

Species	Preferred Habitat	EPBC Act Status	Likelihood ¹
Listed Marine Species			
<i>Ardea alba</i> --- Great Egret, White Egret	Swamps and marshes; margins of rivers and lakes; damp or flooded grasslands, pastures.		No
<i>Ardea ibis</i> - Cattle Egret	Swamps and marshes; margins of rivers and lakes; damp or flooded grasslands, pastures or agricultural lands.		No
<i>Haliaeetus leucogaster</i> - White-bellied Sea-Eagle	Coastal habitats and around terrestrial wetlands in tropical and temperate regions of mainland Australia.		Potential
<i>Merops ornatus</i> - Rainbow Bee-eater	Open forests and woodlands, shrublands, and in various cleared or semi-cleared habitats.		Potential
<i>Calidris ferruginea</i> Curlew Sandpiper	Intertidal mudflats in sheltered coastal areas	Critically Endangered	No
<i>Numenius madagascariensis</i> Far Eastern Curlew	Intertidal mudflats in sheltered coastal areas	Critically Endangered	No
<i>Pandion cristatus</i> Eastern Osprey	Littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia.		No
<i>Tringa nebularia</i> Common Greenshank	Inland wetlands and sheltered coastal habitats of varying salinity		No
<i>Calidris melanotos</i> - Pectoral Sandpiper	Found most commonly on mudflats with short grass or weedy vegetation, seems to prefer grass than water.		No
<i>Gallinago hardwickii</i> - Latham's Snipe, Japanese Snipe	Permanent and ephemeral wetlands in temperate and tropical regions. Open, freshwater wetlands with low, dense vegetation.		No
<i>Hirundapus caudacutus</i> – White throated Needletail	Almost exclusively aerial. Above wooded areas, including open forest and rainforest.		No
<i>Motacilla flava</i> – Yellow Wagtail	Damp or wet areas with low vegetation, e.g. pastures, meadows, hay fields and marshes, damp steppe and grassy tundra.		No
<i>Myiagra cyanoleuca</i> – Satin Flycatcher	Heavily vegetated gullies in eucalypt-dominated forests and taller woodlands.		No
<i>Lathamus discolor</i> Swift Parrot	On the mainland it disperses widely and forages on flowers and psyllid lerps in Forests and box gum woodlands dominated by winter flowering eucalypts.	Critically endangered	Potential

¹Five categories for the 'likelihood of occurrence' have been used. The categories are based on recorded sightings listed in credible databases, the presence or absence of suitable habitat, other features of the site, results of the field survey and professional judgement. The 5 categories are:

'Yes'	The species/community was or has been observed on the site.
'Likely'	A medium to High probability that a species uses the site.
'Potential'	A suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as 'likely' or 'unlikely' to occur.
'Unlikely'	A Very Low to Low probability that a species uses the site.
'No'	Habitat on the site and in the vicinity is unsuitable for the species

Attachment D: Plant Community Type Descriptions for onsite Vegetation Communities

Plant Community Type ID (PCT ID):

2

PCT Classification Confidence Level: Medium

PCT Common Name: River Red Gum-sedge dominated very tall open forest in frequently flooded forest wetland along major rivers and floodplains in south-western NSW

PCT Common Usage Name:

PCT Scientific Name: *Eucalyptus camaldulensis* subsp. *camaldulensis* / *Acacia stenophylla* , *Amyema miquelii* / *Eleocharis acuta* , *Centipeda cunninghamii* , *Ranunculus inundatus* , *Pseudoraphis spinescens*

Data Entry Operator: jbenison

Data Entry Date: 31/12/2005

Last Modified Date: 17/08/2017

Vegetation Description: Very tall open forest dominated by River Red Gum (*Eucalyptus camaldulensis* subsp. *camaldulensis*) that grow to over 30 m high and sometimes exceed 45 m. Shrubs are usually absent. The ground cover may be sparse and covered in litter or mid-dense to dense. It is dominated by sedges such as *Eleocharis acuta*, *Eleocharis pusilla*, *Carex inversa*, *Cyperus xaltatus*, *Cyperus gymnocaulis*, *Carex gaudichaudiana* and *Carex tereticaulis* along with the rushes *Juncus amabilis* and *Juncus flavidus*. Grass species include Spiny Mudgrass (*Pseudoraphis spinescens*), Blown Grass (*Lachnagrostis filiformis*) and Warrego Grass (*Paspalidium jubiflorum*). Forb species include *Centipeda cunninghamii*, *Persicaria prostrata*, *Rumex brownii*, *Alternanthera denticulata*, *Senecio quadridentatus*, *Centipeda minima* var. *minima*, *Stellaria angustifolia* and the pond waterplants *Triglochin procerum* and *Myriophyllum crispatum*. Weed species may be common and include *Bromus hordeaceus*, *Hypochoeris radicata*, *Hypochoeris glabra*, *Paspalum distichum*, *Aster subulatus*, *Cirsium vulgare*, *Conyza bonariensis*, *Sonchus oleraceus* and *Phyla canescens*. Occurs on black to grey silty-loam-clay alluvial (often self-mulching) soils in frequently flooded sites bordering stream channels, ox-bows and in nearby low-lying areas including intermittent lakes. Mainly distributed along the Murray River with smaller areas along the Murrumbidgee and Lachlan Rivers in the Riverina and Murray-Darling Basin Bioregions of New South Wales and Victoria with small areas in the NSW South-western Slopes Bioregion. The largest areas occur in the middle sections of the Murray River in NSW and Victoria. Many of the forests have been extensively logged so the River Red Gum trees are of smaller stature than prior to logging but some unlogged areas remain. Poorly represented in protected areas as of 2008 but largely uncleared due to its location near river channels. Weed invasion, inappropriate logging and lack of flooding due to irrigation draw-off or climate change are the main threats to this community. Dieback of trees since 2000 has altered the threat category of this community from Near Threatened to Vulnerable.

Rain fall: Not Assessed

Elevation: Not Assessed

Emergent species: None

Upper Stratum Species: *Eucalyptus camaldulensis* subsp. *camaldulensis*;

Mid Stratum Species: *Acacia stenophylla*; *Amyema miquelii*;

Ground Stratum Species: *Eleocharis acuta*; *Centipeda cunninghamii*; *Ranunculus inundatus*; *Pseudoraphis spinescens*; *Persicaria prostrata*; *Rumex brownii*; *Eleocharis pusilla*; *Carex inversa*; *Cyperus gymnocaulis*; *Cyperus exaltatus*; *Carex gaudichaudiana*; *Carex tereticaulis*; *Juncus amabilis*; *Juncus flavidus*; *Lachnagrostis filiformis*; *Paspalidium jubiflorum*; *Austroanthonia duttoniana*; *Alternanthera denticulata*; *Senecio quadridentatus*; *Centipeda minima* var. *minima*; *Triglochin procerum*; *Stellaria angustifolia*; *Azolla filiculoides*; *Myriophyllum crispatum*; *Marsilea drummondii*; *Oxalis perennans*; *Potamogeton ochreatus*; *Ottelia ovalifolia* subsp. *ovalifolia*; *Myriophyllum verrucosum*;

Tree Growth Form Species:

Shrub Growth Form Species:

Grass and grasslike Growth Form Species:

Forb Growth Form Species:

Fern Growth Form Species:

Other Growth Form Species:

Diagnostic Species: Not Assessed

Height Class (Walker & Hopkins 1990): 8 - Range:20.01-35.00m (Very tall)

Vegetation Formation: Forested Wetlands;

Vegetation Class: Inland Riverine Forests;

NSW Landscape Name: Not Assessed

Classification source: Includes a combination of communities 1 and 2 and Table 1.2 in the floristic plot survey of the Murray River by Smith & Smith (1990). Mapped along the Murray river as part of map unit 1 (Red Gum Forest) in Margules & Partners (1990). Probably Red Gum-Quality 1 in forest typing along Murray River by NSW State Forests. The tallest River Red Gum communities (except where logged) in frequently-flooded sites along the length of the Murray River. Note: as of 2005, in NSW, only the Murray River and Great Cumbung Swamp had been adequately plot sampled to detect floristic variation in River Red Gum communities. Future survey and mapping should attempt to map out or model RRG floristic communities.

Authority: VCA 1.1 - archive

Pre-European Mapped Or Modelled: Mapped or modelled as part of a broader complex

Current Extent Mapped Or Modelled: Mapped as part of a broader complex

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PCT Classification Confidence Level: Medium

PCT Common Name: Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions

PCT Scientific Name: *Eucalyptus microcarpa* / *Dodonaea viscosa* subsp. *cuneata* , *Acacia buxifolia* subsp. *buxifolia* / *Austrodanthonia caespitosa* , *Austrostipa scabra* subsp. *falcata* , *Chloris truncata* , *Sida corrugata*

Data Entry Operator: jbenison

Data Entry Date: 31/12/2005

Last Modified By: jbenison

Last Modified Date: 31/12/2005

Vegetation Description: Tall woodland to 25 m high dominated by Western Grey Box (*Eucalyptus microcarpa*) often as the only tree species often occupying 90% of the canopy cover but other trees may include Yellow Box (*Eucalyptus melliodora*), White Cypress Pine (*Callitris glaucophylla*) and minor Buloke. The shrub layer is absent or sparse and includes *Dodonaea viscosa* subsp. *cuneata*, *Acacia buxifolia*, *Acacia acinacea*, *Acacia hakeoides*, *Bursaria spinosa*. Grazing has eliminated shrubs these in many places. A mid-dense or dense grass ground cover is present composed of *Austrodanthonia caespitosa*, *Austrodanthonia setacea*, *Austrostipa scabra* subsp. *falcata*, *Paspalidium constrictum*, *Themeda australis*, *Austrostipa aristiglumis*, *Aristida behriana* and *Elymus scaber* var. *scaber* along with introduced grass species such as *Bromus* spp., *Vulpia* spp. and *Hordeum leporinum*. The small scrambler *Einadia nutans* subsp. *nutans* is usually present. Native forbs include *Sida corrugata*, *Wahlenbergia gracilis*, *Vittadinia gracilis*, *Dianella porracea*, *Oxalis perennans* and *Chamaesyce drummondii*. Occurs on texture contrast red or brown earths or grey clay soils (that may be gilgaied) on undulating alluvial plains in the predominantly winter rainfall belt of south-central western NSW with an average annual rainfall between 550 and 450 mm. Mainly restricted to the eastern section of the Riverina Bioregion and the western section of the NSW South-western Slopes Bioregion. Distributed from north of Forbes in the north to near Albury in the south extending into north-central Victoria. It has lost its original shrub layer in many locations where grazing has been intense. Grades into the more shrubby Western Grey Box-White Cypress Pine - Buloke community (ID80) on loamy-sand soils and grades into White Box (*Eucalyptus albens*) on podzolic soils to the east on the western slopes. Grades into a riverine Western Grey Box community ID237 along the floodplains of the Murrumbidgee and Murray Rivers. Due to its occurrence on arable soils, this community has largely been cleared. Much of its remaining extent is threatened by grazing and weed invasion. It is a critically endangered community.

Rain fall: Not Assessed**Elevation:** Not Assessed**Emergent species:** None**Upper Stratum Species:** *Eucalyptus microcarpa*; *Callitris glaucophylla*; *Allocasuarina luehmannii*;**Mid Stratum Species:** *Dodonaea viscosa* subsp. *cuneata*; *Acacia buxifolia* subsp. *buxifolia*; *Bursaria spinosa* subsp. *spinosa*; *Acacia oswaldii*; *Acacia pycnantha*; *Acacia hakeoides*; *Acacia brachybotrya*; *Santalum acuminatum*; *Acacia homalophylla*; *Templetonia stenophylla*; *Exocarpos aphyllus*;**Ground Stratum Species:** *Austrodanthonia caespitosa*; *Chloris truncata*; *Sida corrugata*; *Austrostipa scabra* subsp. *falcata*; *Wahlenbergia gracilis*; *Einadia nutans* subsp. *nutans*; *Paspalidium constrictum*; *Themeda australis*; *Austrostipa aristiglumis*; *Aristida behriana*; *Elymus scaber* var. *scaber*; *Austrodanthonia setacea*; *Carex inversa*; *Poa sieberiana*; *Vittadinia gracilis*; *Dianella porracea*; *Salsola tragus* subsp. *tragus*; *Oxalis perennans*; *Atriplex semibaccata*; *Chamaesyce drummondii*; *Lomandra filiformis* subsp. *coriacea*; *Asperula conferta*; *Convolvulus erubescens*; *Rhodanthe corymbiflora*; *Austrostipa bigeniculata*; *Enchylaena tomentosa*; *Leiocarpa panaetioides*; *Podolepis jaceoides*; *Atriplex semibaccata*;**Tree Growth Form Species:****Shrub Growth Form Species:****Grass and grasslike Growth Form Species:****Forb Growth Form Species:****Fern Growth Form Species:****Other Growth Form Species:****Diagnostic Species:** Not Assessed**Height Class (Walker & Hopkins 1990):** 8 - Range:20.01-35.00m (Very tall), 7 - Range:12.01-20.00m (Tall)**Vegetation Formation:** Grassy Woodlands;**Vegetation Class:** Floodplain Transition Woodlands;**NSW Landscape Name:** Not Assessed

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Attachment E: Native flora recorded on site during field inspections – 8 – 11th June 2017

	Scientific Name	Common Name	Growth Form
^	<i>Acacia dealbata</i>	Silver Wattle	understorey tree
^	<i>Acacia paradoxa</i>	Hedge Wattle	shrub
	<i>Alternanthera denticulata s.l.</i>	Lesser Joyweed	herb
	<i>Amyema miquelii</i>	Box Mistletoe	mistletoe
	<i>Amyema pendula</i>	Drooping Mistletoe	mistletoe
	<i>Azolla filiculoides</i>	Pacific Azolla	floating plant
^	<i>Callistemon sieberi</i>	River Bottlebrush	shrub
	<i>Calotis scapigera</i>	Tufted Burr-daisy	herb
	<i>Cardamine spp.</i>	Bitter Cress	herb
	<i>Carex inversa</i>	Knob Sedge	herb
	<i>Carex tereticaulis</i>	Hollow Sedge	sedge
	<i>Centipeda cunninghamii</i>	Common Sneezeweed	herb
	<i>Chloris truncata</i>	Windmill Grass	grass
	<i>Chrysocephalum apiculatum s.l.</i>	Common Everlasting	herb
	<i>Cyperus exaltatus</i>	Tall Flat-sedge	sedge
	<i>Dichondra repens</i>	Kidney-weed	herb
	<i>Dysphania pumilio</i>	Clammy Goosefoot	herb
	<i>Enteropogon acicularis</i>	Curly Windmill Grass	grass
	<i>Epilobium billardierianum</i>	Variable Willow-herb	herb
	<i>Eucalyptus camaldulensis</i>	River Red-gum	tree
	<i>Geranium solanderi s.l.</i>	Austral Cranesbill	herb
	<i>Hydrocotyle sibthorpioides</i>	Shining Pennywort	herb
	<i>Juncus flavidus</i>	Yellow Rush	rush
	<i>Juncus ingens</i>	Giant Rush	rush
	<i>Juncus spp.</i>	Rush	rush
	<i>Lythrum hyssopifolia</i>	Small Loosestrife	herb
^	<i>Melaleuca parvistaminea</i>	Rough-barked Honey-myrtle	shrub
	<i>Mentha australis</i>	River Mint	herb
	<i>Microlaena stipoides var. stipoides</i>	Weeping Grass	grass
	<i>Oxalis perennans</i>	Grassland Wood-sorrel	herb
	<i>Paspalidium jubiflorum</i>	Warrego Summer-grass	grass
	<i>Persicaria hydropiper</i>	Water-pepper	tall herb
	<i>Phragmites australis</i>	Common Reed	reed
	<i>Poa labillardierei</i>	Common Tussock-grass	grass
	<i>Pseudognaphalium luteoalbum</i>	Jersey Cudweed	herb
	<i>Ranunculus inundatus</i>	River Buttercup	herb
	<i>Rumex brownii</i>	Slender Dock	herb
	<i>Rytidosperma caespitosa</i>	Common Wallaby-grass	grass
	<i>Rytidosperma spp.</i>	Wallaby Grass	grass
	<i>Senecio quadridentatus</i>	Cotton Fireweed	tall herb
	<i>Sigesbeckia orientalis ssp. orientalis</i>	Indian Weed	herb
	<i>Viola hederacea s.l.</i>	Ivy-leaf Violet	herb

Exotic flora recorded on site during field inspections – 8 – 11th June 2017

Scientific Name	Common Name	Lifeform
<i>Aira spp.</i>	Hair Grass	grass
<i>Anagallis arvensis</i>	Pimpernel	herb
<i>Arctotheca calendula</i>	Cape Weed	herb
<i>Asparagus asparagoides</i>	Bridal Creeper	herb
<i>Briza minor</i>	Lesser Quaking-grass	grass
<i>Bromus spp.</i>	Brome	grass
<i>Cerastium glomeratum s.l.</i>	Common Mouse-ear Chickweed	herb
<i>Cirsium vulgare</i>	Spear Thistle	tall herb
<i>Conyza bonariensis</i>	Flaxleaf Fleabane	tall herb
<i>Critesion murinum</i>	Barley-grass	grass
<i>Cucumis myriocarpus ssp. leptodermis</i>	Paddy Melon	vine
<i>Cynodon dactylon</i>	Couch	grass
<i>Cyperus eragrostis</i>	Drain Flat-sedge	sedge
<i>Echium plantagineum</i>	Paterson's Curse	herb
<i>Galium aparine</i>	Cleavers	herb
<i>Hypochoeris glabra</i>	Smooth Cat's-ear	herb
<i>Hypochoeris radicata</i>	Cat's Ear	herb
<i>Leontodon taraxacoides ssp. taraxacoides</i>	Hairy Hawkbit	herb
<i>Lolium spp.</i>	Rye Grass	grass
<i>Oxalis pes-caprae</i>	Soursob	herb
<i>Paspalum distichum</i>	Water Couch	grass
<i>Pennisetum clandestinum</i>	Kikuyu	grass
<i>Phalaris spp.</i>	Phalaris (Canary-grass)	grass
<i>Rorippa palustris</i>	Yellow Marsh-cress	herb
<i>Rosa rubiginosa</i>	Sweet Briar	shrub
<i>Rubus fruticosus spp. agg.</i>	Blackberry	shrub
<i>Rumex crispus</i>	Curled Dock	tall herb
<i>Salix spp.</i>	Willow	tree
<i>Solanum nigrum s.l.</i>	Black Nightshade	herb
<i>Solanum pseudocapsicum</i>	Madeira Winter-cherry	small shrub
<i>Taraxacum spp.</i>	Dandelion	herb
<i>Trifolium spp.</i>	Clover	herb
<i>Verbena bonariensis s.l.</i>	Purple-top Verbena	tall herb
<i>Xanthium spinosum</i>	Bathurst Burr	tall herb

Attachment F: Native fauna recorded on site during field inspections – 8 – 11th June 2017

Common Name	Species Name	Zone A	Zone B	Zone C	Zone D
		Grey box (Upper Terrace)	RRG Regrowth	Riparian & Mature RRG	Open Grassland
Australasian Darter	<i>Anhinga melanogaster</i>			Yes	
Australasian Grebe	<i>Tachybaptus novaehollandiae</i>			Yes	
Australian Magpie	<i>Cracticus tibicen</i>	Yes	Yes	Yes	Yes
Australian Raven	<i>Corvus coronoides</i>		Yes	Yes	
Australian White Ibis	<i>Threskiornis molucca</i>				Yes
Australian Wood Duck	<i>Chenonetta jubata</i>	Yes		Yes	Yes
Barking Owl	<i>Ninox connivens</i>			Yes	
Black Kite	<i>Milvus migrans</i>				Yes
Black Swan	<i>Cygnus atratus</i>			Yes	
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>				Yes
Black-shouldered Kite	<i>Elanus axillaris</i>				Yes
Brown Treecreeper	<i>Climacteris picumnus</i>	Yes		Yes	
Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>	Yes	Yes		
Buff-rumped Thornbill	<i>Acanthiza reguloides</i>		Yes	Yes	
Common Blackbird	<i>Turdus merula</i>	Yes			
Common Starling	<i>Sturnus vulgaris</i>	Yes			
Crested Pigeon	<i>Ocyphaps lophotes</i>	Yes			Yes
Crested Shrike-tit	<i>Falcunculus frontatus</i>			Yes	
Crimson Rosella	<i>Platycercus elegans</i>	Yes	Yes	Yes	
Dusky Moorhen	<i>Gallinula tenebrosa</i>			Yes	
Eastern Rosella	<i>Platycercus eximius</i>	Yes	Yes		Yes
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>		Yes		
Eastern Yellow Robin	<i>Eopsaltria australis</i>			Yes	
Eurasian Coot	<i>Fulica atra</i>			Yes	
Galah	<i>Eolophus roseicapillus</i>	Yes	Yes	Yes	Yes
Grey Butcherbird	<i>Cracticus torquatus</i>			Yes	Yes
Grey Shrike-thrush	<i>Colluricincla harmonica</i>	Yes	Yes	Yes	
House Sparrow	<i>Passer domesticus</i>	Yes			
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	Yes	Yes	Yes	
Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	Yes			
Little Raven	<i>Corvus mellori</i>			Yes	
Long-billed Corella	<i>Cacatua tenuirostris</i>	Yes	Yes		
Magpie-lark	<i>Grallina cyanoleuca</i>	Yes		Yes	Yes
Mistletoebird	<i>Dicaeum hirundinaceum</i>			Yes	
Noisy Miner	<i>Manorina melanocephala</i>		Yes		
Pied Currawong	<i>Strepera graculina</i>			Yes	
Purple Swamphen	<i>Porphyrio porphyrio</i>			Yes	
Red Wattlebird	<i>Anthochaera carunculata</i>		Yes	Yes	
Red-browed Finch	<i>Neochmia temporalis</i>		Yes	Yes	
Red-rumped Parrot	<i>Psephotus haematonotus</i>	Yes			Yes
Silvereye	<i>Zosterops lateralis</i>	Yes	Yes		
Southern Boobook	<i>Ninox novaeseelandiae</i>		Yes	Yes	Yes
Spotted Pardalote	<i>Pardalotus punctatus</i>			Yes	
Straw-necked Ibis	<i>Threskiornis spinicollis</i>				Yes
Striated Pardalote	<i>Pardalotus striatus</i>			Yes	
Striated Thornbill	<i>Acanthiza lineata</i>		Yes	Yes	
Superb Fairy-wren	<i>Malurus cyaneus</i>	Yes	Yes	Yes	
Weebill	<i>Smicronis brevirostris</i>		Yes	Yes	
Whistling Kite	<i>Haliastur spheurnus</i>			Yes	
White-browed Scrubwren	<i>Sericornis frontalis</i>			Yes	
White-faced Heron	<i>Egretta novaehollandiae</i>	Yes		Yes	
White-necked Heron	<i>Ardea pacifica</i>			Yes	
White-plumed Honeyeater	<i>Ptilotula penicillatus</i>	Yes	Yes	Yes	
Willie Wagtail	<i>Rhipidura leucophrys</i>	Yes			Yes
Yellow Thornbill	<i>Acanthiza nana</i>		Yes		
Yellow-billed Spoonbill	<i>Platalea flavipes</i>			Yes	
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>	Yes	Yes		

Common Name	Species Name	Zone A	Zone B	Zone C	Zone D
		Grey box (Upper Terrace)	RRG Regrowth	Riparian & Mature RRG	Open Grassland
Hare	<i>Lepus capensis</i>	Yes		Yes	
Eastern Grey Kangaroo	<i>Macropus giganteus</i>			Yes	Yes
House Mouse	<i>Mus musculus</i>		Yes		
Rabbit	<i>Oryctolagus cuniculus</i>	Yes			
Common Ringtail Possum	<i>Pseudocheirus peregrinus</i>			Yes	
Water Rat	<i>Hydromys chrysogaster</i>			Yes	
Christinus marmoratus	<i>Southern Marbled Gecko</i>			Yes	
Cryptoblepharus pannosus	<i>Ragged Snake-eyed Skink</i>			Yes	
Crinia signifera	<i>Common Froglet</i>			Yes	
Euastacus armatus	<i>Murray Crayfish</i>			Yes	

Attachment G: Maps

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Property_boundary

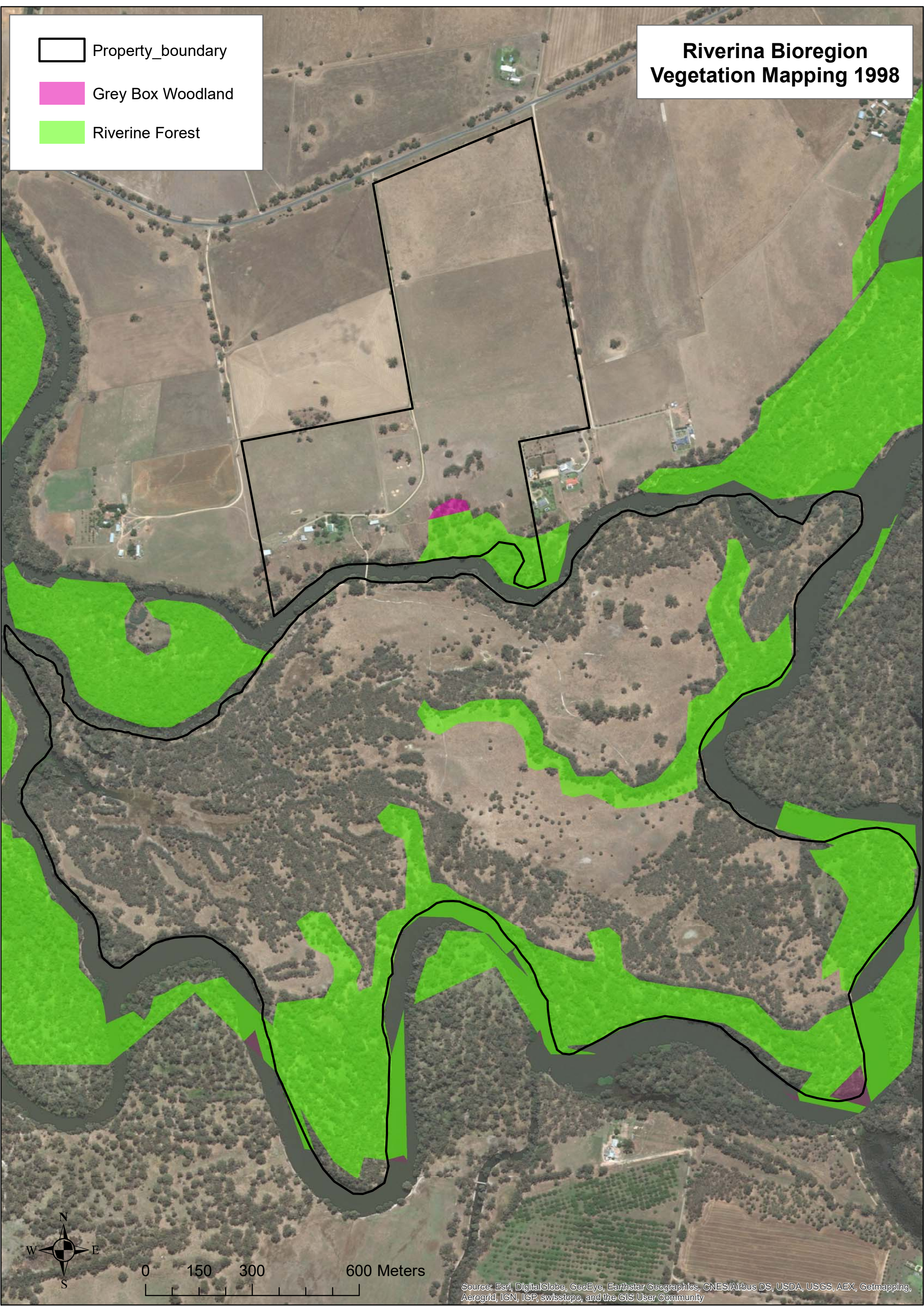


Grey Box Woodland



Riverine Forest

Riverina Bioregion Vegetation Mapping 1998



0 150 300 600 Meters

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

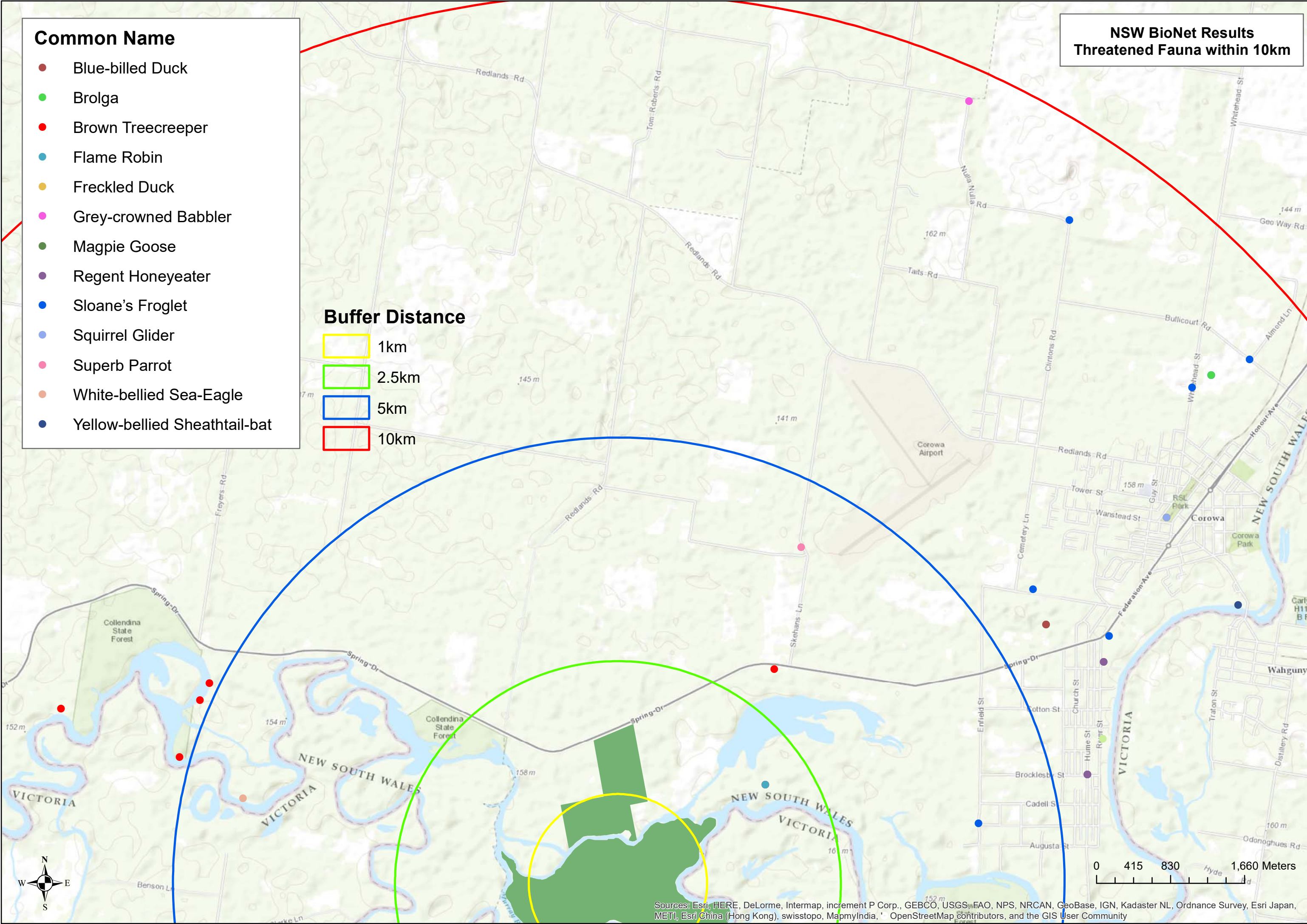
Common Name

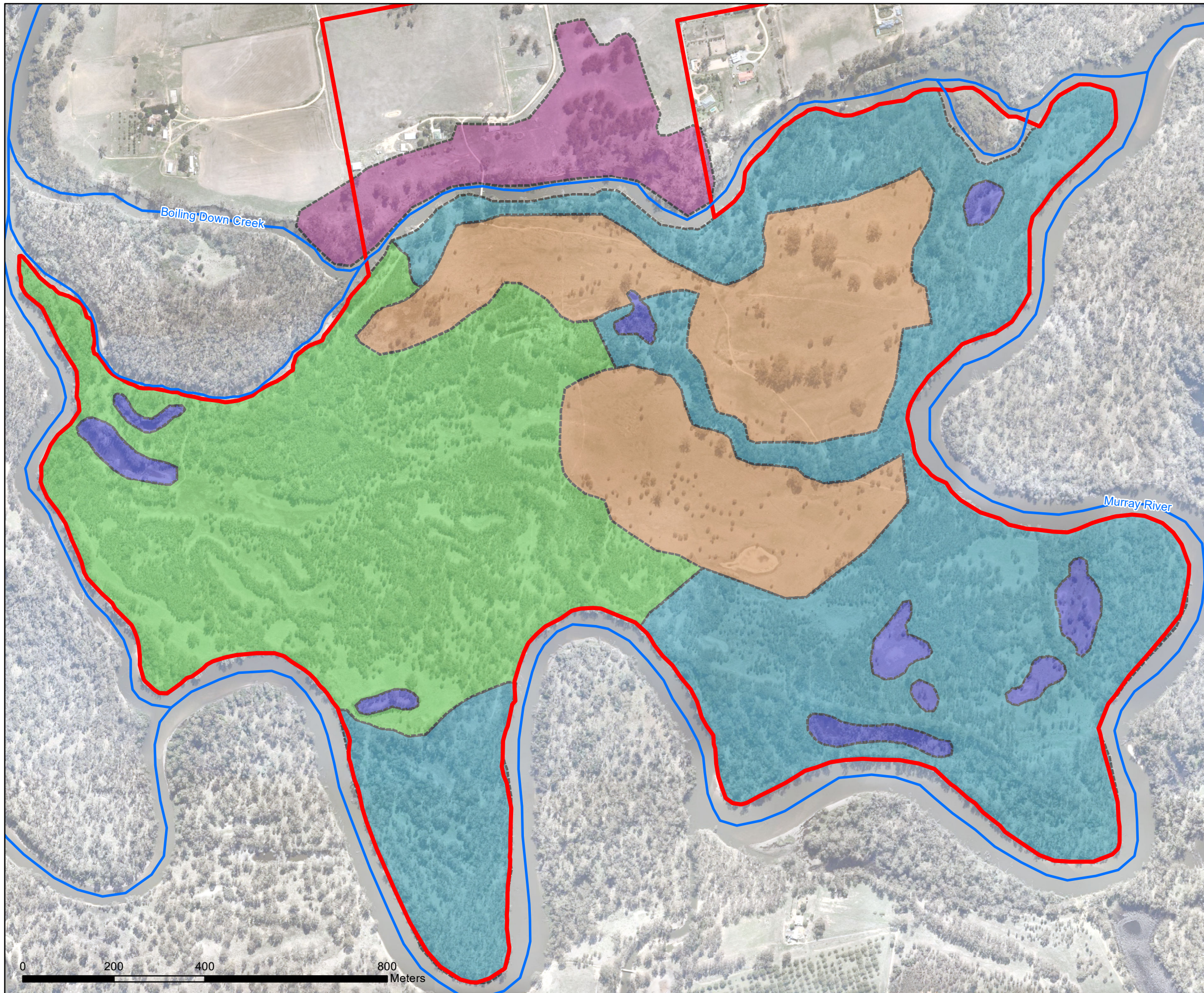
- Blue-billed Duck
- Brolga
- Brown Treecreeper
- Flame Robin
- Freckled Duck
- Grey-crowned Babbler
- Magpie Goose
- Regent Honeyeater
- Sloane's Froglet
- Squirrel Glider
- Superb Parrot
- White-bellied Sea-Eagle
- Yellow-bellied Sheathtail-bat

Buffer Distance

- 1km
- 2.5km
- 5km
- 10km

NSW BioNet Results
Threatened Fauna within 10km



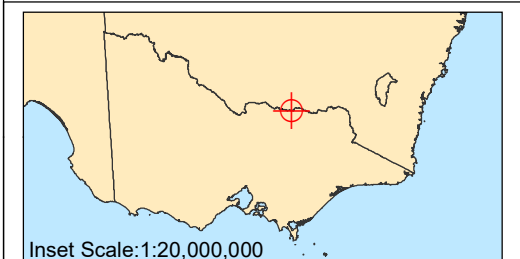


Warrawidgee Island: Proposed Murray River Eco-Tourism Resort

Native Fauna Habitat Assessment

Legend

- Property Boundary
- Waterway
- A – Resort area and box woodland stand. Likely to support species such as the Squirrel Glider, with potential to support Bush Stone-curlews.
- B – Regrowth areas, comprising dense thickets of ~20-year-old juvenile red gum trees and scattered old large trees. Likely to support species such as the Eastern Spinebill and Black Swan.
- C – Riparian area and mature red gum stands, including a high density of hollow-bearing trees. Likely to support species such as the Brown Treecreeper, Barking Owl, and Squirrel Glider.
- D – Open cleared areas, including derived grasslands. Likely to support species such as Diamond Firetails and Flame Robins.
- E – Ephemeral wetlands. Likely to support species such as the Australian Bittern and Sloan's Froglet.

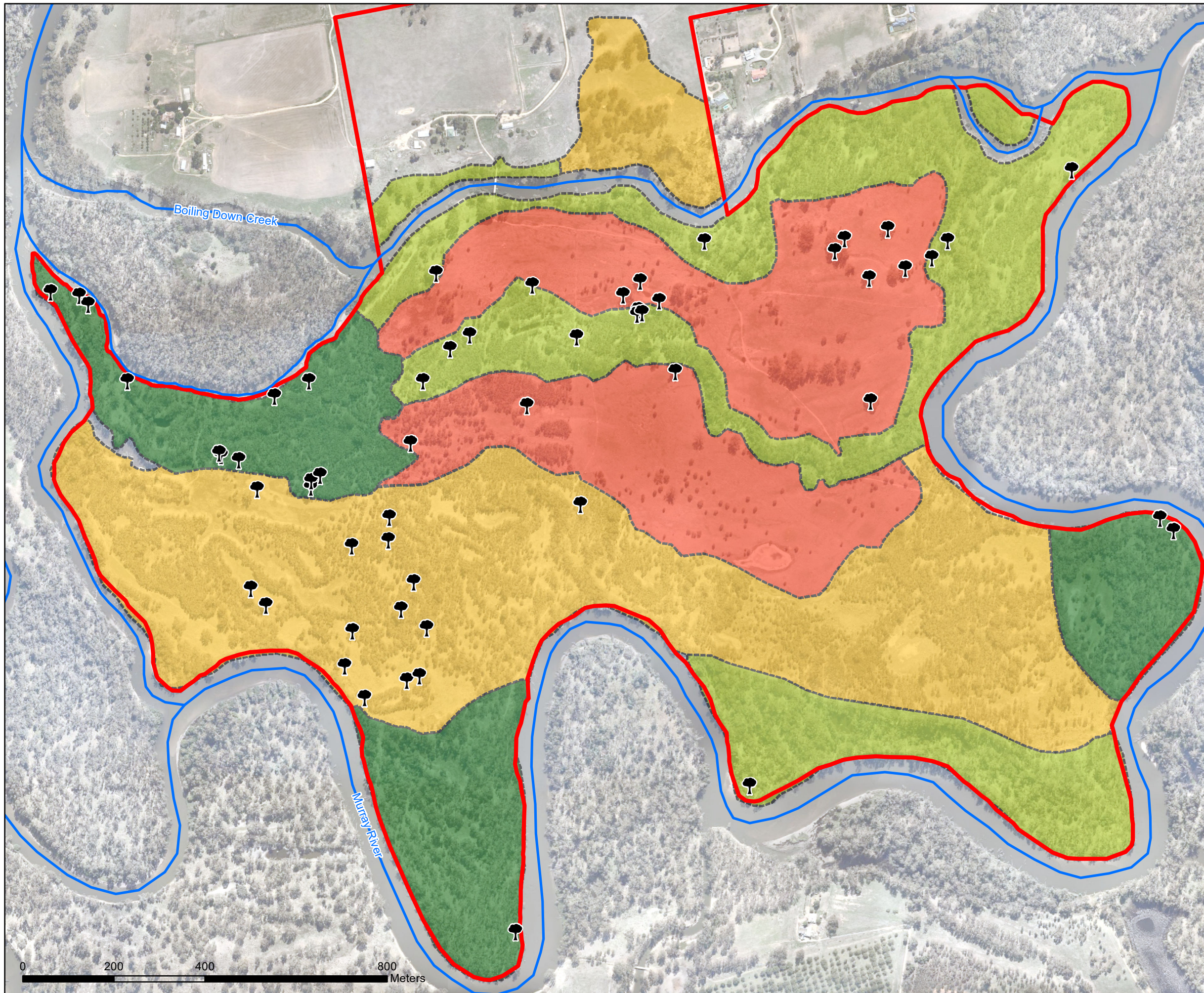


Inset Scale: 1:20,000,000



Scale @A3: 1:8,200
Datum: GDA94 MGA Zone 55



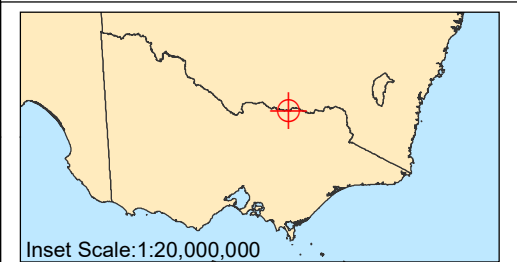


Warrawidgee Island: Proposed Murray River Eco-Tourism Resort

Vegetation Quality Assessment

Legend

- Property Boundary
- Waterway
- Old Large Trees
- High – High quality mature River Red Gum Woodland with very few weeds, and featuring scattered old, large trees.
- Medium – Younger, “weedier” River Red Gum woodland and riparian vegetation. Includes dense cohorts of regenerating River Red Gum approximately 20 years old.
- Low – Scattered old, large River Red Gum trees over an exotic grass layer with little to no midstorey.
- Very Low – Grazed, open pasture, with a largely exotic ground cover and a few scattered River Red Gum trees.



Inset Scale: 1:20,000,000



Scale @A3: 1:8,200
Datum: GDA94 MGA Zone 55



Attachment H: Significant impact criteria test

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Woodland Birds ⁴	Mueller Daisy	White-bellied Sea-Eagle	Rainbow Bee-eater	Floating Swamp Wallaby-grass	Grey-headed Flying-fox
1. Lead to a long-term decrease in the size of a population	Unlikely	No	No	No	No.	No
2. Reduce the area of occupancy of the species	Unlikely. No vegetation is deemed for removal.	No	Unlikely. No vegetation is deemed for removal.	No	Unlikely. No development on the floodplain.	Unlikely. No vegetation is deemed for removal.
3. Fragment an existing population into two or more populations	No. No recent evidence of a local population within the region.	No	No. Highly mobile species with large home range.	No. Highly mobile species with large home range.	No	No. Highly mobile species with large home range.
4. Adversely affect habitat critical to the survival of a species.	Unlikely	Unlikely	Unlikely	No	No	Unlikely
5. Disrupt the breeding cycle of a population.	No	No	Unlikely	No	No	Unlikely
6. Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Unlikely. Species has not been observed using the site.	Unlikely. Species has not been observed on the site.	Unlikely. Activities proposed are not invasive.	Unlikely. Species has not been observed using the site.	No	Unlikely. Activities proposed are not invasive.
7. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species’ habitat.	No	No	No	No	Unlikely. Grazing regime to be altered to prevent weeds.	No
8. Introduce disease that may cause the species to decline.	No	No	No	No	No	No
9. Interfere with the recovery of the species.	No	No	No	No	No	No

Key:

‘Yes’

‘Likely’

‘Potential’

‘Unlikely’

‘No’

Based on the site assessment, known habitat requirements and physiology of the species, it is certain that the Significant impact criteria is relevant to the development.

A medium to High probability that the significant impact criteria may be relevant at the site.

It is possible that the significant impact criteria may be relevant, but there is insufficient information to categorically say that it is ‘likely’ or ‘unlikely’ to be entirely relevant at the site.

A Very Low to Low probability that the significant impact criteria may be relevant at the site.

The significant impact criteria is not relevant to the species or the proposed development site in this case.

⁴ Woodland birds include Regent Honeyeater (Anthochaera Phrygia), Painted Honeyeater (Grantiella picta), Swift Parrot (Lathamus discolor) & Superb Parrot (Polytelis swainsonii).

Attachment I: Site Photos



Photo 1: Phalaris dominated groundcover adjacent to the Murray River.



Photo 2: Poa tussock understorey free of phalaris. High value native groundcover.



Photo 3: Desirable riverine native Giant Rush (*Juncus ingens*).



Photo 4: Desirable riverine native Ivy leaf violet (*Viola hederacea*).



Photo 5: Revegetation area on river bank.



Photo 6: Old ringbarking axe scar on dead tree.



Photo 7: Open raised sandy areas on the floodplain. Areas subject to forestry.



Photo 8: Willows established along Boiling Down creek. Important habitat for some native species but highly invasive.



Photo 9: Red soil terrace adjacent to the Grey Box woodland (back ground).



Photo 10: Cut and fill area on proposed development area above the floodplain.



Modular Sewage Treatment Plant

For the treatment of excess black water
from septic sewage systems.

Is your existing septic sewage system overloaded at peak periods or all the time?

Has the expansion of your park or increased density of residents, placed additional stress on your septic system? Has this produced a septic system smell?

Envirostream Solutions Pty Ltd (Enviss) has an answer in its sewage water treatment system that processes sewage water which is in excess of the capacity of the existing septic system (called the "Bio Sentinel" System). The excess sewage water treated by the Bio Sentinel System meets environmental requirements permitting the reuse of the treated water for irrigation, other non-potable uses (not for drinking) or discharge into the environment.



Treatment Plant

The system is prefabricated and is connected to an existing or new septic tank system with minimal onsite works. The system is PLC controlled which:

- controls the process autonomously;
- controls the discharge of the water into an irrigation system or into the environment or a water way;
- monitors the performance of the system and automatically logs system parameters;
- can be accessed remotely using a data connection.

The system has a built in odour control system that eliminates all odours from the treatment process.

The system is housed in a robust plastic rectangular pod or a **secure purpose built structure**.

Treatment Process

The system is a batch cycle process.

The system uses a high density medium to support the activity of aerobic bacteria that cleans the sewage water. This enables high treatment rates in a small footprint without the use of blower fans. The system includes media filtration that removes remaining solids, nutrients, heavy metals and odours from the water.

UV disinfection and chlorination kills residual harmful bacteria. The treated water is suitable for irrigation, other non-potable uses (not for drinking) and discharge into the environment.

BIO Sentinel System Specifications

The BIO Sentinel System comes in three standard sizes as described in the following table:

BIO Sentinel POD System Type	Volume treated kilolitres per day	Footprint sq metres	Power
APS 2	28	3	1.5 Kw
APS 4	42	6	2.0 Kw
APS 6	64	9	3.7 Kw

The BIO Sentinel System's treatment capacity is scalable by adding additional Pods to the process or a custom designed system can be supplied.

Benefits

The benefits of the system are as follows:

- the system is a cost effective treatment package for small to medium volumes of sewage and grey water;
- the output of the system is an alternative water source for irrigation;
- the system produces water suitable for the discharge into the environment.

About Enviss

Enviss is a water and environmental engineering company. Its fields of expertise include the filtration and treatment of polluted water, pollution control and water management.

Envirostream Solutions Pty Ltd

Level 4, 349 Collins Street
Melbourne, 3000
Phone: (03) 5470 6800
Email: info@enviss.com

Commercial Product Links

[Sewerage Treatment](#)
[Water Treatment](#)
[Service & Support](#)
[Permanent & Fixed Location](#)
[Skid Mounted Transportable](#)
[Containerised Transportable](#)
[Membrane Bio Reactor \(MBR\)](#)
[Rentals Systems](#)
[Grease Traps and Pump Stations](#)
[Under Belly Tanks](#)
[Recent Commercial Projects](#)

Water Treatment Systems



Reverse Osmosis Water Treatment Systems

Reverse osmosis (RO) water treatment is a filtration membrane process that removes large and small molecules and ions from water by applying pressure to the water when it is on one side of a selective membrane. The result is that the solute is retained on the semi-permeable side of the membrane and the pure water is allowed to pass to the other side. The Ozzi Kleen range of transportable containerised and trailer mounted Reverse Osmosis water treatment systems produce potable drinking water to Australian Standards. The flow rates range from 2,000 to 200,000 plus litres per day for the containerised Reverse Osmosis systems, whilst our smaller trailer mounted systems produce up to 40,000 litres per day. Should you have specific requirements for your project, our team can customise a Reverse Osmosis water treatment system to your site specific requirements. Ozzi Kleen can engineer and manufacture to your water treatment requirements. Options include: Ultra Violet (UV) disinfection, Ozone disinfection; and sand, multimedia and GAC filtration.

Key Benefits:

- Potable drinking water
- Complies to Australian Standards
- Transportable containerised or trailer mounted systems
- 24 hour back-up service
- Customised to suit specific requirements
- From 2,000 to 200,000 plus litres per day

Other Water Treatment Product Available:

- Gross pollutant collectors
- Oil separators
- Water tanks
- Grease traps
- Vehicle wash-down
- Stable wash-down; and more

Commercial product brochures



[Download Brochure - Skid Mounted Sewage Treatment Plant - SK10](#)



[Download Brochure - Skid Mounted Sewage Treatment Plant - SK20](#)



[Download Brochure - Containerised Sewage Treatment Systems](#)



WARRAWIDGEE ISLAND CONSERVATION RESORT DEVELOPMENT, COROWA NSW

DRAFT ANALYSIS, OPPORTUNITIES AND CONSTRAINTS

July 2017



fiona slade
LANDSCAPE ARCHITECT



VISION

Warrawidgee Island is a conservation resort on the Murray River providing unique experiences to get away from it all and discover nature.

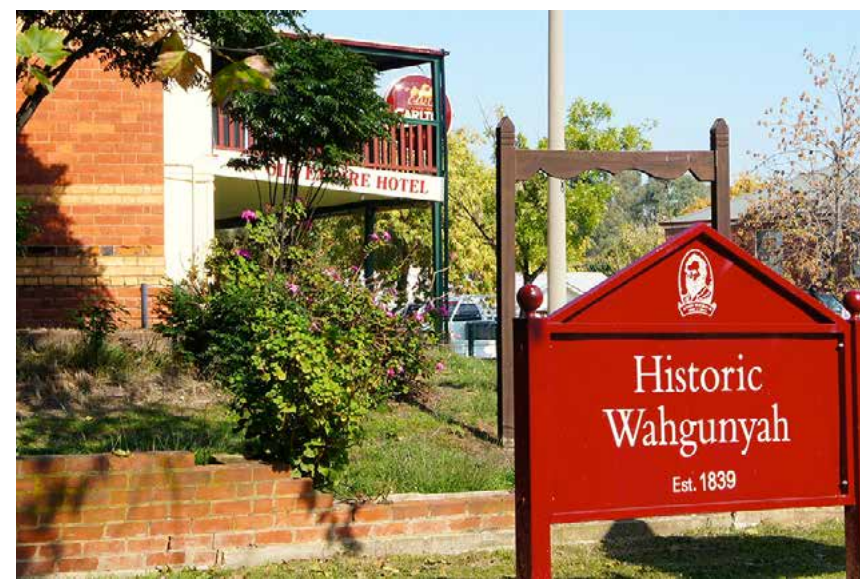
The property is a working cattle farm and demonstrates tourism, conservation and agriculture working hand in hand.

The resort integrates seamlessly with the environment. Built form is sensitively sited and designed using local, natural materials and best practice ESD principles. The landscape is being rehabilitated through sustainable farming practices and land management. Habitat for threatened species including Stone Bush Curlew, Barking Owl and Squirrel Glider is being protected and restored.

The Warrawidgee Island experience is about slowing down and taking the time to appreciate our natural world - and helping conserve it, for future generations, at the same time.

CONTENTS

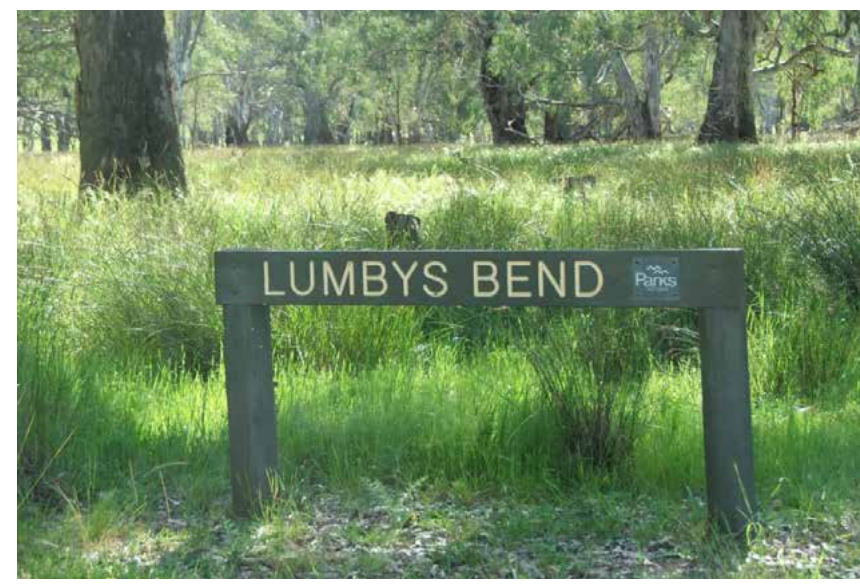
- Plan 1 DRAFT Context Analysis
- Plan 2 DRAFT Site Analysis and Appreciation
- Plan 3 DRAFT Opportunities and Constraints - Activity Zone
- Plan 4 DRAFT Opportunities and Constraints - Conservation Zone
- Plan 5 DRAFT Preliminary Design Response



Historic villages



Local wineries



Bush camping at Lumby's Bend



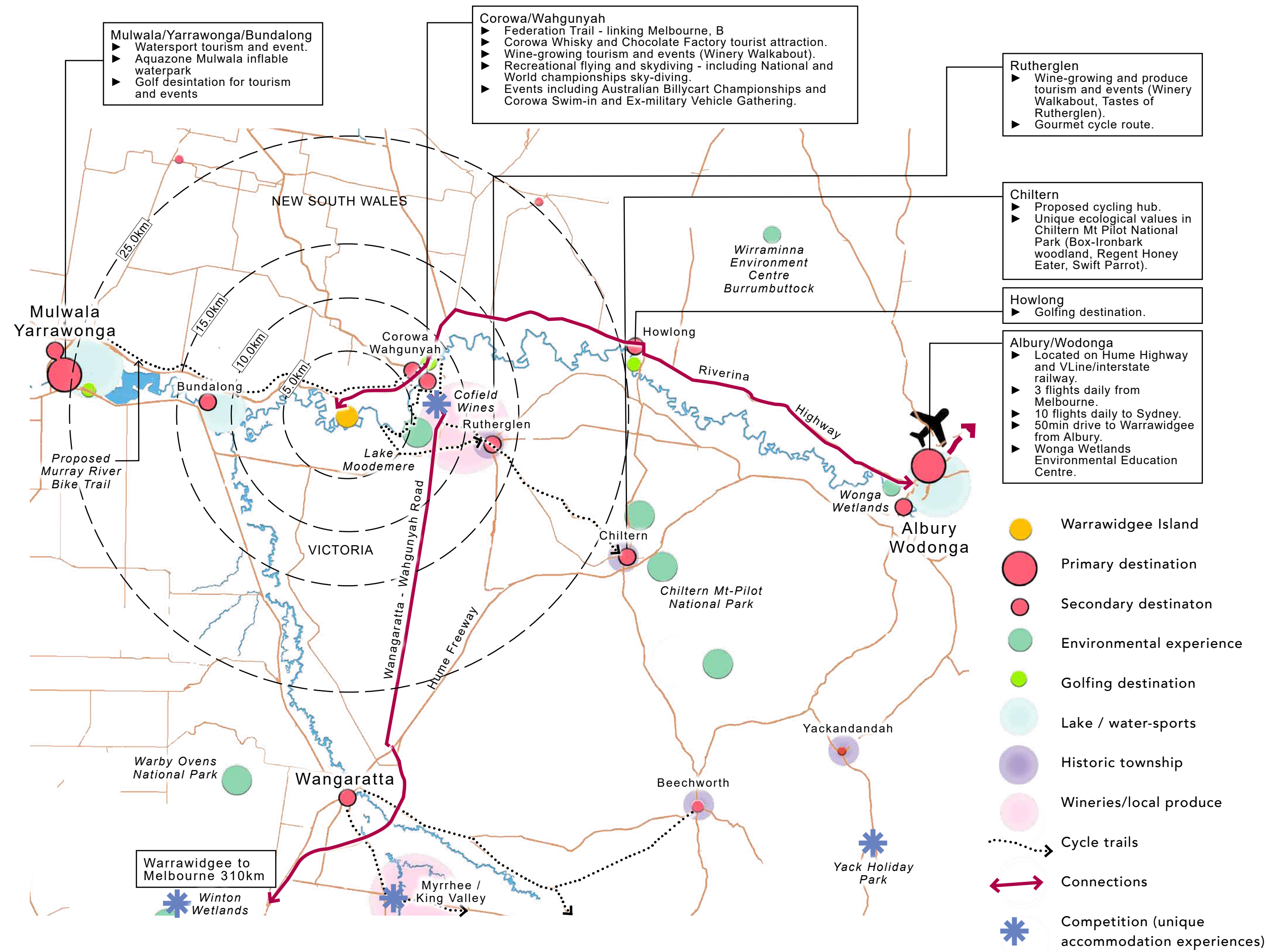
Corowa Whisky and Chocolate Factory



Bush camping at Collendina

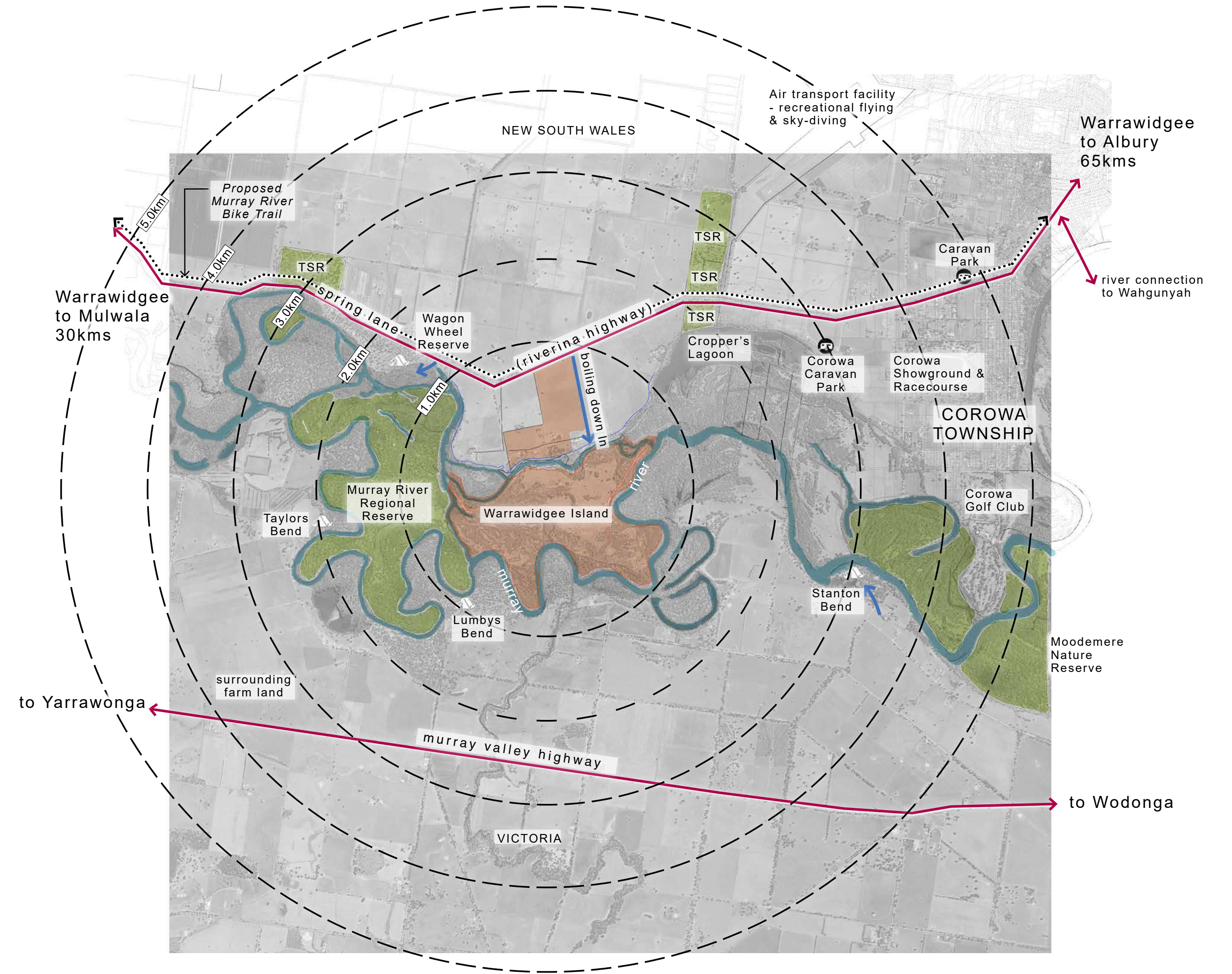


Natural values at Lake Moodemere



REGIONAL CONTEXT

not to scale



LOCAL CONTEXT

not to scale



Corowa Swim-in and Ex-military Vehicle Gathering



Corowa Swim-in and Ex-military Vehicle Gathering



Australian Billycart Championships



Rowing and waterskiing on Lake Moodemere



Sky-diving

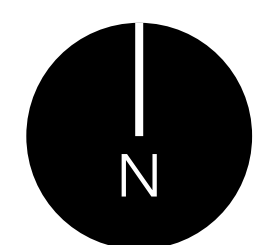


Rutherglen Winery Walkabout

1. WARRAWIDGEE ISLAND CONSERVATION RESORT DEVELOPMENT, COROWA NSW DRAFT CONTEXT ANALYSIS

Date: July 2017
For: DISCUSSION

Dwg no.: 17003 LA 01
Rev: A



fiona slade
LANDSCAPE ARCHITECT

KEY

- Proposed vegetation
- Existing vegetation
- Interpretive signage
- Possible entry / arrival point



OPPORTUNITIES AND CONSTRAINTS

1 The Entry Point

Opportunities

- ▶ Create a subtle announcement and arrival experience into the resort which compliments and enhances the unique landscape setting.
- ▶ Revegetate boundaries to delineate site and create habitat links.
- ▶ Utilise existing entry or locate centrally along Spring Drive.

Constraints

- ▶ Relocation of entry will require approval from Vicroads.
- ▶ High cost to relocate entry.

2 The Entry Sequence

Opportunities

- ▶ Create an arrival experience of travelling through restored open woodland vegetation / grazing land.
- ▶ Revegetate boundaries and fencelines to delineate site and create habitat links and plant scattered paddock trees for gliders.
- ▶ Widen existing driveway to allow more vegetation on the western side or relocate driveway centrally to paddock.

3 The Arrival Point

Opportunities

- ▶ Provide a resort check-in point, with possible adjoining managers residence.
- ▶ Consider visitor / overflow car park.
- ▶ Managers residence is not centrally located.

The Box Woodland Stand

Opportunities

- ▶ Consider development of villa style accommodation.
- ▶ Investigate inclusion of luxury (premium) villa accommodation and / or luxury off-grid eco-pods on more private, secluded locations.

Constraints

- ▶ Privacy and overlooking issues with adjoining residence.
- ▶ Arboricultural assessment will be required for any trees in proximity to any proposed buildings.
- ▶ Bushfire (BAL) ratings may limit building siting and design.
- ▶ Proximity to cultural heritage site may limit development.

5 The Cultural Heritage Site

Opportunities

- ▶ Provide interpretive signage.

Constraints

- ▶ Further investigation may be required to ascertain to adjacent development may be limited.

6 The Wetland

Opportunities

- ▶ Develop a walking trail destination with interpretive signage, boardwalks and birdhide.

Constraints

- ▶ Privacy and overlooking issues with adjoining residence.

7 The Horse Yards

Opportunities

- ▶ Investigate retention or relocation of horse yards for tourist activity.
- ▶ Consider development of villa style accommodation if horses are not to form part of tourist experience or if yards are to be re-located.

Constraints

- ▶ Exposed part of the site with little established vegetation for shade or wind protection.

8 The Wool Shed and Yards

Opportunities

- ▶ Investigate retention of cattle yards for continued agricultural practice.
- ▶ Consider demolition or conversion of wool shed for group accommodation and facilities if wool is no longer a viable farm business stream.
- ▶ Consider development of group accommodation and / or recreation facilities where wool shed and yards are currently located.

Constraints

- ▶ May not viable to convert wool shed to habitable accommodation or other uses.
- ▶ Potential conflicts with resort and farm facilities and activities located immediately adjacent to each other.

9 The Bridge

Opportunities

- ▶ Create a key orientation node for trails, walks and hikes with directional and interpretive signage.
- ▶ Investigate requirements for cattle yards should grazing continue on the island.

Constraints

- ▶ Potential conflicts with pedestrian, vehicles and stock at a single choke point.

10 The paddock north of house

Opportunities

- ▶ Revegetate boundaries to delineate site, create habitat links and screen neighbour.
- ▶ Consider continued cattle grazing / fodder/pastures or horse riding tourism activities.
- ▶ Possible alternative location for cattle yards.

11 The Remnant Callitris Copse

Opportunities

- ▶ Provide for revegetation and recruitment for screening and wind break along site boundary.

12 The House and Garden

Opportunities

- ▶ Preserve existing built form retaining feature fireplace and timber floors.
- ▶ Retain established deciduous trees which provide good shade cover.
- ▶ Retain and convert / refurbish as possible visitor / environmental education centre and cafe / provide Farm manager's residence or group accommodation may also be possible uses.
- ▶ Consider development of recreation facilities within established garden landscape.
- ▶ Develop existing fruit trees into a working orchard and kitchen garden providing produce for the resort.

Constraints

- ▶ Little real heritage value, possible high costs to refurbish.

13 The Farm Buildings

Opportunities

- ▶ The area is less visible being at the far end of the site - potentially appropriate for caravan and tent camping.
- ▶ Investigate viability of retaining or refurbishing farm buildings for alternative uses such as storage.

Constraints

- ▶ Potential conflicts with resort and farm facilities and activities located immediately adjacent to each other.
- ▶ Limited shade.

14 The Corner

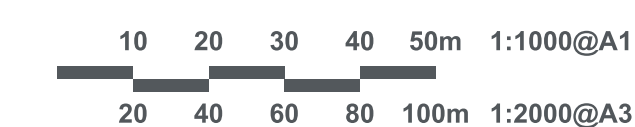
Opportunities

- ▶ Intimate space with short views into revegetation and creek which would suit a unique camping experience such as permanent safari style tents or camping buildings.

Constraints

- ▶ Potentially poorly drained area, may require boardwalks / platforms for all weather access.

3. WARRAWIDGEE ISLAND CONSERVATION RESORT DEVELOPMENT, COROWA NSW DRAFT OPPORTUNITIES AND CONSTRAINTS PLAN ACTIVITY ZONE



Date: July 2017
For: DISCUSSION
Dwg no.: 17003 LA 03
Rev: A



Degraded landscape

Conservation landscape

Existing trail

Proposed trail

'Big' tree

Canoe launch area

Horse trail

Cycle trail

Swimming /fishing beach

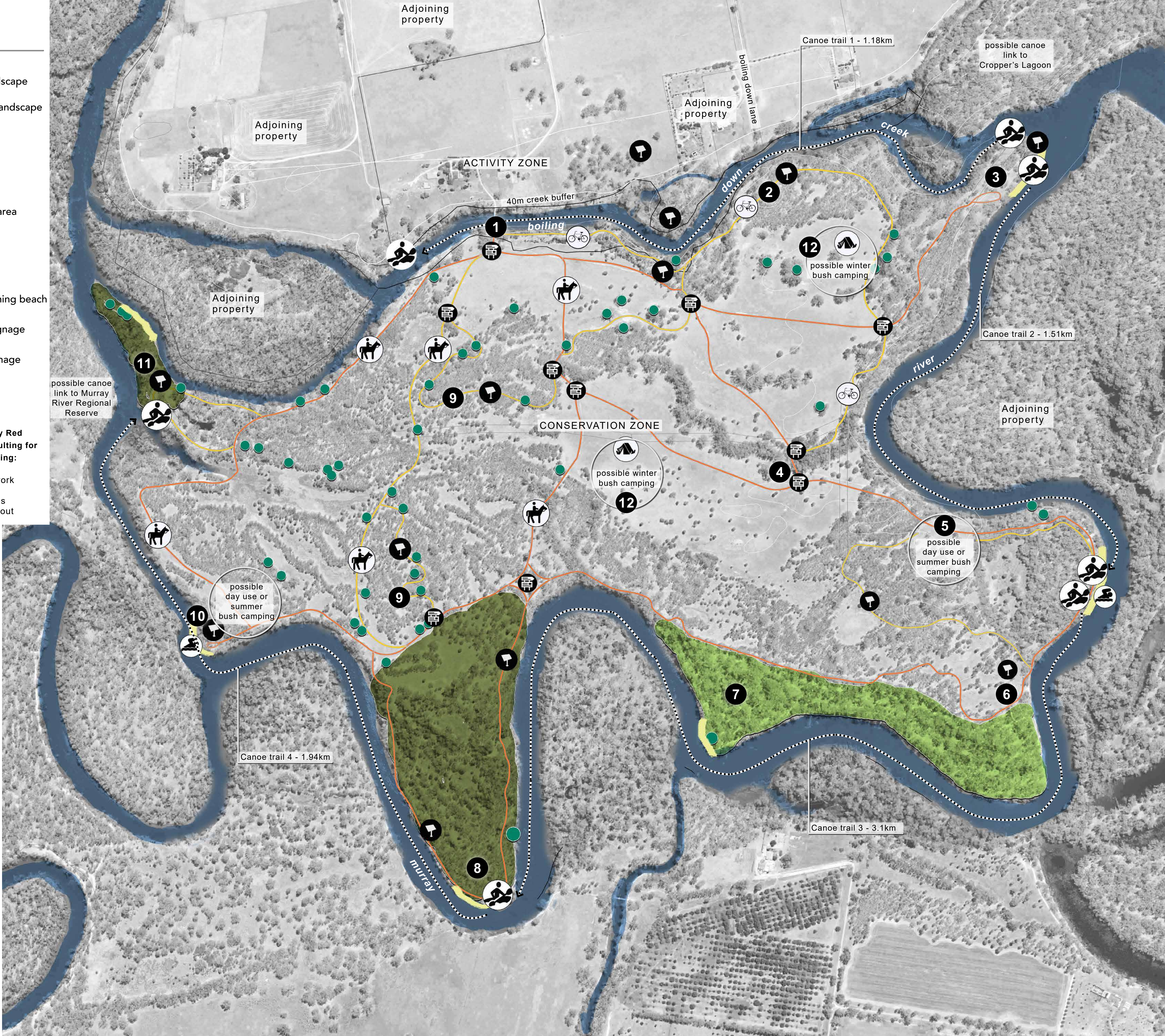
Interpretive signage

Directional signage

Canoe trail

Refer to Plans prepared by Red Gum Environmental Consulting for further information regarding:

- ▶ Canoe Pathways Network
- ▶ Horse Trail Network
- ▶ Walking and Bike Paths
- ▶ Proposed Fencing Layout



- 1

The Bridge

Opportunities

 - ▶ Create a key orientation node for trails, walks and hikes with directional and interpretive signage.
 - ▶ Investigate requirements for cattle yards should grazing continue on the island.
- 2

The Levee Bank

Opportunities

 - ▶ Create a bike path along the existing levee bank.
 - ▶ Provide a rest stop with interpretive signage at the cultural heritage site.
 - ▶ End the path at the confluence of the river and the creek.
- 3

River / Creek Eastern Confluence

Opportunities

 - ▶ Provide canoe launching facilities for canoe paths.
 - ▶ Provide interpretive signage about erosion control and ecology of the creek.
- 4

The Crossing

Opportunities

 - ▶ Construct new creek crossing.
 - ▶ Provide directional signage at junction points.
- 5

Day Camp 1

Opportunities

 - ▶ Develop a day use site with controlled vehicular access.
 - ▶ Provide walking trail connection to beach and canoe launch area and back through wetlands.
 - ▶ Consider birdhide if appropriate.
- 6

'Hearth' cultural heritage site

Opportunities

 - ▶ Provide appropriate interpretive signage.
 - ▶ Fence off area as required.
- 7

Degraded landscape

Opportunities

 - ▶ Area of high weed load which may be grazed periodically harder than others.
- 8

High conservation value landscape

Opportunities

 - ▶ Consider guided walk or '4WD safari' through the area.
 - ▶ Focus on interpretation and habitat protection for squirrel glider and Barking Owl.
 - ▶ Area to be excluded from grazing.
 - ▶ Consider creating a fox exclusion zone to establish a Bush Stone Curlew community.
 - ▶ Canoe launch area at the beach.
- 9

Nocturnal Big Tree Walks

Opportunities

 - ▶ Potential 'nocturnal' walking trail past large hollow bearing trees.
 - ▶ Include interpretive signage about arboreal mammals and Barking Owl.
- 10

Day Camp 2

Opportunities

 - ▶ Develop a day use site with controlled vehicular access.
 - ▶ Provide walking trail connection to beach.
 - ▶ Include interpretive signage about cod breeding program.
- 11

High conservation value landscape

Opportunities

 - ▶ Area to be excluded from grazing.
 - ▶ Canoe launch area.
 - ▶ Interpretive signage about ecological values and fauna it supports.
- 12

Winter bush camps

Opportunities

 - ▶ Locate at open areas with new growth tree cover and on higher ground which is less flood prone.
 - ▶ Investigate feasibility of flood secure self-contained toilets, rainwater tanks and wood fired BBQ.

FACILITIES

- Environment / visitor centre with interpretive information, group learning spaces and provides a base for tours and guided walks.
- Cafe / providore with a focus on connecting to local produce.
- Swimming pool sympathetically sited in the landscape; consider infinity edge, seamless fencing and generous, shaded pool 'lounging' area.
- Possible limited play experiences which complement the natural setting.



It's all about the landscape



Pool with infinity edge and shade

CARAVAN AND CAMPER SITES

- Consider powered ensuite sites, powered non-ensuite sites, unpowered sites, camp kitchen and amenities.
- Consistent and high quality built form throughout.
- Sensitively designed within the existing landscape with minimal hard paving and utilising vegetation between sites to create privacy and minimise noise / visual impact.



High quality built form



Gravel pads fit in a natural setting



High quality amenities



Unified design of amenity buildings

UNIQUE CAMPING EXPERIENCES

- Offer a number of unique camping experiences that respond to a market of 'wanting to get away from it all' - 'unyoked' concept.
- Unique experience style accommodation such as safari tents, off-grid pods or permanent camping huts, with the option for everything provided.
- Opportunity for seasonal bush camping sites, on the island in controlled locations and in controlled numbers.



Eco-pod example



Reference the rural vernacular architecture



Safari tent example

ECO-CREDENTIALS

Consider:

- Built form - passive solar design, low consumption electric and water fittings, glazed windows, walls and floors, louvered windows, sunshades, recycled materials, pile construction to allow for natural drainage.
- Power - solar panels, batteries and smart systems to all buildings.
- Water - bio sewerage system to recycle all water used for garden irrigation, collection of rainwater in tanks, rain gardens and bioswales for waste water treatment.
- Waste minimisation - use of recycling bins and minimal food wrapping and packaging.
- Environment - extensive indigenous revegetation across site, natural approach to landscape development using raw/unfinished materials such as gravel paths, galvanised steel, red gum, sourced on site where possible, landscape and habitat elements such as nest boxes, bird hides, interpretive signage and boardwalks.
- Suppliers - local and environmentally responsible suppliers where possible.



EXPERIENCES AND ACTIVITIES

- Trails including canoeing, walks, cycling and electric bicycle use beyond the site.
- Stories from the Wiradjuri people including guided walks and interpretive signage.
- Junior Rangers including bush survival, adventure hikes, orienteering, archery, fishing, geocaching, cray-fishing.
- Regional food and wine including produce and picnic hampers for purchase and tours.
- Conservation activities including tree planting, wildlife surveys, habitat assessments, feral animal monitoring.
- Horse-riding including basic riding skills and trail rides on the island with rescue horses.
- Working farm experiences including moving and feeding cattle and horse, yard work, etc.
- Nature experiences including nocturnal wildlife and star-gazing, big tree walk (watching hollows for arboreal mammals at dusk).



Paddock to plate



Star-gazing and Wiradjuri stories



Working farm experiences

PREMIUM VILLAS

- Consider 10+ luxury villas nestled in the box woodland stand, with possible high end off-grid pods.
- Bespoke architectural design using natural materials in keeping with the environment.
- High star accommodation rating.
- Double storey buildings for optimal views.
- Private outdoor spas / plunge pools.
- Fully stocked kitchen with local produce and wine.



Double storey for optimal views



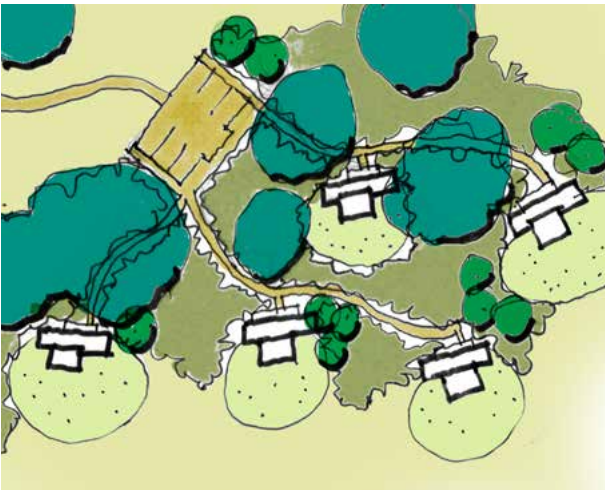
Sleek contemporary forms



Private pool

FAMILY VILLAS AND LODGE ACCOMMODATION

- Bespoke architectural design using natural materials in keeping with the environment.
- A mix of two bedroom and three bedroom family villas.
- Lodge to accommodate groups of 30 (e.g. 5 rooms with 3 bunks each).
- Consider group accommodation for corporate market and need for motel style rooms.



Typical villa precinct layout showing siting for privacy and views



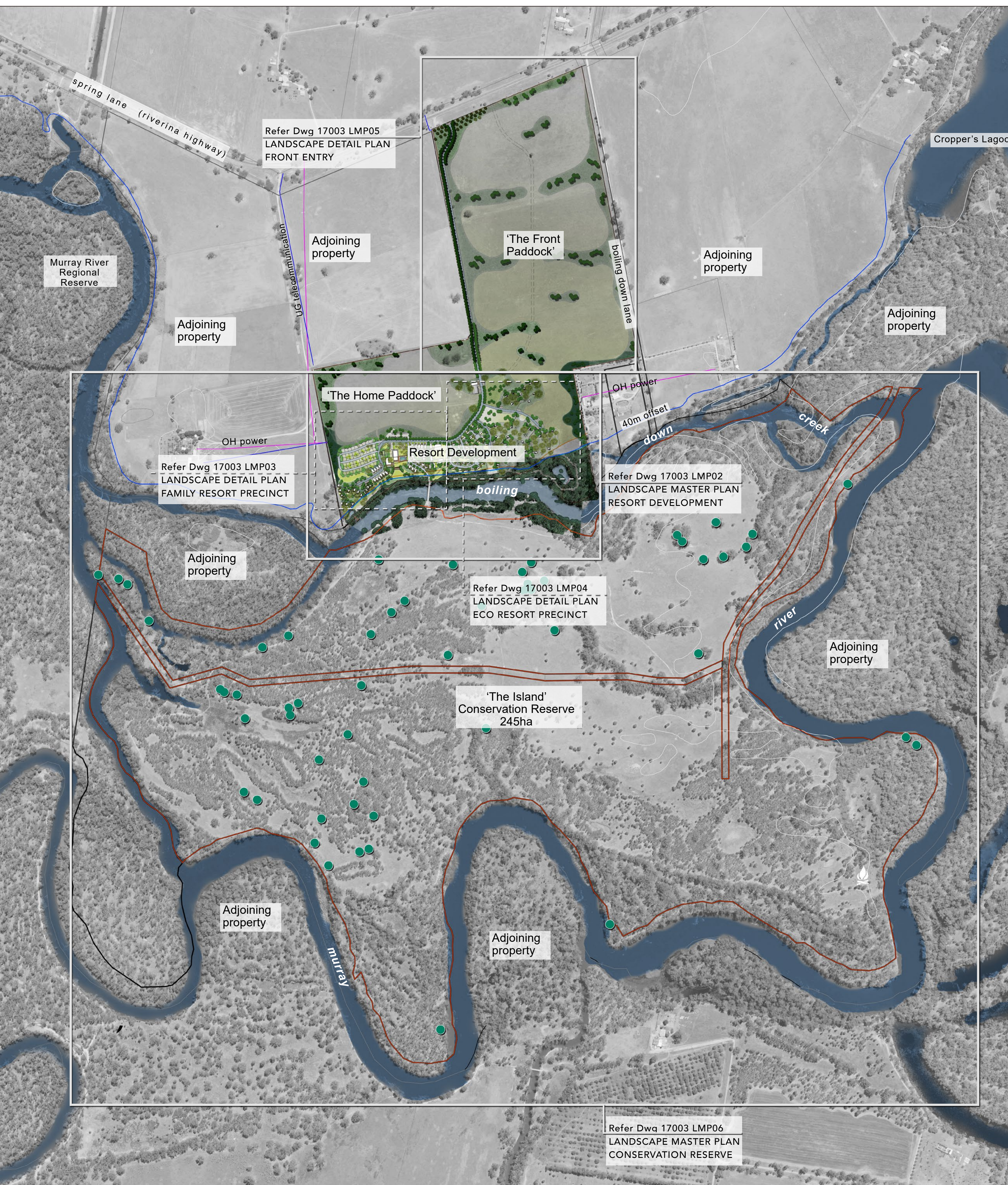
Lodge accommodation example



Sensitive siting



Upcycled shipping container



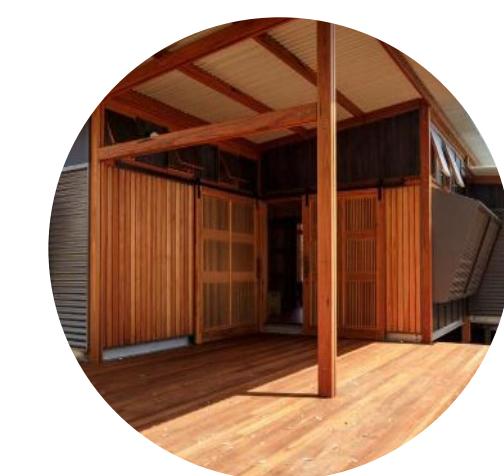
Limited palette of high quality materials which reference the natural landscape setting



Unified design of all buildings, including amenities, service buildings and accommodation



Contemporary and cohesive use of materials and design across the site



A modern take on traditional rural forms

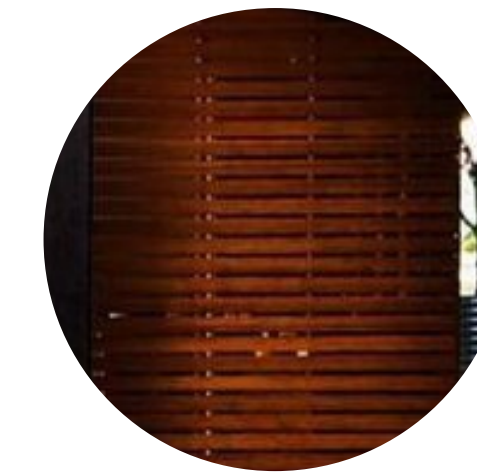


Custom designed manufactured accommodation

BUILT FORM



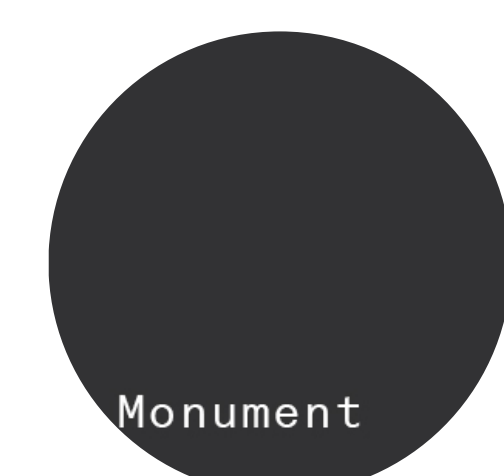
Cement sheet cladding



Recycled fire-rated recycled timber (or similar) cladding



Powder-coated steel / colorbond



Monument

Dark grey coloured steel (e.g. Colorbond 'Monument')



Raw timber fencing

MATERIALS AND COLOURS

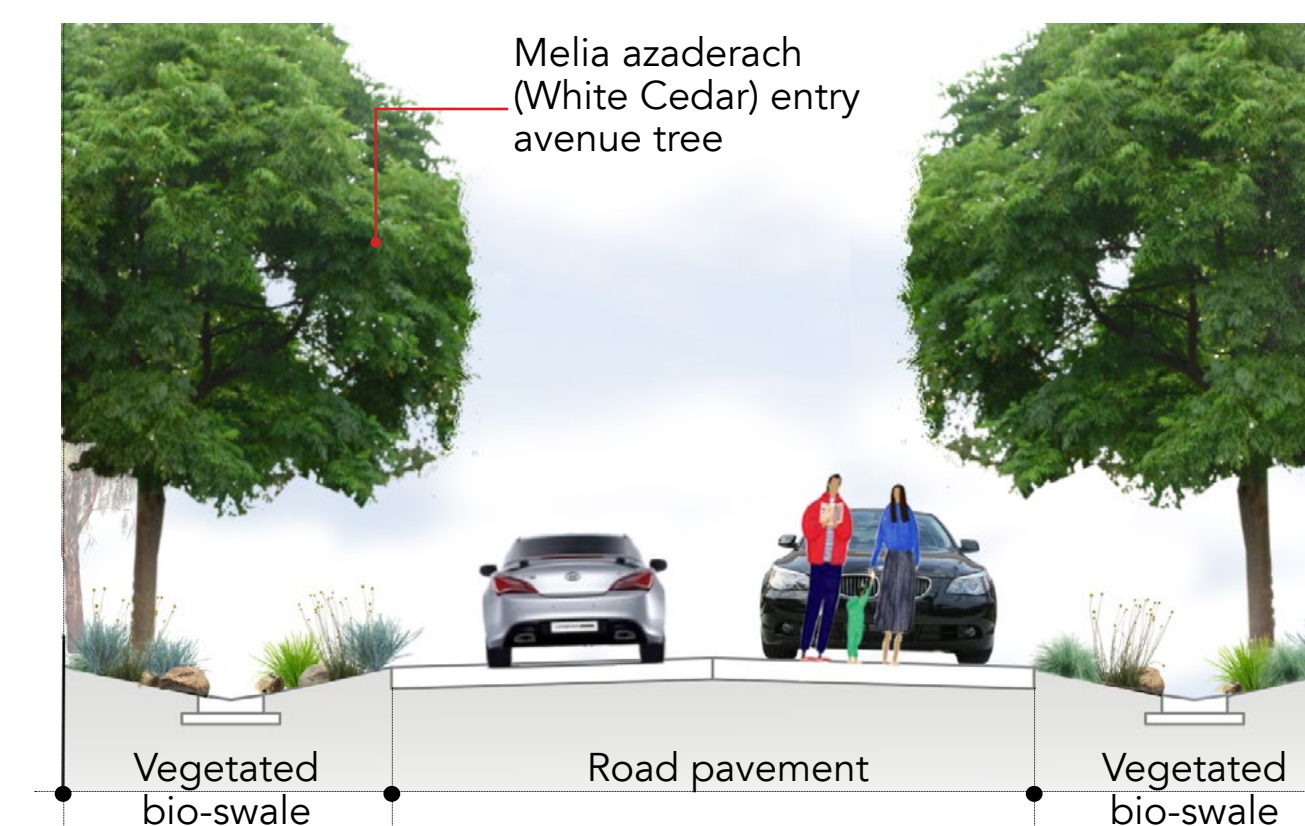
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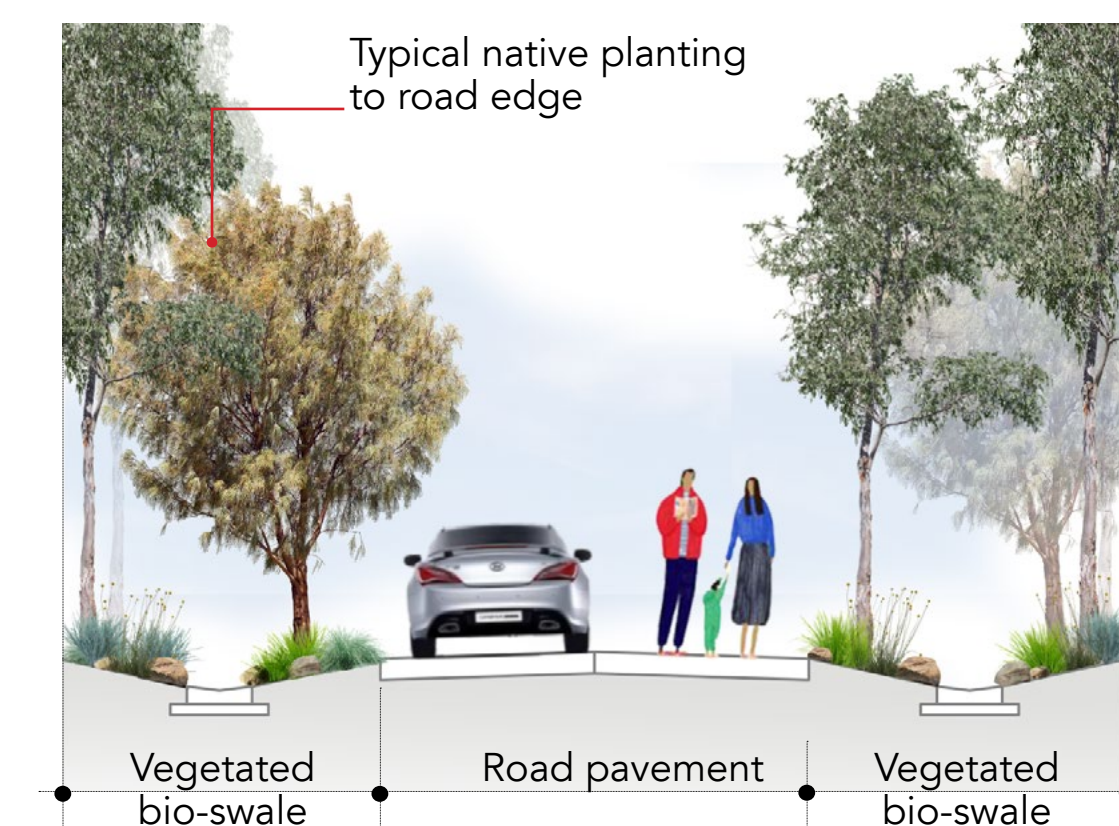
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8m wide road reserve

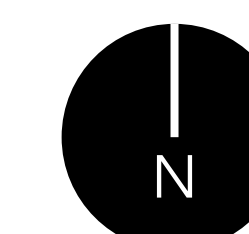


6m wide road reserve

TYPICAL ROAD CROSS SECTIONS

WARRAWIDGEE ISLAND CONSERVATION RESORT DEVELOPMENT, COROWA NSW LANDSCAPE CONTEXT AND APPROACH

75 150 225 300 375m 1:7500@A1
150 300 450 600 750m 1:15000@A3



Date: February 2018
For: DISCUSSION

Dwg no.: 17003 LMP 01
Rev: -

CONCEPT DESIGN ONLY. NOT TO BE USED FOR CONSTRUCTION PURPOSES.

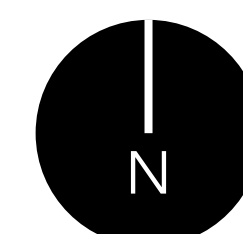


- KEY**
- Existing tree to be retained
 - Resort entry trees
e.g. *Melia azaderach*
 - Larger native trees
e.g. *Eucalyptus leucoxylon*
 - Smaller native trees
e.g. *Allocasuarina luehmannii*
 - Larger exotic trees
e.g. *Quercus rubra*
 - Smaller exotic trees
e.g. *Parrotia persica*
 - Shrub and tuft planting
e.g. *Acacia* & *Eremophila* sp
 - Tuft planting
e.g. *Dianella* & *Poa* sp.
 - Grey Box Woodland revegetation
 - River Red Gum Forest revegetation
 - Grassing
 - Native grassing
 - Timber decking
 - Carparks
 - Path
- Screen planting to boundary
 - Possible future agricultural / environmental use
 - Wetland path & jetty
 - Playspace
 - Pool, pool terrace & adjacent grass area
 - Stage / viewing deck & grass amphitheatre
 - Screen planting between Cottages & Lodge
 - Entry avenue tree planting
 - Screen planting between Lodge & Eco-cottages
 - Pool, day spa and gym
 - Screen planting between Eco-cottages & road
 - Revegetation with Grey Box Woodland species to augment existing

WARRAWIDGEE ISLAND CONSERVATION RESORT DEVELOPMENT, COROWA NSW

LANDSCAPE MASTER PLAN RESORT DEVELOPMENT

10 20 30 40 50m 1:1000@A1
20 40 60 80 100m 1:2000@A3



Date: February 2018
For: DISCUSSION
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- ① Sensitive design with minimal hard paving and planting between sites to create privacy and minimise noise / visual impact.



- ② Natural world themed adventure playspace



- ③ Kitchen garden to supply cafe and provide with organic and site grown produce



- ④ Contemporary swimming pool with enclosed terrace space and shade structure



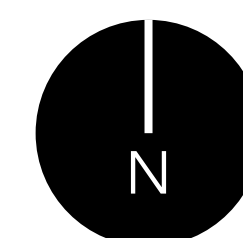
- ⑤ Boardwalk access to creek edge



WARRAWIDGEE ISLAND CONSERVATION RESORT DEVELOPMENT, COROWA NSW

LANDSCAPE DETAIL PLAN FAMILY RESORT PRECINCT

5 10 15 20 25m 1:500@A1
10 20 30 40 50m 1:1000@A3



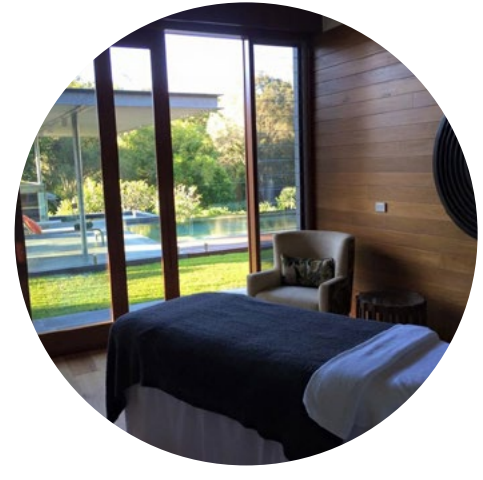
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- ① Opportunities for communal gathering around firepits at 'The Common'



- ② Day spa with views out to the surrounding landscape



- ③ Contemporary swimming pool and shade structure



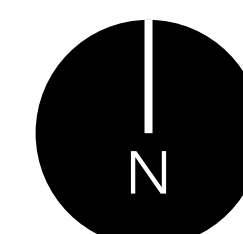
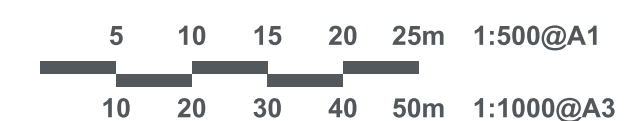
- ③ Contemporary swimming pool with infinity edge



- ④ Grey Box Woodland buffer planting to eastern boundary

WARRAWIDGEE ISLAND CONSERVATION RESORT DEVELOPMENT, COROWA NSW

LANDSCAPE DETAIL PLAN ECO-RESORT PRECINCT



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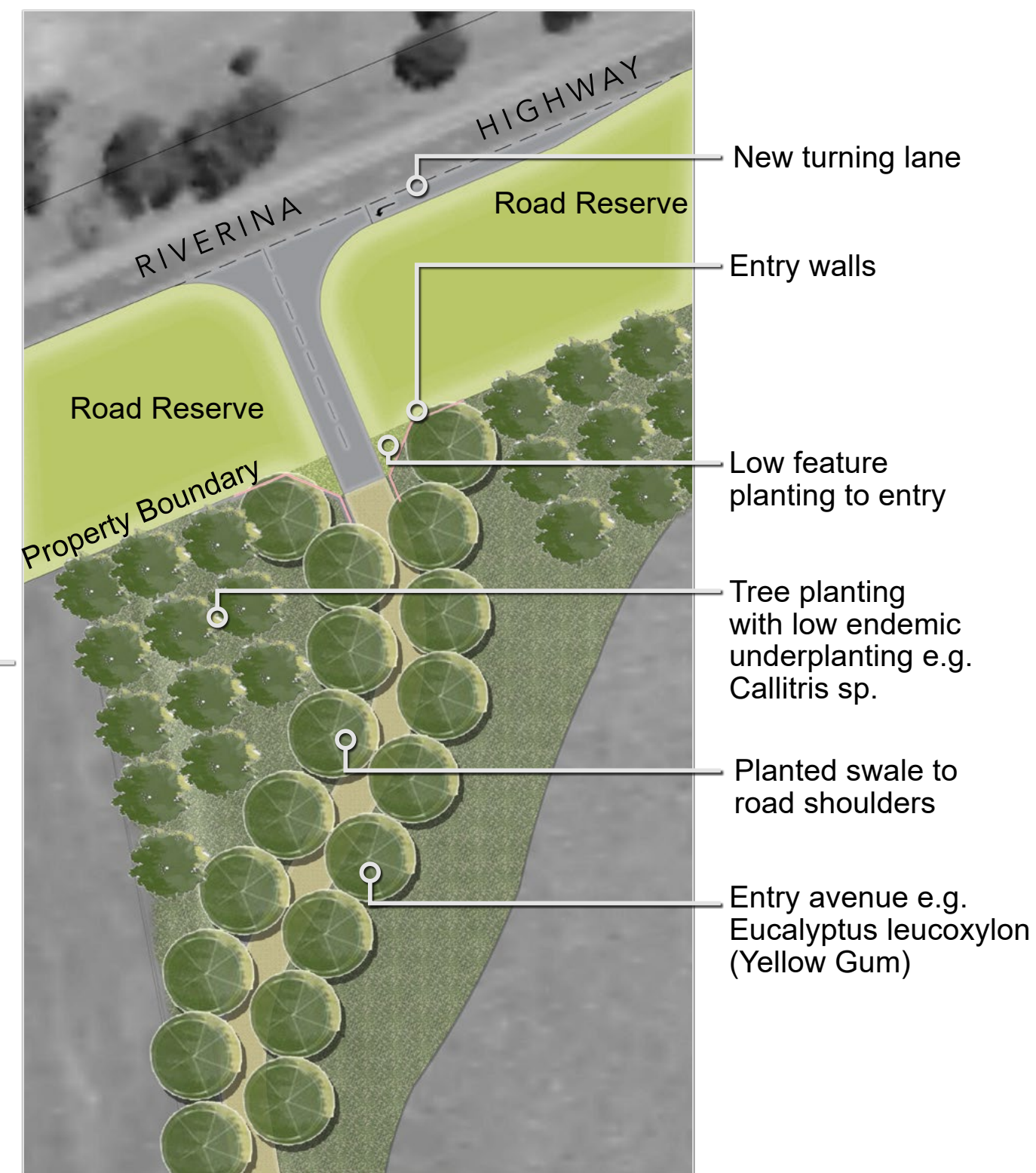


fiona slade
LANDSCAPE ARCHITECT

© Fiona Slade Landscape Architect 2018



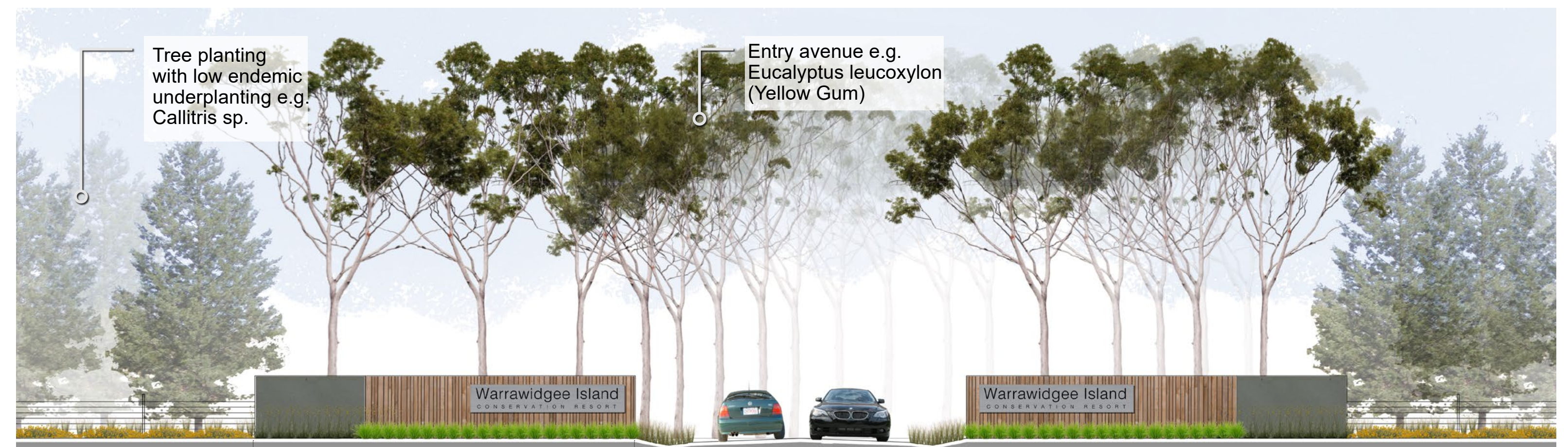
CONTEXT PLAN
NOT TO SCALE



DETAIL PLAN
NOT TO SCALE



PRECEDENT IMAGES



Riverina Highway
Rural fence and formal native planting

Entry Wall and Sign
Angled 1.7m high timber clad and rendered entry wall with signage

Entry Road
Crushed granite construction with vegetated bio-swale to shoulders

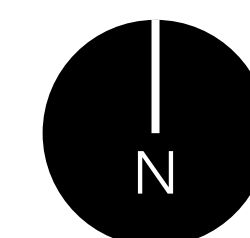
Entry Wall and Sign
Angled 1.7m high timber clad and rendered entry wall with signage

Riverina Highway
Rural fence and formal native planting

TYPICAL ELEVATION
1:200 @A3

WARRAWIDGEE ISLAND CONSERVATION RESORT DEVELOPMENT, COROWA NSW

DETAIL LANDSCAPE PLAN ENTRY EXPERIENCE



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NOTES

- 1

The Bridge

 - ▶ Create a key orientation node for trails, walks and hikes with directional and interpretive signage.
 - ▶ Investigate requirements for cattle yards should grazing continue on the island.
- 2

The Levee Bank

 - ▶ Create a bike path along the existing levee bank.
 - ▶ Provide a rest stop with interpretive signage at the cultural heritage site.
 - ▶ End the path at the confluence of the river and the creek.
- 3

River / Creek Eastern Confluence

 - ▶ Provide canoe launching facilities for canoe paths.
 - ▶ Provide interpretive signage about erosion control and ecology of the creek.
- 4

The Crossing

 - ▶ Construct new creek crossing.
 - ▶ Provide directional signage at junction points.
- 5

Day Camp 1

 - ▶ Develop a day use site with controlled vehicular access.
 - ▶ Provide walking trail connection to beach and canoe launch area and back through wetlands.
 - ▶ Consider birdhide if appropriate.
- 6

'Hearth' cultural heritage site

 - ▶ Provide appropriate interpretive signage.
 - ▶ Fence off area as required.
- 7

Degraded landscape

 - ▶ Area of high weed load which may be grazed periodically harder than others.
- 8

High conservation value landscape

 - ▶ Consider guided walk or '4WD safari' through the area.
 - ▶ Focus on interpretation and habitat protection for squirrel glider and Barking Owl.
 - ▶ Area to be excluded from grazing.
 - ▶ Consider creating a fox exclusion zone to establish a Bush Stone Curlew community.
 - ▶ Canoe launch area at the beach.
- 9

Nocturnal Big Tree Walks

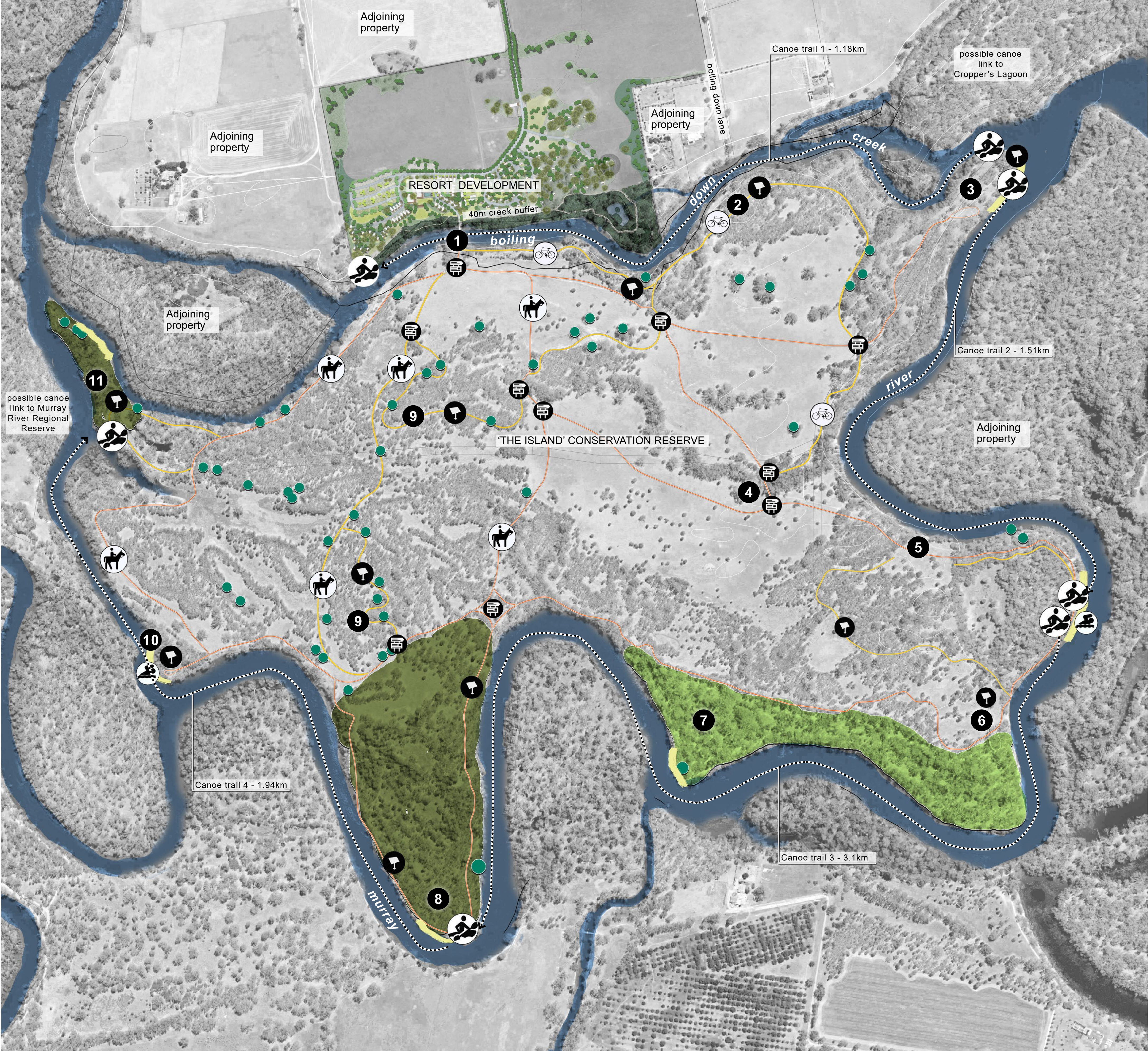
 - ▶ Potential 'nocturnal' walking trail past large hollow bearing trees.
 - ▶ Include interpretive signage about for arboreal mammals and Barking Owl.
- 10

Day Camp 2

 - ▶ Develop a day use site with controlled vehicular access.
 - ▶ Provide walking trail connection to beach.
 - ▶ Include interpretive signage about cod breeding program.
- 11

- ▶ High conservation value landscape
 - ▶ Area to be excluded from grazing.
 - ▶ Canoe launch area.
 - ▶ Interpretive signage about ecological values and fauna it supports.

Refer to report prepared by Red Gum Environmental Consulting for environmental management recommendations.



KEY

-
- Degraded landscape
-
- Conservation landscape
-
- Existing trail
-
- Proposed trail
-
- 'Big' tree
-
- Canoe launch area
-
- Horse trail
-
- Cycle trail
-
- Swimming /fishing beach
-
- Interpretive signage
-
- Directional signage
-
- Canoe trail



Furniture constructed from site materials

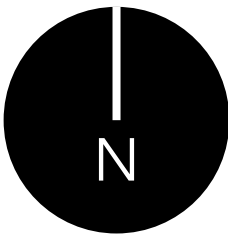


Habitat conservation and management



Way-finding and interpretive signage

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LANDSCAPE MASTER PLAN CONSERVATION RESERVE



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