3

Precinct revegetation strategy

Park in Moree town

3

The landscape strategy seeks to develop a unique and distinctive precinct identity, which reflects Moree's rural character while promoting and strengthening ecological resilience and conservation values.

The strategy identifies opportunities for revegetation of high value riparian areas, ecological corridors and recommends finer grain landscape treatments and planting strategies for freight corridors, gateway thresholds, and public spaces.

3.1 Aims
3.2 Biodiversity, vegetation and riparian corridors
3.3 Green infrastructure
3.4 Revegetation planting palettes
3.5 Green infrastructure planting list

3.1 Aims

The precinct revegetation strategy provides the landscape strategy for the Moree Special Activation Precinct and:

- **identifies the priorities** for conservation, restoration and enhancement of biodiversity, vegetation and riparian corridors in the landscape, and establishes principles for development and management which will help to complement and enhance the landscape character
- **provides the green infrastructure plan** to support ecological function and provide amenity through biophilia along road reserves and infrastructure corridors
- **details specific landscape requirements**, planting typologies and corresponding species' lists.

3.2 Biodiversity, vegetation and riparian corridors

3.2.1 Biodiversity and vegetation character

The majority of the Moree Special Activation Precinct is on land that has been disturbed for broad acre farming. Generally, remnant vegetation in higher condition is limited to Travelling Stock Reserves (TSRs). A TSR intersects the Moree Special Activation Precinct and has been listed as Category 2 by Local Land Services as it is currently used for:

- travelling stock
- emergency management or biosecurity purposes
- biodiversity conservation.

The TSR supports important areas of high biodiversity values which provides wildlife corridors and habitat for threatened biodiversity. Vegetation recorded varied in condition due to weed invasion, current grazing regimes and historic clearing leading to regrowth vegetation being observed.

Halls Creek and the TSR are of cultural significance and provide larger tracts of native vegetation and habitat connectivity, and priority areas for management. Other priority area would be identified through engagement with the Moree Aboriginal reference group as outlined in the Biodiversity Management Plan.

Connectivity across the Moree precinct is limited. The Newell Highway runs north-south through the Moree precinct dissecting travelling stock reserves, Halls Creek riparian corridor and native grasslands.

Native vegetation was recorded across approximately 15 per cent of the Moree precinct area (693.07 Ha), and included the following native Plant Community Types (PCTs):

PCT 52 Queensland Bluegrass +/- Mitchell Grass grassland	on cracking clay floodplains and alluvial plains mainly the northern-eastern Darling Riverine Plains Bioregion
PCT 27 Weeping Myall open woodland	of the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion
PCT 39 Coolabah - River Coobah - Lignum woodland wetland	of frequently flooded floodplains mainly in the Darling Riverine Plains Bioregion
PCT 55 Belah woodland	on alluvial plains and low rises in the central NSW wheatbelt to Pilliga and Liverpool Plains regions
PCT 56 Poplar Box - Belah woodland	on clay-loam soils on alluvial plains of north-central NSW.

PCTs recorded are shown in Chapter 8 - Map 8.2. The master plan includes protection of all areas of PCTs within the Moree precinct with the exception of impacts to 212.30 Ha (35 per cent of extent within precinct) of PCT 52 Queensland Bluegrass +/- Mitchell Grass grassland on cracking clay floodplains and alluvial plains mainly the northern-eastern Darling Riverine Plains Bioregion (Aurecon, 2021). Over 480 ha (approximately 70 per cent) of PCTs within the precinct will be retained.

3.2.2 Riparian and warrambul-watercourses character

Within the Moree Special Activation Precinct, the landscape is essentially a floodplain of the Gwydir Catchment. Rivers and streams recorded include Halls Creek (which is a tributary of Mehi River located approximately 500 metres to the north) and drainage features such as Clarks Creek and tributaries of Halls Creek. These are in poor condition as illustrated in figures 4 and 6 and there is an opportunity for improvement. Figure 5 and 7 riparian corridors vegetation offsets.

In addition to the high biodiversity values of remnant vegetation, these areas are of cultural importance. Important clusters of Aboriginal heritage sites were identified along Halls Creek and Aboriginal stakeholders confirmed that Halls Creek corridor and related sites hold high cultural value to the community both in the value of the heritage sites but also for the biodiversity values associated with the native food and medicinal plants present.

The Biodiversity Management Plan incorporates traditional land management techniques and a process of engagement with Gamilaroi people to provide opportunities for Caring for Country and to practice Culture on Country.

Development controls for riparian corridors aim to ensure impacts to waterways and native vegetation are avoided and ecological processes are protected to improve gali-water quality. Setbacks or buffers have been calculated based on Strahler order (also known as stream order) of waterways within the precinct and align to riparian buffers outlined in Appendix E of BAM 2020 and the *Water Management Act 2000*. Table 3.1 shows the riparian zone width for each waterway.

A riparian zone width is based on a buffer being applied to each side of the waterway from the outer edge of the bank as represented in Moree Special Activation Master Plan, Figure 11: High value biodiversity areas to be retained.

Remnant vegetation along warrambul-watercourses should be protected and maintained through weed control and vegetated through supplementary planting according to the recorded native plant community types, as shown in Chapter 8 - Map 8.2), adjacent native vegetation and/or landscape position. The appropriate plant community type for each waterways riparian zone is detailed in Table 3.1.

Table 3.1 Waterways recorded within the Moree SAP area and riparian corridors

Name	Strahler Order	Riparian zone width (each side of waterway from outer edge of bank)	Plant community type (mapped/likely)
Clarks Creek	1	10m	PCT 56: Poplar Box - Belah woodland on clay-loam soils on alluvial plains of north-central NSW
Drainage features of Halls Creek	1	10m	PCT 56: Poplar Box - Belah woodland on clay-loam soils on alluvial plains of north-central NSW
Halls Creek	2	20m	PCT 39: Coolabah - River Coobah - Lignum woodland wetland of frequently flooded floodplains mainly in the Darling Riverine Plains Bioregion

Figure 4: Clarks Creek existing character

Figure 5: Clarks Creek vegetated riparian zone

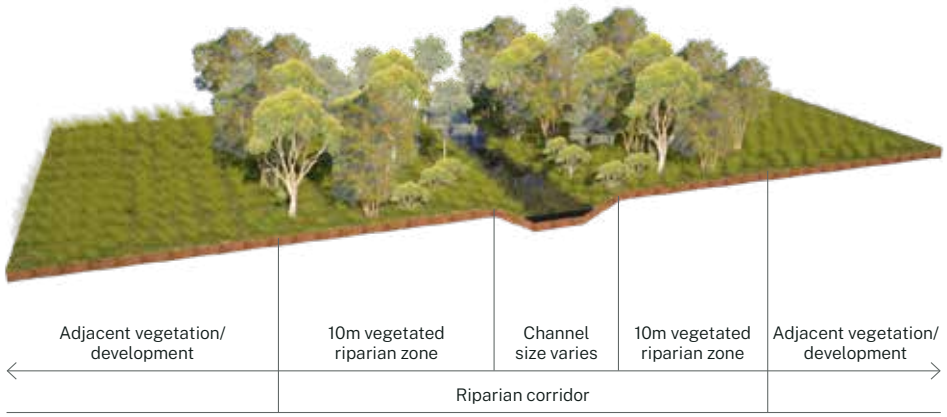
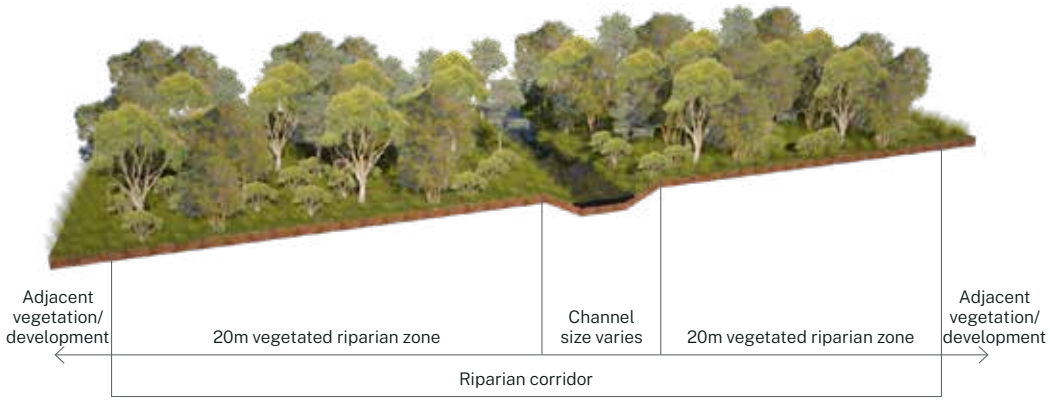


Figure 6: Halls Creek existing character

Figure 7: Halls Creek vegetated riparian zone



3.2.3 Landscape principles

The principles described below represent the overarching outcomes for biodiversity, vegetation and riparian corridors for the precinct.

1

Retain areas of high biodiversity value through avoidance

- improve condition of riparian vegetation corridors of Queensland Bluegrass and Mitchell Grass (PCT 52) along TSRs
- threatened ecological communities including Weeping Myall Open Woodland (PCT 27) and other native vegetation are to be avoided during design and retained where possible
- the majority of impact areas will be located within cleared land
- maintain and improve condition of remnant vegetation through weed control and subsequent monitoring to inform management plans.

2

Create habitat corridors

- define new areas of connectivity to be linked to existing remnant native vegetation supplementary planting of these areas using adjoining native plant community types as biodiversity target to reflect the plant community types of the precinct as well as species of cultural significance
- maintenance of plantings including weed control
- monitoring of condition/success to inform management
- native seed for rehabilitation and restoration should be sourced locally where possible.

3

Preserve and improve riparian corridors around warrambul-watercourses

- minimise disturbance to warrambul-watercourses by implementing riparian buffers in accordance with BAM 2020 and the *Water Management Act 2000*
- revegetate creek-lines, tributaries and Halls Creek (including tall dhulu-trees and middle-level strata) to contribute towards achieving the environmental outcomes for the precinct
- supplementary planting of these areas using recorded/adjoining native plant community types as biodiversity target to reflect the plant community types of the precinct as well as species of cultural significance
- maintain and improve condition through active management including weed control and traditional land management practices
- monitoring of condition/success to inform management
- protect ecological processes within riparian corridors to improve gali-water quality within the Moree precinct and other receiving environments.

3.3 Green infrastructure

The public realm landscape treatments need to be a considered design response, taking into account locational and environmental factors, particularly resilience against a changing climate, robustness and cost effectiveness for maintenance.

Green infrastructure aims to assist in wayfinding and navigation, facilitate ease of movement, and develop a unique sense of place and character for the Moree Special Activation Precinct.

3.3.1 Green infrastructure principles

The following green infrastructure principles aim to create a strong partnership between planting, stormwater infrastructure and the built form throughout the Moree precinct:

Gali-Water

Maximise landscape hydration through gali-water sensitive urban design (WSUD).

- capturing and storing gali-water is key to the success of any vegetation establishment, particularly in low rainfall areas such as Moree
- new development should utilise WSUD interventions including raingardens, swales detention/retention ponds and constructed wetlands to assist plant establishment and ensure stormwater is treated before re-entering natural waterways and groundwater systems.

Resilience

Select robust plant species adapted to local climatic and soil conditions.

- planting combinations should be endemic and diverse. This will enhance existing biodiversity and promote resilience in the landscape
- plants can be selected to provide yuul-food and shelter for local and migrating wildlife, contributing to ecological/fauna resilience.

Wayfinding

Use feature planting, materiality and scale to indicate one's location within the Moree precinct.

- distinct planting typologies will create unique areas within the precinct, allowing people to orientate themselves and distinguish between differing parts of the Moree precinct.
- endemic feature plant species can be used en-masse in keynote areas to create striking thresholds and entry points.

Shade

Strengthen shade amenity throughout the precinct.

- dhulu-tree planting will lower ambient temperatures and offer respite from high summer temperatures in Moree
- attractive and healthy dhulu-tree planting will attract investment and contribute to the overall wellbeing of precinct workers and visitors
- dhulu-tree planting, particularly on the western side of buildings, contributes to the creation of cooler microclimates in and around buildings.

Built form

Utilise new and existing built form to support green infrastructure.

- new development can capture rainwater from rooftops, and greywater from internal building usage, for the purposes of landscape irrigation
- built form elements should adopt biophilic design principles to help lower ambient temperatures, reduce energy consumption and costs, and contribute to employee wellbeing.

Character

Express the local character of Moree through the selection of plants, materials, signage and wayfinding devices.

- endemic plant species can be used to express the unique character of the Moree region
- Moree's agricultural history, artisanal gali-water supply and rich Gamilaroi culture should be expressed through signage, wayfinding and material choices.

Maintenance

Design green infrastructure with the aim of reducing maintenance requirements.

- select appropriate plant species whose size, form and growth supports the intended scale and function of the planting area
- adopt an informal, naturalistic planting style to align with a maintenance regime that does not require constant pruning and mowing for it to appear attractive
- carefully design and arrange elements to maximise efficiencies when maintaining green infrastructure.

Moree town centre

Aerial overlooking the town of Moree, courtesy of Destination NSW

3.3.2 Landscape treatments

The following areas have been identified where landscape treatments will positively contribute to the overall aesthetic and ecological function of the wider Moree Special Activation Precinct.

Road treatments

Planting treatments that distinguishes the overarching road hierarchy, promotes wayfinding and navigation, softens the visual impact of the surrounding developments, facilitates stormwater management and strengthens overall biodiversity.

Identified road types:

- distributor road
- collector road
- local road
- rural road.

Public realm treatments

Spaces within the landscape which are distinct, memorable and provide amenity to workers and visitors of the site, including:

- formal entry thresholds and street frontages
- parking areas
- other small open space areas for visitors and staff within developments.

Gateway treatments

Landscape treatments to distinguish and identify portals into the precinct.

Identified emerging gateways:

- Northern and Southern gateways

Additional treatments

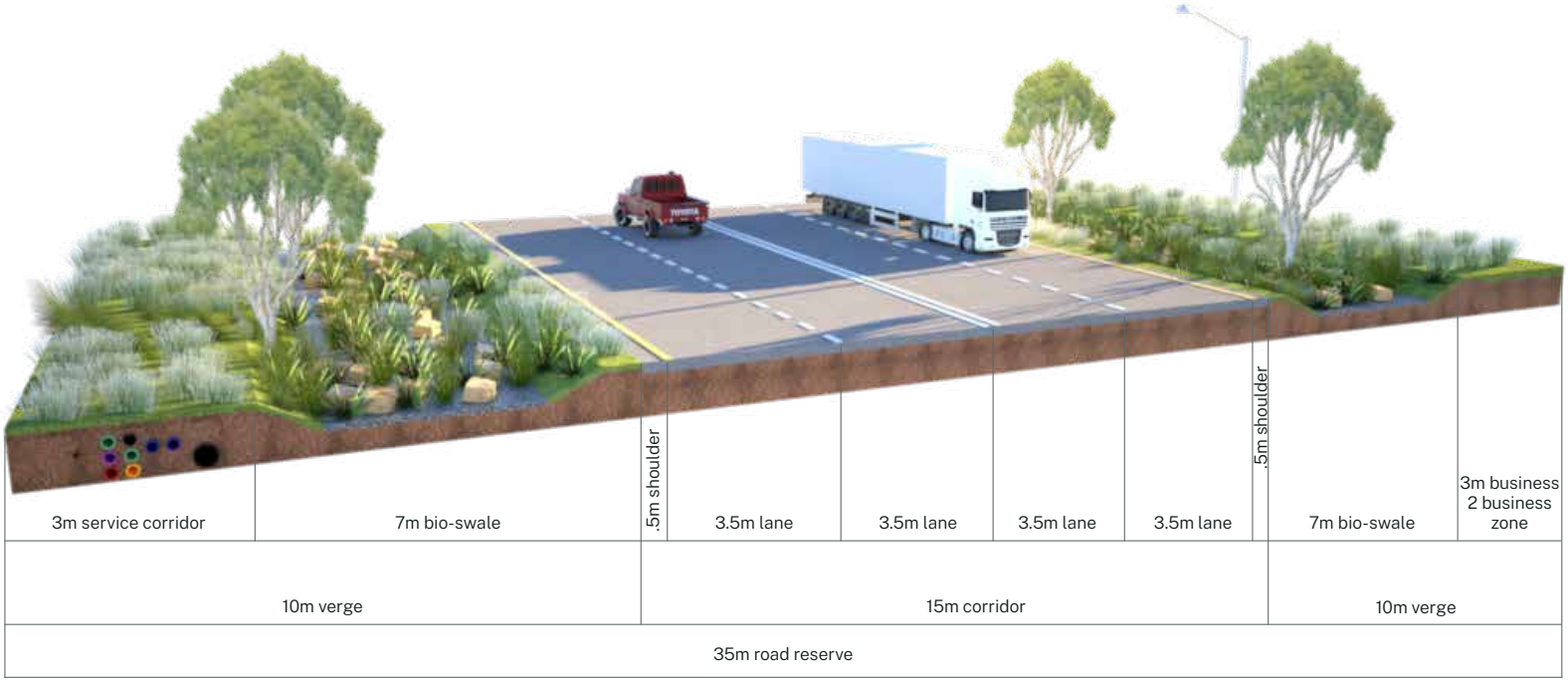
Any additional landscape treatments that provide functionality and visual amenity to the SAP.

- bioswales
- screen planting.

3.3.3 Road treatments

Distributor road (80km/h – 4 lanes)

The most prominent freight corridor within the Moree Special Activation Precinct road hierarchy, the distributor road typology consists of a structured mix of vegetation underpinned by unique seasonal variation in colour.



01 *Eucalyptus populnea*
02 *Corymbia tessellaris*
03 *Capparis mitchellii*, courtesy of Adam Henderson/DPE
04 *Dichanthium sericeum*

Key planting palette

Trees	Acacia *pendula* Weeping Myall *Corymbia tessellaris* Carbeen *Eucalyptus populnea* subsp. *bimbil* Poplar Box *Jacaranda mimosifolia* Jacaranda
Shrubs	*Capparis mitchellii* Wild Orange *Citrus glauca* Desert Lime *Eremophila maculata* Spotted Fuchsia Bush *Geijera parviflora* Wilga
Groundcovers and grasses	*Astrebla elymoides, A. squarrosa or A. pectinate* Mitchell Grass *Austrostipa verticillata* Slender Bamboo Grass *Austrodanthonia setacea* Wallaby Grass *Dichanthium sericeum* Queensland Bluegrass

For additional planting species, please refer table 3.4 Green infrastructure planting list.

Collector road (50km/h - 2 lanes)

The collector roads allow slower vehicle movement in both north-south and east-west directions across the precinct. Planting along these routes are to consist of a range of native species with an emphasis on habitat creation for endemic fauna.

Key planting palette

Trees	*Alectryon oleifolius* Western Rosewood *Eucalyptus camaldulensis subsp. camaldulensis* River Red Gum *Flindersia maculosa* Leopardwood *Eucalyptus sideroxylon* 'Rosea' Mugga Ironbark
Shrubs	*Atriplex stipitata* Mallee Saltbush *Eremophila deserti* Turkeybush *Eremophila mitchellii* Budda *Maireana decalvans* Black Cotton Bush
Grasses	*Austrostipa scabra subsp. scabra* Speargrass *Leptochloa digitata* Umbrella Canegrass *Paspalidium jubiflorum* Warrego Grass *Monachather paradoxus* Bandicoot Grass

For additional planting species, please refer table 3.4 Green infrastructure planting list.

01 *Flindersia maculosa*, courtesy of Julieanne Doyle/DPE
02 *Eremophila bignoniiflora*, courtesy of Courtney Davies/DPE

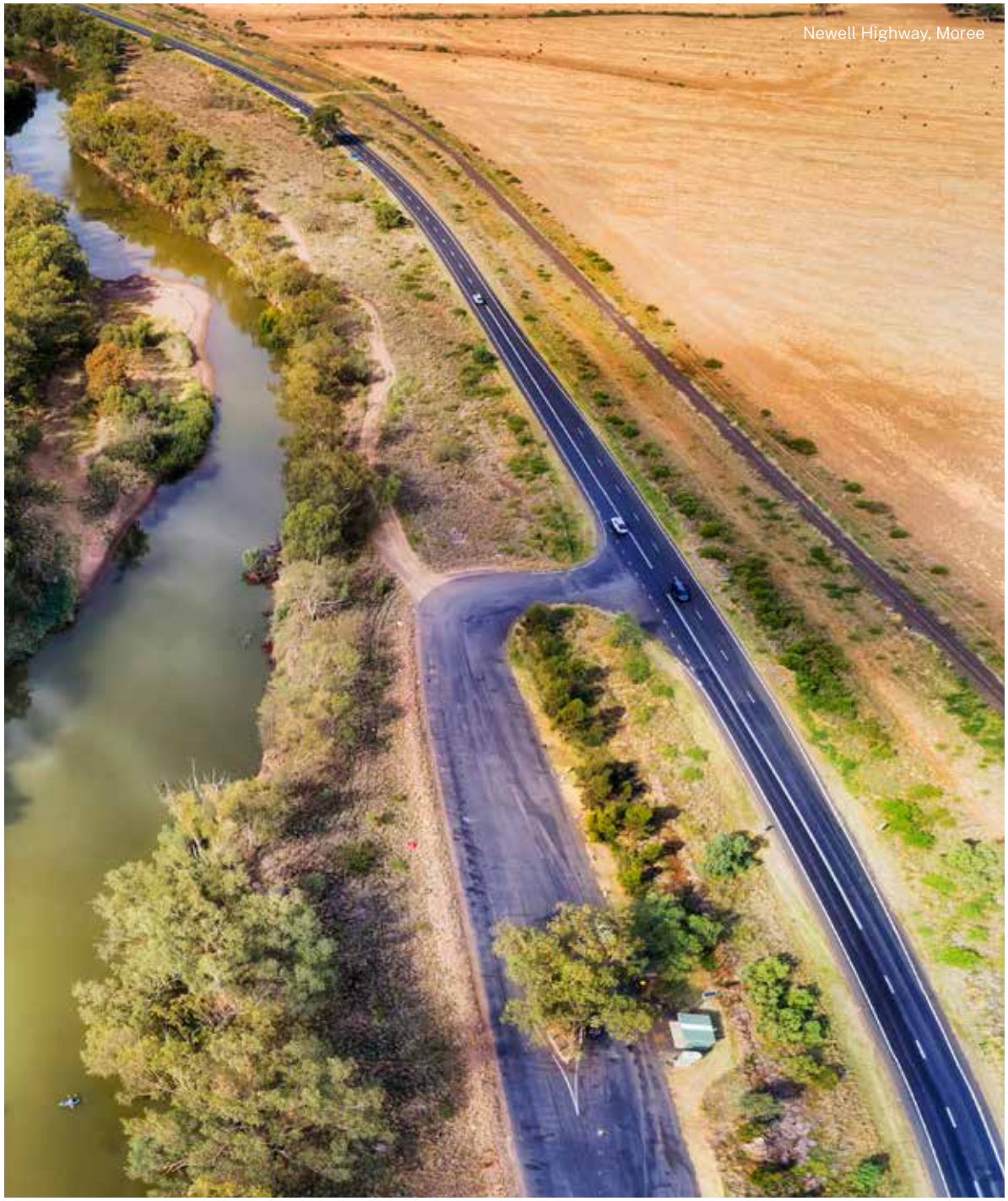
Local road (50km/h – 2 lanes)

The local road typology is designed for existing local routes connecting to the Newell Highway and within the loop of Industrial Drive. Aesthetics, edibility, seasonal variation, and proximity to existing patches of Weeping Myall Open Woodland (PCT 27) have informed species selection for this typology.

Key planting palette

Trees	*Atalaya hemiglauca* Whitewood *Carya illinoinensis* Pecan *Callistemon viminalis* Weeping Bottlebrush *Eucalyptus microcarpa* Western Grey Box

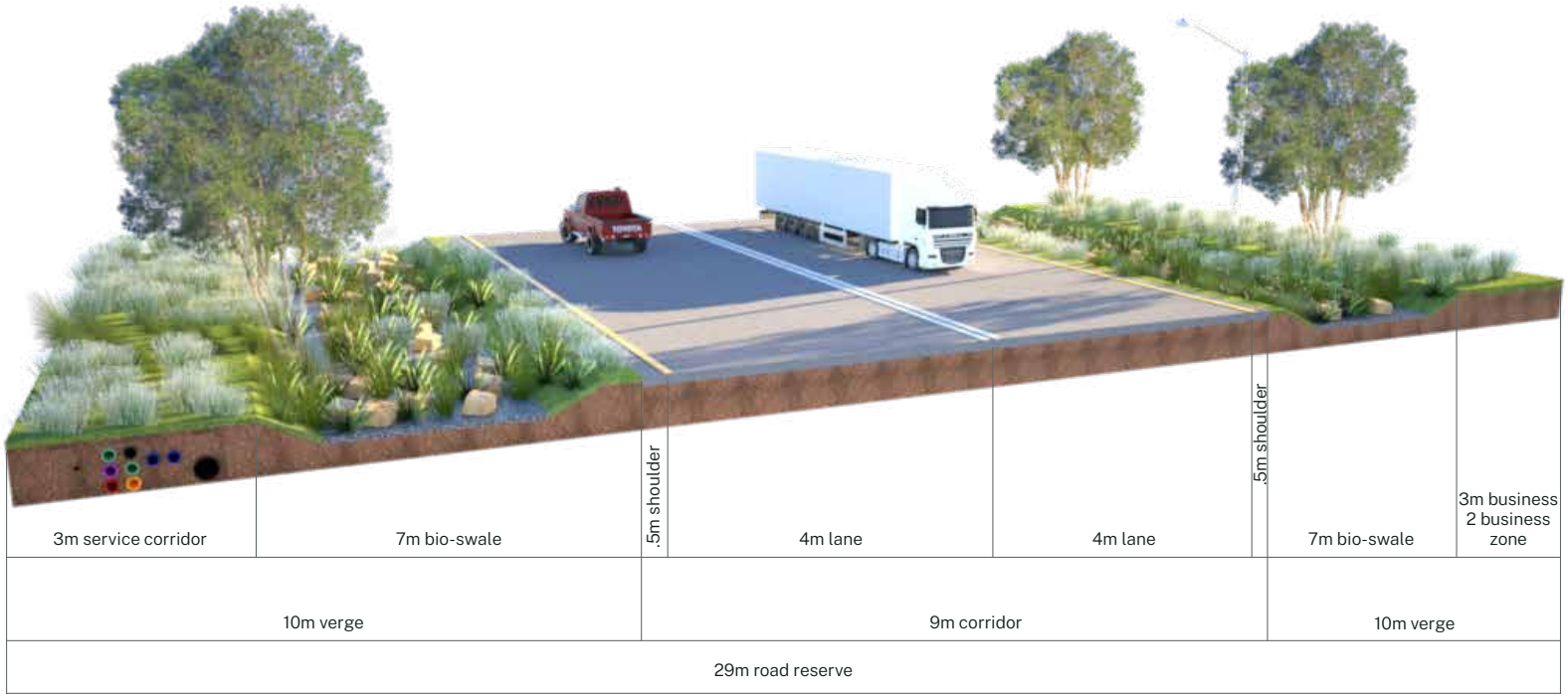
For additional planting species, please refer table 3.4 Green infrastructure planting list.



Newell Highway, Moree

Rural road (80km/h - 2 lanes)

The rural road typology is unique in that the majority of it runs along the travelling stock route (TSR). Set aside for conservation and periodic stock movement, this planting typology is designed to expand the existing Queensland Bluegrass plant community (PCT 52), with the addition of some trees to provide shade and feed for stock.



Key planting palette

Trees	*Acacia salicina* Cooba
	Brachychiton populneus Kurrajong
	Casuarina cristata Belah
	Eucalyptus coolabah subsp. coolabah Coolabah
	Eucalyptus largiflorens Black Box

For additional planting species, please refer table 3.4 Green infrastructure planting list.

01 *Eucalyptus coolabah,* courtesy of Nicola Brookhouse/DPE
02 *Eucalyptus largiflorens,* courtesy of Steve Lewer/DPE

3.3.4 Gateway treatments

Northern Gateway and Southern Gateway

Developing an arrival experience is an important element of establishing the place and identity of the precinct. Gateways should feature natural and built form elements that clearly indicates and highlights the precinct entry threshold. Natural and built form elements in these locations establish and develop an overall theme and style which can be replicated throughout the precinct.

Built form elements should consider scale, material and messaging and present opportunity to engage with the community and local artists. Natural elements should be reflective of the wider landscape context.


01


02


03


04

01 Cor-ten steel
02 Decomposed granite and locally sourced rock
03 Rammed earth
04 Sculptural elements/re-use of agricultural machinery

Material palette

- cor-ten steel
- rammed earth
- locally sourced rock, hardwood, or recycled agricultural materials
- decomposed granite

Key planting palette

Trees	*Allocasuarina luehmannii*
	Alstonia constricta
	Callitris glaucophylla
	Melaleuca trichostachya

For additional planting species, please refer table 3.4 Green infrastructure planting list.

3.3.5 Public realm treatments

Feature treatment

Public realm areas where landscape treatments may be required, may include formal entrances to buildings, significant cultural/historical sites, landscape features, landmarks, thresholds or street frontages. Emphasising certain areas within the precinct can be achieved through the application of feature planting, materials and elements that set themselves apart from the surrounding landscape. The planting palette is composed of endemic species of the Moree region that have unique visual traits, lending themselves to being showcased. All materials should be robust, sustainable and be low maintenance.

Material palette

- cor-ten steel
- rammed earth
- locally sourced rock, hardwood, or recycled agricultural materials
- decomposed granite.

Key planting palette

Trees	*Eucalyptus coolabah subsp. coolabah* Coolabah *Eucalyptus camaldulensis subsp. camaldulensis* River Red Gum *Eucalyptus populnea subsp. bimbil* Poplar Box *Eucalyptus largiflorens* Black Box
Shrubs	*Muehlenbeckia/Duma florulenta* Lignum *Geijera parviflora* Wilga *Capparis mitchellii* Wild Orange *Eremophila mitchellii* Budda
Forbs	*Erodium crinitum* Blue Storksbill *Eryngium paludosum* Long Eryngium *Leiocarpa brevicompta* Flat Billy Buttons *Solanum esuriale* Quena
Sedges/Rushes	*Carex inversa* Carex *Cyperus concinnus* Trim Flat-sedge *Juncus radula* *Eleocharis plana* Flat Spike-sedge

For additional planting species, please refer table 3.4 Green infrastructure planting list.

Parking areas

Parking areas are made more attractive and appealing through the addition of planting to shade expansive hardstand materials and vehicles, reducing levels of radiant heat and lowering ambient temperatures. The design of carparking areas should seek to disperse shade evenly and propose species that drop minimal amounts of leave, seeds and flowers.

Key planting palette

Evergreen trees	*Acacia pendula* Weeping Myall *Callistemon viminalis* Weeping Bottlebrush *Corymbia tessellaris* Carbeen *Eucalyptus sideroxylon* 'Rosea' Mugga Ironbark

Small open space areas for visitors and staff within developments

These areas are designed to cater for employees and visitors who may be meeting, taking a break or having lunch. Located close to buildings, these areas could provide shaded seating or picnic tables, whilst also providing sun in winter due to their deciduous nature.

Key planting palette

Evergreen trees	*Delonix regia* Poinciana *Gleditsia triacanthos* Honey Locust *Jacaranda mimosifolia* Jacaranda *Pistacia chinensis* Chinese Pistachio

Screening planting

Screening may be required to create privacy, delineate spaces, line property boundaries, and soften hardscape, infrastructure or utility areas.

Key planting palette

Shrubs	*Apophyllum anomalum* Warrior Bush *Capparis mitchellii* Wild Orange *Duma florulenta* Lignum *Rhagodia spinescens* Spiny Rhagodia

For additional planting species, please refer table 3.4 Green infrastructure planting list.

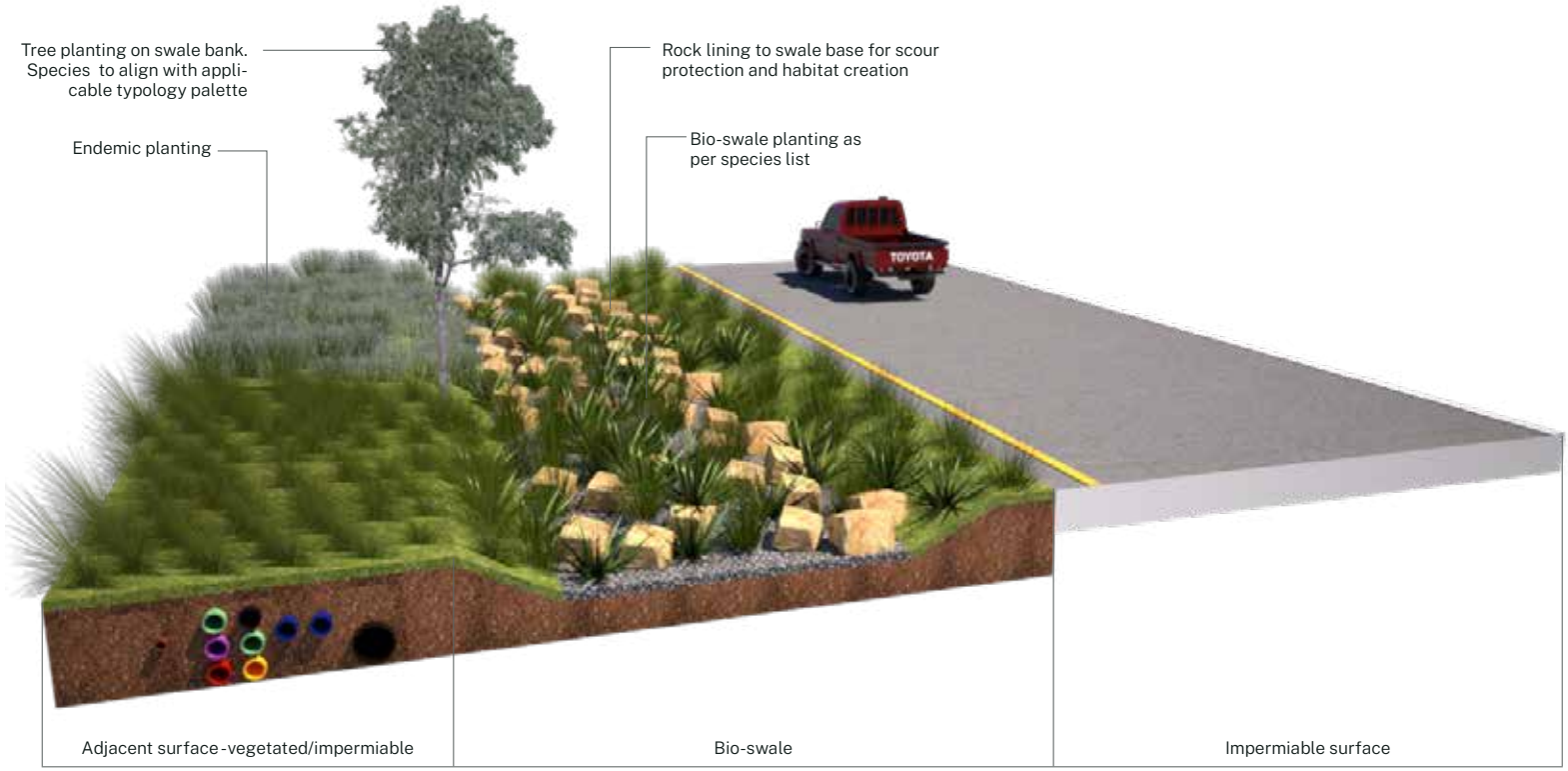
Bioswales

Bioswales are required adjacent to impermeable surfaces, allowing the capture and treatment of stormwater, in addition to providing habitat and forming an attractive green corridor. Lined with rock, the swale is a potential habitat corridor that conveys gali-water and supports plant species adapted to temporary inundation.

Key planting palette

Carex inversa Carex
Cyperus bifax Downs Nutgrass
Cyperus concinnus Trim Flat-sedge
Cyperus victoriensis

For additional planting species, please refer table 3.4 Green infrastructure planting list.



3.4 Revegetation planting palettes

Species planting palettes are provided in this section for biodiversity-focused revegetation and landscaping.

The species list includes a number of species that are reflective of the existing natural environment in the precinct as well as climate ready species.

Each type of planting is described in detailed below.

Table 3.2 Species list for revegetation

Scientific name	Common name	PCT 27	PCT 39	PCT 52	PCT 55	PCT 56
Trees						
Acacia oswaldii	Umbrella Wattle	✓			✓	
Acacia pendula	Weeping Myall	✓	✓		✓	
Acacia salicina	Cooba	✓	✓			
Acacia stenophylla	River Cooba		✓	✓		
Alectryon oleifolius subsp. elongatus	Rosewood	✓		✓	✓	✓
Allocasuarina luehmannii	Buloke					✓
Alstonia constricta	Quinine Bush		✓			
Atalaya hemiglauca	Whitewood	✓		✓	✓	✓
Callitris glaucophylla	White Cypress Pine					✓
Casuarina cristata	Belah	✓	✓			✓
Corymbia tessellaris	Carbeen					✓
Eucalyptus camaldulensis subsp. camaldulensis	River Red Gum		✓			
Eucalyptus coolabah subsp. coolabah	Coolibah		✓	✓	✓	
Eucalyptus largiflorens	Black Box	✓	✓		✓	
Eucalyptus microcarpa	Grey Box				✓	✓
Eucalyptus populnea subsp. Bimbil	Bimbil Box	✓		✓		✓
Melaleuca trichostachya	-		✓			
Notelaea microcarpa var. microcarpa	Velvet Mock Olive					✓
Owenia acidula	Gooya			✓		

Table 3.2 Species list for revegetation continued

Scientific name	Common name	PCT 27	PCT 39	PCT 52	PCT 55	PCT 56
Shrubs						
Abutilon oxycarpum	Lantern Bush		✓			✓
Apophyllum anomalum	Warrior Bush		✓		✓	✓
Atriplex leptocarpa	Slender-fruit Saltbush	✓		✓		✓
Atriplex nummularia	Old Man Saltbush	✓				
Atriplex semibaccata	Creeping Saltbush	✓				
Atriplex stipitata	Mallee Saltbush	✓				
Capparis mitchellii	Wild Orange	✓	✓		✓	✓
Citrus glauca	Desert Lime					✓
Duma florulenta	Lignum		✓	✓	✓	
Enchylaena tomentosa	Ruby Saltbush	✓			✓	✓
Eremophila bignoniiflora	Bignonia Emu-bush		✓			
Eremophila deserti	Turkeybush				✓	✓
Eremophila longifolia	Emubush				✓	
Eremophila maculata	Spotted Fuchsia-bush		✓		✓	
Eremophila mitchellii	Budda		✓		✓	
Exocarpos aphyllus	Leafless Ballart				✓	
Geijera parviflora	Wilga		✓		✓	✓
Maireana aphylla	Cotton Bush	✓				
Maireana coronata	Crown Fissure-weed					✓
Maireana decalvans	Black Cotton Bush			✓		✓
Maireana enchylaenoides	Wingless Bluebush				✓	
Myoporum montanum	Western Boobialla	✓			✓	✓
Pimelea microcephala subsp. microcephala	-				✓	
Pimelea neoanglica	Poison Pimelea	✓				
Ptilotus sessilifolius	Crimson Foxtail			✓		

Table 3.2 Species list for revegetation continued

Scientific name	Common name	PCT 27	PCT 39	PCT 52	PCT 55	PCT 56
Rhagodia spinescens	Berry saltbush	✓	✓		✓	✓
Salsola australis	-			✓		
Santalum acuminatum	Sweet Quandong				✓	✓
Senna form taxon 'filifolia'	-				✓	
Senna form taxon 'zygophylla''	-				✓	
Sclerolaena bicornis var. bicornis	Goathead Burr		✓			
Sclerolaena birchii	Galvanised Burr		✓	✓	✓	✓
Sclerolaena brachyptera	-	✓				
Sclerolaena calcarata	Redburr		✓		✓	
Sclerolaena divaricata	Pale Poverty Bush				✓	
Sclerolaena intricata	Poverty Bush		✓			
Sclerolaena limbata	-	✓				
Sclerolaena muricata	Black Rolypoly	✓	✓	✓	✓	✓
Sclerolaena stelligera	-	✓		✓		✓
Sclerolaena tricuspis	Giant Redburr					✓
Sclerolaena tubata	-		✓			
Groundcovers - grasses						
Anthosachne scabra	Wheatgrass				✓	
Aristida behriana	Bunch Wiregrass					✓
Aristida calycina var. praealta	-			✓		
Aristida jerichoensis var. jerichoensis	Jericho Wiregrass					✓
Aristida leptopoda	White Speargrass	✓		✓		
Aristida platychaeta	-			✓		
Astrebla elymoides	Mitchell Grass			✓		
Astrebla lappacea	Curly Mitchell Grass	✓				
Astrebla pectinata	Barley Mitchell Grass	✓		✓		

Table 3.2 Species list for revegetation continued

Scientific name	Common name	PCT 27	PCT 39	PCT 52	PCT 55	PCT 56
Astrebla squarrosa	Bull Mitchell Grass			✓		
Austrostipa aristiglumis	Plains Grass	✓		✓	✓	
Austrostipa blackii	-	✓				
Austrostipa scabra subsp. scabra	Speargrass				✓	✓
Austrostipa verticillata	Slender Bamboo Grass	✓				✓
Carex inversa	-			✓	✓	
Chloris truncata	Windmill Grass	✓	✓	✓	✓	✓
Chloris ventricosa	Tall Windmill Grass		✓			
Cyperus betchei subsp. betchei	-					✓
Cyperus bifax	Downs Nutgrass		✓	✓		
Cyperus concinnus	Trim Flat-sedge		✓			
Cyperus victoriensis	-		✓			
Dichanthium sericeum subsp. sericeum	Bluegrass	✓	✓	✓	✓	✓
Digitaria divaricatissima	Umbrella Grass			✓		
Diplachne muelleri	Brown Beetle Grass					✓
Eleocharis pallens	Pale Spike-sedge		✓		✓	
Eleocharis pusilla	-				✓	
Eleocharis plana	Flat Spike-sedge		✓	✓		
Enteropogon acicularis	-	✓		✓	✓	✓
Eragrostis elongata	Clustered Lovegrass					✓
Eragrostis leptostachya	Paddock Lovegrass	✓				✓
Eragrostis parviflora	Weeping Lovegrass	✓				
Eriochloa crebra	Cup Grass			✓		
Eriochloa pseudoacrotricha	Early Spring Grass	✓				
Iseilema membranaceum	Small Flinders Grass	✓				
Juncus radula	-				✓	

Table 3.2 Species list for revegetation continued

Scientific name	Common name	PCT 27	PCT 39	PCT 52	PCT 55	PCT 56
Lachnagrostis filiformis	-		✓			
Leptochloa digitata	Umbrella Canegrass		✓			
Leptochloa divaricatissima	-				✓	
Monachather paradoxus	Bandicoot Grass	✓		✓	✓	
Panicum decompositum	Native Millet		✓	✓		
Panicum simile	Two-colour Panic				✓	
Paspalidium caespitosum	Brigalow Grass				✓	
Paspalidium constrictum	Knottybutt Grass				✓	
Paspalidium globoideum	Shotgrass			✓		
Paspalidium jubiflorum	Warrego Grass		✓			
Phyllanthus virgatus	-					✓
Rytidosperma fulvum	Wallaby Grass				✓	
Rytidosperma setaceum	Smallflower Wallaby Grass	✓			✓	
Sporobolus actinocladus	Katoora Grass	✓				✓
Sporobolus caroli	Fairy Grass	✓	✓	✓	✓	
Sporobolus elongatus	Slender Rat's Tail Grass			✓		
Sporobolus mitchellii	Rat's Tail Couch			✓		
Thellungia advena	Coolibah Grass					✓
Themeda avenacea	Oat Kangaroo Grass	✓				
Walwhalleya proluta	-	✓			✓	
Groundcovers - forbs						
Ajuga australis	Austral Bugle					✓
Abutilon oxycarpum var. subsagittatum	Flannel Weed				✓	
Alternanthera denticulata	Lesser Joyweed			✓	✓	
Alternanthera nodiflora	Common Joyweed		✓			

Table 3.2 Species list for revegetation continued

Scientific name	Common name	PCT 27	PCT 39	PCT 52	PCT 55	PCT 56
Atriplex leptocarpa	Slender-fruit Saltbush				✓	
Atriplex muelleri	-			✓		
Atriplex semibaccata	Berry Saltbush				✓	
Boerhavia dominii	Tarvine			✓	✓	
Brachyscome dentata	-					✓
Brunoniella australis	Blue Trumpet					✓
Bulbine alata	Bulbine Lily		✓			✓
Calocephalus sonderi	Pale Beauty-heads					✓
Calotis cuneifolia	Purple Burr-daisy	✓				
Calotis lappulacea	Yellow Burr-daisy			✓		
Calotis scabiosifolia var. integrifolia	Rough Burr-daisy	✓				
Chenopodium desertorum subsp. desertorum	-				✓	
Craspedia variabilis	Common Billy Buttons	✓				
Crinum flaccidum	Murray Lily	✓				
Crotalaria dissitiflora subsp. dissitiflora	Grey Rattlepod	✓				
Cullen tenax	Emu-foot	✓				
Daucus glochidiatus	Native Carrot	✓	✓			
Einadia nutans subsp. nutans	Climbing Saltbush	✓	✓	✓	✓	✓
Einadia polygonoides	-			✓		
Erodium crinitum	Blue Crowfoot					✓
Eryngium paludosum	Long Eryngium	✓				
Euphorbia drummondii	Caustic Weed			✓		
Galium gaudichaudii	Rough Bedstraw					✓
Glycine tabacina	-				✓	
Goodenia fascicularis	-	✓				✓
Goodenia glauca	-	✓				

Table 3.2 Species list for revegetation continued

Scientific name	Common name	PCT 27	PCT 39	PCT 52	PCT 55	PCT 56
Goodenia pusilliflora	-		✓			
Hibiscus trionum	Flower-of-an-hour			✓		
Hypericum gramineum	Small St John's Wort					✓
Leiocarpa brevicompta	Flat Billy Buttons			✓		
Leiocarpa leptolepis	Pale Plover-daisy	✓				
Leiocarpa panaetioides	Woolly Buttons	✓		✓		
Leiocarpa tomentosa	Woolly Plover-daisy	✓				
Lepidium pseudohyssopifolium	Peppercress	✓				
Malvastrum coromandelianum	Prickly Malvastrum					✓
Neptunia gracilis f. gracilis	Sensitive Plant			✓		
Oxalis chnoodes	-			✓	✓	✓
Oxalis perennans	-	✓				
Plantago debilis	-			✓		
Plantago varia	-	✓		✓		
Plectranthus parviflorus	Cockspur Flower				✓	
Portulaca oleracea	Pigweed			✓		
Pratia concolor	Poison Pratia		✓			✓
Ptilotus exaltatus var. exaltatus	Showy Foxtail					✓
Pycnosorus globosus	Billy Buttons			✓		✓
Pycnosorus thompsonianus	Billy Buttons	✓				
Rhodanthe corymbiflora	Small White Sunray	✓				
Roepera apiculata	Common Twinleaf				✓	
Rostellularia adscendens subsp. adscendens	-	✓				
Sida corrugata	Corrugated Sida	✓			✓	✓
Sida trichopoda	Hairy Sida			✓	✓	
Solanum esuriale	Quena	✓	✓	✓		✓

Table 3.2 Species list for revegetation continued

Scientific name	Common name	PCT 27	PCT 39	PCT 52	PCT 55	PCT 56
Stellaria angustifolia	Swamp Starwort		✓			
Swainsona galegifolia	Smooth Darling-pea	✓		✓		
Swainsona swainsonioides	Downy Swainson-pea			✓		
Tetragonia moorei	-					✓
Tetragonia tetragonioides	New Zealand Spinach		✓	✓		
Velleia paradoxa	Spur Velleia					✓
Verbena gaudichaudii	-	✓				
Vittadinia cuneata var. cuneata	Fuzzweed	✓			✓	
Vittadinia pterochaeta	Winged New Holland Daisy			✓		
Vittadinia sulcata	-					✓
Wahlenbergia communis	Tufted Bluebell					✓
Wahlenbergia fluminalis	River Bluebell				✓	✓
Wahlenbergia gracilis	Sprawling Bluebell	✓				✓
Groundcovers - ferns and other						
Capparis lasiantha	Nepine					✓
Convolvulus clementii	Desert Bindweed	✓				
Convolvulus erubescens	Blushing Bindweed				✓	
Marsilea drummondii	Common Nardoo		✓	✓	✓	
Marsilea hirsuta	Nardoo	✓			✓	
Parsonsia eucalyptophylla	Gargaloo				✓	

Planting densities

Planting densities and other biodiversity values listed in Table 3.3 are based on the community condition benchmarks (plus 20 per cent for planting densities) for the listed biodiversity target published by the Department of Planning and Environment on the Vegetation Classification Database (2022) for the Brigalow. An additional 20 per cent has been added for each stratum to planting densities to account for an 80 per cent survival rate of plantings. Other biodiversity values including fallen timber, hollows and leaf litter have been included to inform supplementary habitat augmentation, addressed in the BMP.

Table 3.3 Biodiversity targets, planting densities and other biodiversity values

Biodiversity target	Vegetation formation	Vegetation class	Richness per stratum (planting density)	Other biodiversity values
PCT 27 Weeping Myall open woodland of the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion	Semi-arid Woodlands (Grassy sub-formation)	Riverine Plain Woodlands	60 trees, 180 shrubs and 540 groundcovers per ha	Length of fallen timber: 250m/ha Hollows: 100/ha Litter: 45%/m²
PCT 39 Coolabah-River Coobah-Lignum woodland wetland of frequently flooded floodplains mainly in the Darling Riverine Plains Bioregion	Semi-arid Woodlands (Grassy sub-formation)	North-west Floodplain Woodlands	90 trees, 240 shrubs and 330 groundcovers per ha	Length of fallen timber: 700m/ha Hollows: 125/ha Litter: 35%/m²
PCT 52 Queensland Bluegrass +/-Mitchell Grass	Grasslands	Semi-arid Floodplain Grasslands	30 trees, 150 shrubs and 570 groundcovers per ha	Length of fallen timber: 0m/ha Hollows: 0/ha Litter: 30%/m²
PCT 55 Belah woodland on alluvial plains and low rises in the central NSW wheatbelt to Pilliga and Liverpool Plains regions.	Semi-arid Woodlands (Grassy sub-formation)	North-west Floodplain Woodlands	90 trees, 240 shrubs and 330 groundcovers per ha	Length of fallen timber: 700m/ha Hollows: 125/ha Litter: 35%/m²
PCT 56 Poplar Box-Belah woodland on clay-loam soils on alluvial plains of north-central NSW	Grassy Woodlands	Floodplain Transition Woodlands	120 trees, 150 shrubs and 450 groundcovers per ha	Length of fallen timber: 1,125m/ha Hollows: 75/ha Litter: 60%/m²

Planting densities determined using community benchmarks for the Brigalow Belt South bioregion (DPE, 2022)

3.5 Green infrastructure planting list

The following species lists has been tailored and curated, utilising known plant community type species, and species endemic to the wider Moree area.

Table 3.4 Green infrastructure planting lists

Scientific name	Common name	Distributor	Collector	Local	Rural	Bioswale	Gateways	Feature areas	Parking areas	Small open space	Screening
Endemic trees											
Acacia oswaldii	Umbrella Wattle										
Acacia pendula	Weeping Myall	✓						✓	✓		
Acacia salicina	Cooba				✓						✓
Acacia stenophylla	River Cooba							✓			✓
Alectryon oleifolius subsp. elongatus	Rosewood		✓					✓			
Allocasuarina luehmannii	Buloke						✓				
Alstonia constricta	Quinine Bush						✓				
Atalaya hemiglauca	Whitewood			✓				✓	✓		
Callitris glaucophylla	White Cypress Pine						✓				
Casuarina cristata	Belah				✓			✓			
Corymbia tessellaris	Carbeen	✓									
Eucalyptus camaldulensis subsp. camaldulensis	River Red Gum		✓					✓			
Eucalyptus coolabah subsp. coolabah	Coolibah				✓			✓			
Eucalyptus largiflorens	Black Box				✓			✓			
Eucalyptus microcarpa	Grey Box			✓							
Eucalyptus populnea subsp. bimbil	Bimbil Box	✓						✓			
Melaleuca trichostachya	-						✓				
Notelaea microcarpa var. microcarpa	Velvet Mock Olive						✓				
Owenia acidula	Gooya						✓				

Scientific name	Common name	Distributor	Collector	Local	Rural	Bioswale	Gateways	Feature areas	Parking areas	Small open space	Screening
Other trees											
Brachychiton populneus	Kurrajong				✓						
Callistemon viminalis	Weeping Bottlebrush			✓					✓		
Carya illinoinensis	Pecan			✓							
Delonix regia	Poinciana									✓	
Eucalyptus sideroxylon ‘Rosea’	Mugga Ironbark		✓						✓		
Ficus microcarpa var. hillii	Hills Weeping Fig							✓			
Flindersia maculosa	Leopardwood		✓								
Gleditsia triacanthos	Honey Locust									✓	
Jacaranda mimosifolia	Jacaranda	✓								✓	
Pistacia chinensis	Chinese Pistachio									✓	
Ulmus parvifolia	Chinese Elm									✓	
Ziziphus jujuba	Chinese Date			✓							
Endemic shrubs											
Abutilon oxycarpum	Lantern Bush										
Apophyllum anomalum	Warrior Bush							✓			✓
Atriplex leptocarpa	Slender-fruit Saltbush										
Atriplex nummularia	Old Man Saltbush							✓	✓	✓	✓
Atriplex semibaccata	Creeping Saltbush								✓		
Atriplex stipitata	Mallee Saltbush		✓						✓		
Capparis mitchellii	Wild Orange	✓						✓	✓	✓	✓
Citrus glauca	Desert Lime	✓								✓	✓
Duma florulenta	Lignum		✓					✓			✓
Enchylaena tomentosa	Ruby Saltbush	✓									
Eremophila bignoniiflora	Bignonia Emu-bush										

Scientific name	Common name	Distributor	Collector	Local	Rural	Bioswale	Gateways	Feature areas	Parking areas	Small open space	Screening
Eremophila deserti	Turkeybush		✓					✓			
Eremophila longifolia	Emubush										✓
Eremophila maculata	Spotted Fuchsia-bush	✓						✓	✓	✓	✓
Eremophila mitchellii	Budda		✓					✓			
Exocarpos aphyllus	Leafless Ballart										✓
Geijera parviflora	Wilga	✓						✓	✓		✓
Maireana aphylla	Cotton Bush										
Maireana coronata	Crown Fissure-weed										
Maireana decalvans	Black Cotton Bush		✓						✓		
Maireana enchylaenoides	Wingless Bluebush										
Myoporum montanum	Western Boobialla		✓								
Pimelea microcephala											
subsp. microcephala	-										
Pimelea neoanglica	Poison Pimelea										
Ptilotus sessilifolius	Crimson Foxtail										
Rhagodia spinescens	Berry Saltbush	✓						✓	✓	✓	✓
Salsola australis	-										
Santalum acuminatum	Sweet Quandong							✓	✓		
Senna form taxon ‘filifolia’	-										
Senna form taxon											
‘zygophylla’	-										
Sclerolaena bicornis var. bicornis	Goathead Burr										
Sclerolaena birchii	Galvanised Burr										
Sclerolaena brachyptera	-										
Sclerolaena calcarata	Redburr										

Scientific name	Common name	Distributor	Collector	Local	Rural	Bioswale	Gateways	Feature areas	Parking areas	Small open space	Screening
Sclerolaena divaricata	Pale Poverty Bush										
Sclerolaena intricata	Poverty Bush										
Sclerolaena limbata	-										
Sclerolaena muricata	Black Rolypoly										
Sclerolaena stelligera	-										
Sclerolaena tricuspis	Giant Redburr										
Sclerolaena tubata	-										
Endemic grasses											
Anthosachne scabra	Wheatgrass										
Aristida behriana	Bunch Wiregrass										
Aristida calycina var.											
praealta	-										
Aristida jerichoensis var. jerichoensis	Jericho Wiregrass										
Aristida leptopoda	White Speargrass										
Aristida platychaeta	-										
Astrebla elymoides	Mitchell Grass	✓									
Astrebla lappacea	Curly Mitchell Grass										
Astrebla pectinata	Barley Mitchell Grass	✓									
Astrebla squarrosa	Bull Mitchell Grass	✓									
Austrostipa aristiglumis	Plains Grass										
Austrostipa blackii	-										
Austrostipa scabra subsp. scabra	Speargrass		✓								
Austrostipa verticillata	Slender Bamboo Grass	✓						✓	✓	✓	
Carex inversa	-					✓		✓			
Chloris truncata	Windmill Grass		✓								

Scientific name	Common name	Distributor	Collector	Local	Rural	Bioswale	Gateways	Feature areas	Parking areas	Small open space	Screening
Chloris ventricosa	Tall Windmill Grass										
Cyperus betchei subsp. betchei	-					✓					
Cyperus bifax	Downs Nutgrass					✓		✓			
Cyperus concinnus	Trim Flat-sedge					✓		✓			
Cyperus victoriensis	-					✓		✓			
Dichanthium sericeum											
subsp. sericeum	Bluegrass	✓						✓	✓		
Digitaria divaricatissima	Umbrella Grass										
Diplachne muelleri	Brown Beetle Grass										
Eleocharis pallens	Pale Spike-sedge										
Eleocharis pusilla	-										
Eleocharis plana	Flat Spike-sedge					✓		✓			
Enteropogon acicularis	-		✓								
Eragrostis elongata	Clustered Lovegrass										
Eragrostis leptostachya	Paddock Lovegrass										
Eragrostis parviflora	Weeping Lovegrass										
Eriochloa crebra	Cup Grass										
Eriochloa pseudoacrotricha	Early Spring Grass										
Iseilema membranaceum	Small Flinders Grass										
Juncus radula	-					✓					
Lachnagrostis filiformis	-										
Leptochloa digitata	Umbrella Canegrass		✓								
Leptochloa divaricatissima	-										
Monachather paradoxus	Bandicoot Grass		✓								
Panicum decompositum	Native Millet	✓						✓			

Scientific name	Common name	Distributor	Collector	Local	Rural	Bioswale	Gateways	Feature areas	Parking areas	Small open space	Screening
Panicum simile	Two-colour Panic										
Paspalidium caespitosum	Brigalow Grass										
Paspalidium constrictum	Knottybutt Grass										
Paspalidium globoideum	Shotgrass										
Paspalidium jubiflorum	Warrego Grass		✓								
Phyllanthus virgatus	-										
Rytidosperma fulvum	Wallaby Grass	✓						✓			
Rytidosperma setaceum	Smallflower Wallaby Grass	✓									
Sporobolus actinocladus	Katoora Grass										
Sporobolus caroli	Fairy Grass										
Sporobolus elongatus	Slender Rat's Tail Grass										
Sporobolus mitchellii	Rat's Tail Couch										
Thellungia advena	Coolibah Grass										
Themeda avenacea	Oat Kangaroo Grass						✓	✓	✓		
Walwhalleya proluta	-										
Endemic forbs											
Ajuga australis	Austral Bugle							✓		✓	
Abutilon oxycarpum var. subsagittatum	Flannel Weed										
Alternanthera denticulata	Lesser Joyweed										
Alternanthera nodiflora	Common Joyweed										
Atriplex leptocarpa	Slender-fruit Saltbush								✓	✓	
Atriplex muelleri	-								✓	✓	
Atriplex semibaccata	Berry Saltbush								✓	✓	
Boerhavia dominii	Tarvine										
Brachyscome dentata	-							✓			

Scientific name	Common name	Distributor	Collector	Local	Rural	Bioswale	Gateways	Feature areas	Parking areas	Small open space	Screening
Brunoniella australis	Blue Trumpet										
Bulbine alata	Bulbine Lily							✓			
Calocephalus sonderi	Pale Beauty-heads										
Calotis cuneifolia	Purple Burr-daisy										
Calotis lappulacea	Yellow Burr-daisy							✓	✓	✓	
Calotis scabiosifolia var. integrifolia	Rough Burr-daisy										
Chenopodium desertorum subsp. desertorum	-										
Craspedia variabilis	Common Billy Buttons							✓			
Crinum flaccidum	Murray Lily					✓					
Crotalaria dissitiflora subsp. dissitiflora	Grey Rattlepod										
Cullen tenax	Emu-foot										
Daucus glochidiatus	Native Carrot										
Einadia nutans subsp.											
nutans	Climbing Saltbush							✓	✓	✓	
Einadia polygonoides	-							✓			
Erodium crinitum	Blue Crowfoot							✓			
Eryngium paludosum	Long Eryngium							✓			
Euphorbia drummondii	Caustic Weed										
Galium gaudichaudii	Rough Bedstraw										
Glycine tabacina	-					✓				✓	
Goodenia fascicularis	-										
Goodenia glauca	-										
Goodenia pusilliflora	-										
Hibiscus trionum	Flower-of-an-hour										
Hypericum gramineum	Small S. John's Wort										

Scientific name	Common name	Distributor	Collector	Local	Rural	Bioswale	Gateways	Feature areas	Parking areas	Small open space	Screening
Leiocarpa brevicompta	Flat Billy Buttons							✓			
Leiocarpa leptolepis	Pale Plover-daisy							✓			
Leiocarpa panaetioides	Woolly Buttons							✓			
Leiocarpa tomentosa	Woolly Plover-daisy							✓			
Lepidium pseudohyssopifolium	Peppercress										
Malvastrum											
coromandelianum	Prickly Malvastrum										
Neptunia gracilis	Sensitive Plant							✓			
Oxalis chnoodes	-									✓	
Oxalis perennans	-									✓	
Plantago debilis	-										
Plantago varia	-										
Plectranthus parviflorus	Cockspur Flower									✓	
Portulaca oleracea	Pigweed										
Pratia concolor	Poison Pratia										
Ptilotus exaltatus var. exaltatus	Showy Foxtail							✓			
Pycnosorus globosus	Billy Buttons							✓			
Pycnosorus thompsonianus	Billy Buttons							✓			
Rhodanthe corymbiflora	Small White Sunray							✓			
Roepera apiculata	Common Twinleaf										
Rostellularia adscendens subsp. adscendens	-										
Sida corrugata	Corrugated Sida								✓	✓	
Sida trichopoda	Hairy Sida										
Solanum esuriale	Quena	✓						✓			
Stellaria angustifolia	Swamp Starwort					✓					

Scientific name	Common name	Distributor	Collector	Local	Rural	Bioswale	Gateways	Feature areas	Parking areas	Small open space	Screening
Swainsona galegifolia	Smooth Darling-pea							✓			
Swainsona swainsonioides	Downy Swainson-pea							✓			
Tetragonia moorei	-										
Tetragonia tetragonioides	New Zealand Spinach									✓	
Velleia paradoxa	Spur Velleia										
Verbena gaudichaudii	-							✓			
Vittadinia cuneata var. cuneata	Fuzzweed										
Vittadinia pterochaeta	Winged New Holland Daisy							✓			
Vittadinia sulcata	-										
Wahlenbergia communis	Tufted Bluebell							✓			
Wahlenbergia fluminalis	River Bluebell							✓			
Wahlenbergia gracilis	Sprawling Bluebell							✓			
Endemic ferns, gali-water plants and groundcovers											
Capparis lasiantha	Nepine										
Convolvulus clementii	Desert Bindweed										
Convolvulus erubescens	Blushing Bindweed										
Marsilea drummondii	Common Nardoo							✓			
Marsilea hirsuta	Nardoo										
Parsonsia eucalyptophylla	Gargaloo										

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