	Tytonidae	<i>^Tyto novaehollandiae</i>	Masked Owl	V,P,3		1
Aves	Tytonidae	<i>^Tyto tenebricosa</i>	Sooty Owl	V,P,3		1
Aves	Menuridae	<i>Menura alberti</i>	Albert's Lyrebird	V,P		4
Aves	Pomatostomidae	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V,P		23
Aves	Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		17
Aves	Campephagidae	<i>Coracina lineata</i>	Barred Cuckoo-shrike	V,P		3
Mammalia	Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	1

Mammalia	Dasyuridae	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P		2
Mammalia	Dasyuridae	<i>Planigale maculata</i>	Common Planigale	V,P		3
Mammalia	Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	V,P	V	233
Mammalia	Petauridae	<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P		7
Mammalia	Pseudocheiridae	<i>Petauroides volans</i>	Greater Glider	P	V	1
Mammalia	Potoroidae	<i>Potorous tridactylus</i>	Long-nosed Potoroo	V,P	V	24
Mammalia	Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	29
Mammalia	Pteropodidae	<i>Syconycteris australis</i>	Common Blossom-bat	V,P		5
Mammalia	Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		1
Mammalia	Molossidae	<i>Mormopterus lumsdenae</i>	Northern Free-tailed Bat	V		1
Mammalia	Vespertilionidae	<i>Miniopterus australis</i>	Little Bentwing-bat	V,P		10
Mammalia	Vespertilionidae	<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V,P		6
Mammalia	Vespertilionidae	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		5
Mammalia	Muridae	<i>Pseudomys novaehollandiae</i>	New Holland Mouse	P	V	1
Mammalia	Muridae	<i>Pseudomys oralis</i>	Hastings River Mouse	E1,P	E	1

Flora search returned a total of 62 records of 12 species.

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Apocynaceae	<i>Marsdenia longiloba</i>	Slender Marsdenia	E1,P	V	1
Flora	Apocynaceae	<i>Ochrosia moorei</i>	Southern Ochrosia	E1,P	E	1
Flora	Fabaceae (Mimosoideae)	<i>Archidendron hendersonii</i>	White Lace Flower	V,P		1
Flora	Lauraceae	<i>Cryptocarya foetida</i>	Stinking Cryptocarya	V,P	V	3
Flora	Lauraceae	<i>Endiandra hayesii</i>	Rusty Rose Walnut	V,P	V	6
Flora	Myrtaceae	<i>Gossia fragrantissima</i>	Sweet Myrtle	E1,P	E	4
Flora	Myrtaceae	<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V,P	V	1
Flora	Orchidaceae	<i>Diuris sp. aff. chrysantha</i>	Byron Bay Diuris	E1,P,2		1
Flora	Orchidaceae	<i>Oberonia titania</i>	Red-flowered King of the Fairies	V,P,2		2
Flora	Orchidaceae	<i>Phaius australis</i>	Southern Swamp Orchid	E1,P,2	E	40
Flora	Polygonaceae	<i>Persicaria elatior</i>	Tall Knotweed	V,P	V	1
Flora	Polypodiaceae	<i>Belvisia mucronata</i>	Needle-leaf Fern	E1,P		1

Lismore City Council

Ecological Assessment Report – Environmental Zoning

Property Address	84a Bagotville Road, Broadwater
Lot/DP	Lot 2 DP 717103
Property owners	Ms. C. Fira and Mr. P. Evans
Assessment date	22/05/18
Assessor/s	Wendy Neilan and Greg Yopp
Document Ref	ED18/19760

The site inspection involved a discussion with the property owners regarding the land use history and wildlife they have observed during their tenure and aspirations they have for future use of the land. This was followed by a random meander survey by foot over all accessible areas of the property. Species were recorded on a field data sheets, as well as habitat features, weeds and other relevant observations. The survey included searching for signs of any threatened species known or likely to occur on the property.

Site Description

The land parcel contains 4.09 ha of native vegetation which is part of a contiguous 128 ha block of vegetation with neighbouring properties. The dominant vegetation community on site is Wet Sclerophyll forest with grassy understorey dominated by Blackbutt (*Eucalyptus pilularis*) with Pink Bloodwood (*Corymbia intermedia*) sub-dominant. Acacia spp. dominate in the mid-storey with occasional Cabbage Tree Palms *Livistona australis*. Patches of *Lantana camara* were present in the understorey.

- Underlying Geology – Kangaroo Creek/Bundamba/Woodenbong sandstone
- Soil landscapes – Erosional – Bagotville (Morand 1994)
- Soils – podzols
- Entire parcel mapped as North Coast High Environmental Value 2014 (OEH)
- Entire parcel falls within the mapped priority 2 wildlife corridor 'Tuckean- Broadwater Connector which provides a sub- regional link connecting Tuckean Swamp through to Broadwater National Park (Milledge 2012).
- Habitat features occurring on site include mature trees with branch hollows, nectar producing plants
- 42 threatened fauna species and 16 threatened flora species have been recorded within 10 km of the site (Bionet atlas data accessed 23/07/18)

Assessment against Environmental zone criteria

Table 1. Assessment against E2 Zone and E3 Zone criteria

E2 Zone Criteria	Present? (Y/N)	Assessment comments
SEPP 26 Littoral Rainforests Land mapped as littoral rainforest in accordance with the state wide policy for littoral rainforest protection (State Environmental Planning Policy 26 – Littoral Rainforests).	N	No Littoral rainforests mapped on land parcel
SEPP 14 Coastal Wetlands. Land mapped as coastal wetlands in accordance with the state wide policy for coastal wetland protection (State Environmental Planning Policy 14 – Coastal Wetlands).	N	Land not mapped as coastal wetlands. No coastal wetlands present
Endangered Ecological Communities (EECs') listed under Threatened Species Conservation Act 1995 and/ or Environmental Protection and Biodiversity Conservation Act 1999.	N	No EEC's recorded on site.
Key Threatened Species Habitat. <ul style="list-style-type: none"> old-growth forests where the over-storey or canopy trees are in the late mature stage of growth ⁴ areas of predicted high conservation value for forest fauna assemblages, refugia, endemic forest fauna or endemic invertebrates ⁵ habitats for threatened species or endangered populations that cannot withstand further loss where the threatened species or endangered population is present⁶. 	Y	<p>The site meets the criteria for key threatened species habitat for the following reasons:</p> <p>The land parcel is predicted to be high conservation value for forest fauna as it is located within the "priority 2-2" Tuckean-Broadwater Connector" fauna corridor (Milledge 2012).</p> <p>There is habitat present on the land parcel for the following threatened species that have been recorded as present within 10 km radius of the land parcel:</p> <p>Fauna</p> <ul style="list-style-type: none"> Barred Cuckoo-Shrike (<i>Coracina lineata</i>) Little lorikeet (<i>Glossopsitta pusilla</i>) recorded on site Eatarn Osprey(<i>Pandion cristatus</i>) Powerful Owl (<i>Ninox strenua</i>)

		<ul style="list-style-type: none"> • White-eared Monarch (<i>Carterornis leucotis</i>) • Brush-tailed Phascogale (<i>Phascogale tapoatafa</i>) • Common Planigale (<i>Planigale maculate</i>) • Squirrel Glider (<i>Petaurus norfolcensis</i>) • Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>) recorded on site <p>Flora</p> <ul style="list-style-type: none"> • Rusty Rose Walnut (<i>Endiandra hayesii</i>) recorded on site • Stinking Cryptocarya (<i>Cryptocarya foetida</i>) • Hairy Jointgrass (<i>Arthraxon hispidus</i>) <p>These criteria were verified as being met during the site assessment.</p>
Over-cleared vegetation communities. <ol style="list-style-type: none"> 1. over-cleared vegetation communities, where more than 70% of the original (pre 1750) extent of the native vegetation type has been cleared⁷ and 2. Native vegetation in over-cleared Mitchell landscapes⁸. <p>Clarence–Richmond Alluvial Plains.</p>	N	No over-cleared vegetation communities present.
Culturally significant lands. Areas of culturally significant lands such as Aboriginal object sites, Aboriginal places of heritage significance, and other significant objects identified by the local Aboriginal community ¹⁰ .	Not assessed	Not assessed under this criteria by the LCC Ecologist and Strategic Planner.
E3 Zone Criteria	Present? (Y/N)	Assessment comments
Riparian and estuarine vegetation and wetlands. Land comprising riparian and estuarine vegetation on waterfront land, defined under the NSW Water Management Act 2000, or wetland areas other than those mapped as SEPP 14 Coastal Wetlands. Waterfront land is defined under the NSW Water Management Act 2000 as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark.	N	Entrance to the property is within 40 m of the river bank. It should be noted that there is a bitumen road between the property entrance and the river's edge which is vegetated by Mangroves.

Rare, Endangered and Vulnerable Forest Ecosystems. Land comprising areas of rare, endangered and vulnerable forest ecosystems as defined by the Joint ANZEC/MCFFA National Forest Policy Statement Implementation sub-committee (JANIS) (Commonwealth of Australia 1997).	N	None of the forest ecosystems listed in Appendix 1 of <i>Northern Councils E-Zone Review: Final recommendations report</i> were recorded at the site
Native vegetation on coastal foreshores. Native vegetation on land with frontage, or adjoining or adjacent to, a beach, estuary, coastal lake, headland, cliff or rock platform.	N	Land parcel does not have frontage to an estuary but does lie within 2.5 km of the Tuckean Broadwater

4 <http://www.epa.nsw.gov.au/resources/pnf/OGRFreviewFieldIdent.pdf>

5 Scotts, D 2003, Key Habitats and Corridors for Forest Fauna: A Landscape Framework for Conservation in Northeast New South Wales, NPWS Occasional Paper no. 32, National Parks and Wildlife Service, Sydney, NSW.

6 NSW Office of Environment and Heritage 'Threatened Species Profiles Database' <http://www.bionet.nsw.gov.au>

7 Keith, DA 2006, Ocean Shores to Desert Dunes the Native Vegetation of New South Wales and the ACT, Department of Environment and Climate Change, Hurstville.

8 Mitchell, PB 2002, 'NSW Ecosystems Study: Background and Methodology', report prepared for National Parks and Wildlife Service, Hurstville, NSW and Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p27.

9 Far North Coast Regional Conservation Plan, NSW Environment Climate Change and Water, 2010, p26

10 Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW, NSW Department of Environment, Climate Change & Water (2011)

Summary

The western half of the Deferred Matter allotment is well vegetated with mature Blackbutt-dominated forest which is contiguous with a 128 ha block of vegetation covering the sandstone ridge.

The western half of the Deferred Matter allotment meets the criteria for E2 zoning due to the high conservation value of the site for forest fauna. The land is located in the “Tuckean-Broadwater Connector” fauna corridor (Milledge 2012). The land contains important habitat resources for a range of threatened fauna and flora species known to occur with the vicinity of the site including Little Lorikeet, Grey-headed Flying Fox and Rusty Rose Walnut which are all species recorded on the site.

The eastern half of the allotment is generally occupied by the dwelling and associated buildings and infrastructure with maintained lawns and gardens with some mature Blackbutt trees.

References

Creese RG, Glasby TM, West G and Gallen C (2009) Mapping the habitats of NSW estuaries. Industry & Investment NSW Fisheries Final Report Series 113. Port Stephens, NSW, Australia. ISSN 1837-2112. 95pp.

Milledge, D.R. 2012. *Lismore Local Government Area key habitats and corridors system: development and application of a methodology to identify key habitats and corridors for terrestrial vertebrate species to inform planning for biodiversity conservation in the Lismore Local Government Area*. Unpublished Report to Lismore City Council. Landmark Ecological Services, Suffolk Park, NSW.

Morand DT, 1994, *Soil Landscapes of the Lismore-Ballina 1:100,000 Sheet report*, NSW Department of Land and Water Conservation, Sydney.

NSW Department of Planning and Environment, 2015. *Northern Councils E Zone Review Final Recommendations Report*, unpublished report. Available online http://www.planning.nsw.gov.au/Policy-and-Legislation/Environment-and-Heritage/~/_media/70C33DB9E53B41738B7591A8EEEEAA238.ashx

Appendix 1

High Environmental Value areas were identified outside National Parks and Wildlife Service (NPWS) managed lands and State Forests that meet one or more of the following criteria:

1. Native vegetation of high conservation value including; over-cleared vegetation types, all native vegetation in over-cleared Mitchell Landscapes, SEPP26 littoral rainforest (including 100m buffer), all rainforest, JANIS (Joint ANZECC/MCFFA National Forest Policy) rare, endangered or vulnerable vegetation, riparian vegetation including waterfront land within 40m of estuaries, lakes and stream orders 3 and above.
2. Threatened species, populations and ecological communities; including mapped areas of NSW and EPBC listed Endangered Ecological Communities (EEC), Koala habitats, key habitats for forest fauna (Scotts 2003), important shorebird habitat, old growth forest and records from the NSW Wildlife Atlas for species-credit threatened flora and fauna (except Koala) in the Threatened Species Database (TSPD) not on NPWS managed lands, State Forest or land with other HEV values and buffered to 200m (only records since 1989 with an accuracy of 200m or less) .
3. Wetlands, Coastal Lakes and Lagoons including; mapped coastal wetlands (SEPP14), Sensitive Estuaries, Nationally Important Wetlands, important wetland vegetation.

High Environmental Value lands were identified, outside of NPWS managed lands and State Forest, where one or more of the following criteria were present:

- Littoral Rainforest (SEPP 26) including the 100m buffer area
- Over-cleared vegetation types
- All native vegetation in over-cleared Mitchell Landscapes
- NSW and EPBC listed EECs
- Coastal Wetlands (SEPP 14)
- All rainforest
- Important shorebird habitats
- Other wetlands of importance – directory of important wetlands
- Threatened species habitats (Koala habitats, Old Growth Forests, Fauna Key

Habitats for North East NSW (Scotts 2003)

- Wetland vegetation of importance
- JANIS vegetation
- Sensitive estuaries
- Threatened flora and fauna records from the NSW Wildlife Atlas for species-credit species (except Koala) in the Threatened Species Database (TSPD). Records were only included where they did not fall on NPWS managed lands, State Forest or land with other HEV values. Records were only included from the last 25 years (records since 1989) and if they had an accuracy of 200m or less. These records were buffered to 200 m.
- Waterfront land – within 40 m of streams with order GE3 and LT99 (DECCW Stream Ordering), and within 40 m of lakes and estuaries (OEH MER Estuaries)

Appendix 2. Definition of waterfront land from the Dictionary of the Water Management Act 2000 No 92

waterfront land means:

(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary, or

(b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters,

where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.

Where river is defined as

(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and

(b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and

(c) anything declared by the regulations to be a river,

whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.

<https://www.legislation.nsw.gov.au/#/view/act/2000/92/dict1>

Appendix 3 Results of Bionet Atlas Search of 10 km grid centred on 84a Bagotville Rd, Broadwater

Data from the BioNet BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Animals in selected area [North: -28.94 West: 153.36 East: 153.46 South: -29.04] returned a total of 710 records of 42 species. Report generated on 23/07/2018 9:47 AM

Fauna

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Amphibia	Myobatrachidae	<i>Crinia tinnula</i>	Wallum Froglet	V,P		45
Amphibia	Hylidae	<i>Litoria olongburensis</i>	Olongburra Frog	V,P	V	3
Aves	Anseranatidae	<i>Anseranas semipalmata</i>	Magpie Goose	V,P		1
Aves	Columbidae	<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	V,P		21
Aves	Columbidae	<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V,P		26
Aves	Procellariidae	<i>Ardenna carneipes</i>	Flesh-footed Shearwater	V,P	J,K	2
Aves	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		26
Aves	Ardeidae	<i>Ixobrychus flavicollis</i>	Black Bittern	V,P		2
Aves	Accipitridae	<i>Circus assimilis</i>	Spotted Harrier	V,P		2
Aves	Accipitridae	^ <i>Erythrorhynchus radiatus</i>	Red Goshawk	E4A,P,2	V	1
Aves	Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P	C	11

Aves	Accipitridae	<i>^Pandion cristatus</i>	Eastern Osprey	V,P,3		6
Aves	Gruidae	<i>Grus rubicunda</i>	Brolga	V,P		7
Aves	Haematopodidae	<i>Haematopus longirostris</i>	Pied Oystercatcher	E1,P		15
Aves	Jacanidae	<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P		6
Aves	Cacatuidae	<i>^Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	V,P,2		4
Aves	Psittacidae	<i>Glossopsitta pusilla</i>	Little Lorikeet	V,P		3
Aves	Strigidae	<i>^Ninox strenua</i>	Powerful Owl	V,P		3
Aves	Tytonidae	<i>^Tyto longimembris</i>	Eastern Grass Owl	V,P,3		7
Aves	Tytonidae	<i>^Tyto novaehollandiae</i>	Masked Owl	V,P,3		1
Aves	Tytonidae	<i>^Tyto tenebricosa</i>	Sooty Owl	V,P,3		1
Aves	Menuridae	<i>Menura alberti</i>	Albert's Lyrebird	V,P		4
Aves	Pomatostomidae	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V,P		23
Aves	Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		18
Aves	Campephagidae	<i>Coracina lineata</i>	Barred Cuckoo-shrike	V,P		3
Aves	Monarchidae	<i>Carterornis leucotis</i>	White-eared Monarch	V,P		1
Mammalia	Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	1
Mammalia	Dasyuridae	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P		2
Mammalia	Dasyuridae	<i>Planigale maculata</i>	Common Planigale	V,P		5
Mammalia	Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	V,P	V	336
Mammalia	Petauridae	<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P		24

Mammalia	Pseudocheiridae	<i>Petauroides volans</i>	Greater Glider	P	V	1
Mammalia	Potoroidae	<i>Potorous tridactylus</i>	Long-nosed Potoroo	V,P	V	35
Mammalia	Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	35
Mammalia	Pteropodidae	<i>Syconycteris australis</i>	Common Blossom-bat	V,P		3
Mammalia	Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		2
Mammalia	Molossidae	<i>Mormopterus lumsdenae</i>	Northern Free-tailed Bat	V		1
Mammalia	Vespertilionidae	<i>Miniopterus australis</i>	Little Bentwing-bat	V,P		11
Mammalia	Vespertilionidae	<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V,P		6
Mammalia	Vespertilionidae	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		4
Mammalia	Muridae	<i>Pseudomys novaehollandiae</i>	New Holland Mouse	P	V	1
Mammalia	Muridae	<i>Pseudomys oralis</i>	Hastings River Mouse	E1,P	E	1

Flora search returned a total of 109 records of 16 species.

Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	Apocynaceae	<i>Marsdenia longiloba</i>	Slender Marsdenia	E1,P	V	2
Flora	Apocynaceae	<i>Ochrosia moorei</i>	Southern Ochrosia	E1,P	E	1

Flora	Fabaceae (Mimosoideae)	<i>Archidendron hendersonii</i>	White Lace Flower	V,P		1
Flora	Lauraceae	<i>Cryptocarya foetida</i>	Stinking Cryptocarya	V,P	V	4
Flora	Lauraceae	<i>Endiandra hayesii</i>	Rusty Rose Walnut	V,P	V	6
Flora	Lauraceae	<i>Endiandra muelleri</i> subsp. <i>bracteata</i>	Green-leaved Rose Walnut	E1,P		18
Flora	Menispermaceae	<i>Tinospora tinoporoides</i>	Arrow-head Vine	V,P		2
Flora	Myrtaceae	<i>Gossia fragrantissima</i>	Sweet Myrtle	E1,P	E	4
Flora	Myrtaceae	<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V,P	V	13
Flora	Orchidaceae	^ <i>Diuris</i> sp. aff. <i>chrysantha</i>	Byron Bay Diuris	E1,P,2		1
Flora	Orchidaceae	^ <i>Oberonia titania</i>	Red-flowered King of the Fairies	V,P,2		10
Flora	Orchidaceae	^ <i>Phaius australis</i>	Southern Swamp Orchid	E1,P,2	E	40
Flora	Polygonaceae	<i>Persicaria elatior</i>	Tall Knotweed	V,P	V	1
Flora	Polypodiaceae	<i>Belvisia mucronata</i>	Needle-leaf Fern	E1,P		1
Flora	Rutaceae	<i>Coatesia paniculata</i>	Axe-Breaker	E1,P		1