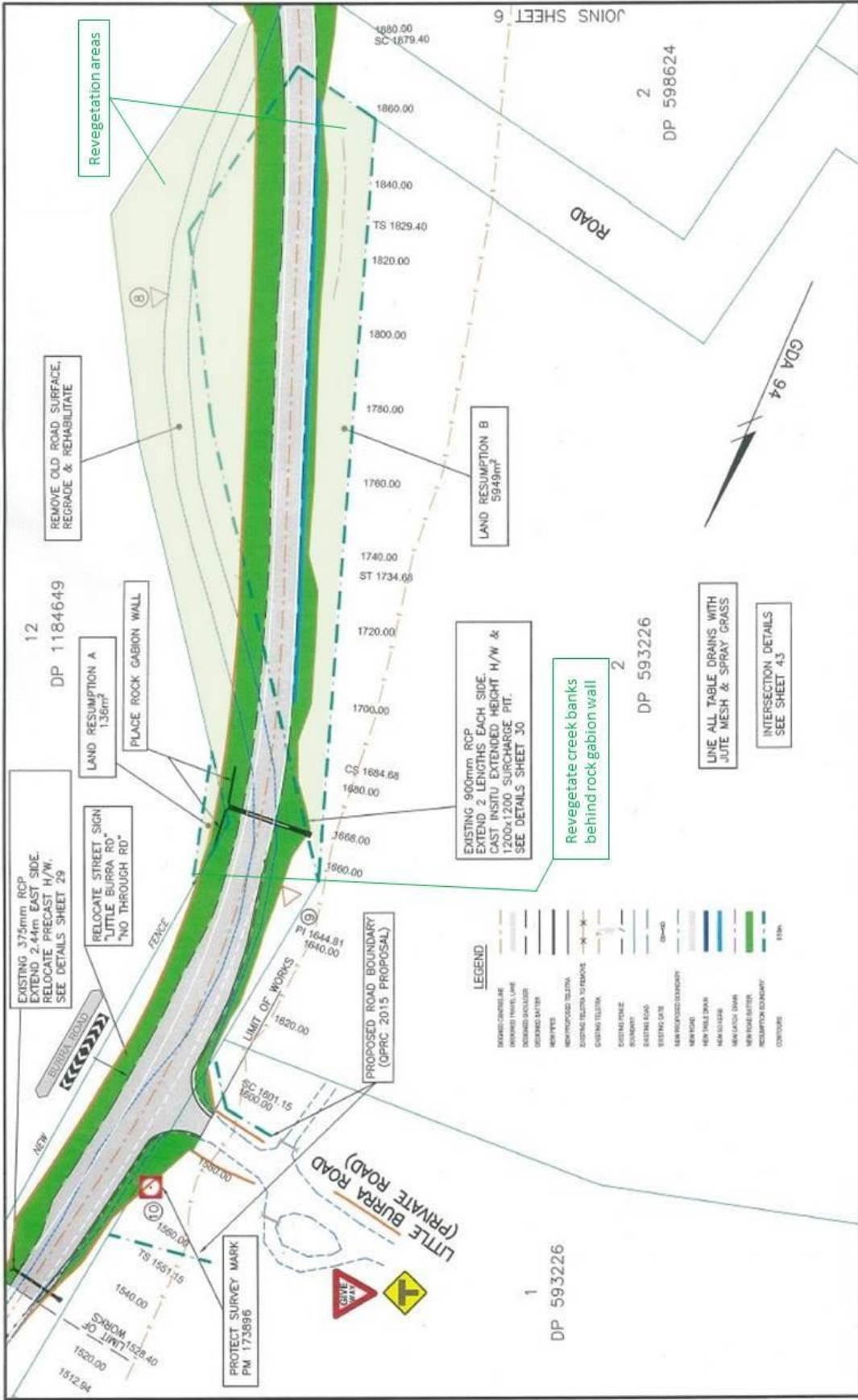


BURRA BENDS REVEGETATION

The following information in revegetating roadworks is provided by Mary Appleby, QPRC Biodiversity Project Officer, in response to a request from QPRC's Transport & Facilities branch.

The aim of this project is to revegetate reclaimed old road surface following Stage One of reconstruction works on Burra Road, Burra, from Little Burra Road to London Bridge Road. Works involve realigning sections of the road for safety purposes, ripping and revegetating the old road, provision of drainage structures, and resealing. The section relating to this report covers the section between Little Burra Road in the north to the intersecting road reserve at chainage 1860.00.

Although the main focus of revegetation will be to rehabilitate the old road surface to the east of the new alignment, the western side of Land resumption B (west of the batter) should also be revegetated to provide screening for adjacent properties and replace habitat. Additionally, there is a first order stream gully at Land resumption A which should be revegetated to stabilise the area downstream of the proposed gabion wall and to replace habitat. Of particular concern is ensuring habitat continuity for threatened Gang Gang and Glossy Black-cockatoos, which are known locally. Both species depend on hollow-bearing trees, 37 of which are slated for removal in this project. Twelve of these trees occur within the section of the project covered in this report.



LEGEND

- EXISTING OVERHEAD LINE
- PROPOSED OVERHEAD LINE
- EXISTING TELLER
- PROPOSED TELLER
- EXISTING BATTERY
- PROPOSED BATTERY
- EXISTING FENCE
- PROPOSED FENCE
- EXISTING GUBION
- PROPOSED GUBION
- EXISTING POLE
- PROPOSED POLE
- EXISTING SIGN
- PROPOSED SIGN
- EXISTING SURCHARGE PIT
- PROPOSED SURCHARGE PIT
- EXISTING ROAD
- PROPOSED ROAD
- EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- EXISTING ROAD RESUMPTION
- PROPOSED ROAD RESUMPTION
- EXISTING TABLE DRAIN
- PROPOSED TABLE DRAIN
- EXISTING MESH
- PROPOSED MESH
- EXISTING GABION
- PROPOSED GABION
- EXISTING GABION WALL
- PROPOSED GABION WALL
- EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- EXISTING

Land resumption A – stream gully

Suitable species for this area include sedges (*Carex appressa*), a common component of nearby creeks and drainage lines, and Silver wattle (*Acacia dealbata*), which is found both in riparian margins and the wider landscape. There are a few individuals of this species on this section of roadside. Because of the steep slope, predicted disturbance and lack of existing vegetation, it is recommended that these species be planted behind pegged brush benches (from shrubs removed), or into a jute mesh/ geotextile substrate.

Species	Common name	Habit/ Size	Stock	Quantity
<i>Acacia dealbata</i>	Silver Wattle	Shrub	Forestry tube	10
<i>Kunzea ericoides</i>	Burgan	Shrub	Forestry tube	10
<i>Hakea microcarpa</i>	Small-fruit Hakea	Shrub	Forestry tube	10
<i>Carex appressa</i>	Tall Sedge	Sedge	Cells/ plugs	50
<i>Poa labillardierei</i>	River Tussock	Grass	Cells/ plugs	50

Old road surface

This will require ground preparation, as topsoil has been removed, and subsoil will be compacted. Once the pavement has been removed, the old road surface should be ripped across the contour to a depth of 300mm, with rip lines a maximum of 500mm apart. This should be done in dry conditions. If there is sufficient excess topsoil from adjacent roadworks, this should be spread to a minimum depth of 50mm (1 cubic metre per 20m²). The area should then be mulched to a depth of 50mm using material removed to make way for the new road surface. Any imported topsoil should be tested before spreading on site. I'm sure you know the drill...

The cheapest and most effective way of re-establishing a native grass / groundcover layer would be to hydromulch, particularly if this is used for the batters on the new road alignment. The seed mix ideally should use seed from local provenance (collected on site or nearby).

Any felled trees should be placed in this section as replacement habitat.

Species	Common name	Habit/ Size	Stock	Quantity
<i>Austrostipa scabra</i>	Corkscrew Grass	Grass	Seed	500g
<i>Bothriochloa macra</i>	Redleg Grass	Grass	Seed	500g
<i>Chloris truncata</i>	Windmill Grass	Grass	Seed	500g
<i>Microlaena stipoides</i> 'Burra'	Weeping Grass	Grass	Seed	1kg
<i>Rytidosperma</i> mix	Wallaby Grasses	Grass	Seed	1kg
<i>Themeda triandra</i>	Kangaroo Grass	Grass	Seed	1kg
<i>Acacia genistifolia</i>	Prickly Moses	Sub-shrub	Seed	250g
<i>Chrysocephalum apiculatum</i>	Common Everlasting	Forb	Seed	250g
<i>Chrysocephalum semipapposum</i>	Clustered Everlasting	Forb	Seed	250g
<i>Pultenaea procumbens</i>	Matted Bush-pea	Forb	Seed	250g

<i>Acacia dealbata</i>	Silver Wattle	Shrub		
<i>Acacia melanoxylon</i>	Blackwood	Tree		
<i>Bossiaea buxifolia</i>	Box-leaf Bossiaea	Forb		
<i>Bulbine bulbosa</i>	Bulbine Lily	Forb		
<i>Bursaria spinosa</i>	Blackthorn, Sweet Bursaria	Shrub		
<i>Cassinia longifolia</i>	Dolly Bush	Shrub		
<i>Einadia hastata</i>	Berry Saltbush	Forb		
<i>Eucalyptus bridgesiana</i>	Apple Box	Tree		
<i>E. mannifera</i>	Brittle Gum	Tree		
<i>E. melliodora</i>	Yellow Box	Tree		
<i>E. nortonii</i>	Mealy Stringybark	Tree		
<i>E. rubida</i>	Candlebark			
<i>Grevillea juniperina</i>	A grevillea	Shrub		
<i>Hardenbergia violacea</i>	Native Sarsparilla, Happy Wanderer	Forb, vine		
<i>Hibbertia obtusifolia</i>	Grey Guinea Flower	Sub-shrub		
<i>Indigofera australis</i>	Austral Indigo	Shrub		
<i>Kunzea ericoides</i>	Burgan	Shrub		
<i>Lomandra filifolia</i>	Mat-rush	Forb		
<i>Lomandra bracteata</i>	Mat-rush	Forb		
<i>Melichrus urceolatus</i>	Urn Heath	Sub-shrub		
<i>Rubus parvifolius</i>	Native Raspberry	Forb, vine		
<i>Senecio quadridentatus</i>	Native Groundsel	Forb		
<i>Vittadinia cuneata</i>	New Holland Daisy	Forb		

Area above batter, western part of Land resumption area B

This area will be important to screen adjacent properties from the road, mitigate impacts and maintain habitat connectivity. A standard multi-layer shelterbelt design using local native tree and shrub species is suitable for this area.

NATIVE SPECIES LIST

Derived from site survey 23 October 2019 and species list from REF (EcoLogical Australia)

Botanic name	Common name	Habit	Size	Comments
<i>Acacia dealbata</i>	Silver Wattle	Small tree		Suitable for riparian areas, drainage lines. Wide tolerance range
<i>Acacia melanoxylon</i>	Blackwood	Tree		Larger tree - plant sparingly
<i>Acacia /dawsonii</i>	Poverty Wattle	Shrub		
<i>Acaena novae-zelandiae</i>	Bidgee-widgee	Forb		Shady areas
<i>Acaena ovina</i>	Sheep's Burr	Forb		
<i>Anthosachne scabra</i>	Wheatgrass	Grass		
<i>Aristida ramosa</i>	Purple Wiregrass	Grass		
<i>Austrostipa bigeniculata</i>	Tall Speargrass	Grass		
<i>Austrostipa scabra</i>	Corkscrew Grass	Grass		Super-hardy short grass species
<i>Billardiera scandens</i>	Apple Berry	Forb		
<i>Bossiaea buxifolia</i>	Matted Bossiaea	Forb		
<i>Bulbine bulbosa</i>	Bulbine Lily	Forb		
<i>Bursaria spinosa</i>	Blackthorn	Shrub		Useful habitat shrub – spiky and source of nectar and seed
<i>Cassinia longifolia</i>	Dolly Bush	Shrub		Useful habitat shrub
<i>Cheilanthes austrotenuifolia</i>	Rock Fern	Forb		
<i>Chrysocephalum apiculatum</i>	Common Everlasting	Forb		Common groundcover species
<i>Chrysocephalum semipapposum</i>	Clustered Everlasting	Forb		Common groundcover species
<i>Dichelachne micrantha</i>	Small Plumegrass	Grass		
<i>Echinopogon ovatus</i>	Hedgehog Grass	Grass		
<i>Einadia hastata</i>	Berry Saltbush	Forb		Useful for dry shade
<i>Eragrostis brownii</i>	Brown's Lovegrass	Grass		
<i>Eucalyptus bridgesiana</i>	Apple Box	Tree		Dominant, large eucalypt species
<i>E. mannifera</i>	Brittle Gum	Tree		
<i>E. melliodora</i>	Yellow Box	Tree		
<i>E. nortonii</i>	Mealy Bundy	Tree		Spreading, bluish canopy
<i>Geranium solanderi</i>	Native Geranium	Forb		
<i>Gonocarpus teragynus</i>	Common Raspwort	Forb		
<i>Grevillea juniperina</i>	Juniper Grevillea	Shrub		Probably not endemic to the area, but attractive, quick to establish and a great nectar source
<i>Hardenbergia violacea</i>	Native Sarsparilla	Forb		Collect seed locally. Attractive purple-flowered groundcover. Local provenance copes with drought, rocky soils and frost. Fixes nitrogen.
<i>Hibbertia obtusifolia</i>	Grey Guinea-flower	Shrub		
<i>Hypericum gramineum</i>	Small St John's Wort	Forb		

<i>Indigofera australis</i>	Austral Indigo	Shrub		Beautiful spring-flowering shrub. Need to collect locally for frost and drought tolerance
<i>Kunzea ericoides</i>	Burgan	Shrub		Hardy and easy to establish. Can use brush from shrubs to be removed
<i>Leptorhynchos squamatus</i>	Scaly buttons	Forb		
<i>Linum australe</i>	Austral Flax	Forb		
<i>Lomandra filifolia</i>	Wattle Mat-rush	Forb		Tough tussocky foliage plants.
<i>Lomandra bracteata</i>	Short-flowered Mat-rush	Forb		
<i>Melichrus urceolatus</i>	Urn Heath	Shrub		
<i>Microlaena stipoides</i>	Weeping Grass	Grass		Useful mat-forming (non-tussocky) grass. Good for shade.
<i>Plantago varia</i>	Variable Plantain	Forb		
<i>Poa labillardierei</i>	River Tussock	Grass		Suitable for gully revegetation
<i>Poa sieberiana</i>	Snow Grass	Grass		
<i>Pultenaea procumbens</i>	Heathy Bush-pea	Forb		
<i>Rubus parvifolius</i>	Native Raspberry	Forb		Quick to cover and establish, Attractive pink flowers and red edible berries
<i>Senecio quadridentatus</i>	Native Groundsel	Forb		
<i>Themeda triandra</i>	Kangaroo Grass	Grass		Distinctive and tough grass. Summer green, so reduced fire risk.
<i>Vittadinia cuneata</i>	New Holland Daisy	Forb		