



Offset Revegetation Plan Circle Valley Locality

Shire of Esperance 2023/24 Strategic Purpose Permit
Site C – Circle Valley Road, SLK 1.32-7.68



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1. Revegetation plan

A total of 0.13 ha within the local area of Site C – Circle Valley Road, SLK 1.32-7.68. The shire of Esperance proposes a 0.37ha revegetation site within Reserve 24007 and within the Circle Valley Road Reserve (Appendix 1). The revegetation project is located 450m from the clearing area. The additional 0.24ha will be banked as an offset for potential future clearing within the local area.

Revegetation within this area will reduce the habitat fragmentation within Reserve 24007 and help to protect the reserve from weed invasion and other degrading processes.

To meet the objectives of a successful, science-based revegetation plan, numerous factors need to be considered and implemented, including the reference site, weed control, pest and disease hygiene practices, site preparation, species selection, completion criteria, monitoring and adaptive management practices in the need of contingency measures. These are outlined in Sections 1.1 to 1.7, with key points highlighted below:

Revegetation works will consist of ripping a historic track within Reserve 24007 and the Circle Valley Road Reserve while the road project is being completed, this area will be planted and brushed.

1.1 Rehabilitation Methodology

A road grader will be used to rip the historic track to a depth of 200-350mm, reducing the compaction within the track, this will be completed concurrently with the road construction project.

Seed will be collected from Reserve 24007 and Circle Valley Road reserve, ensuring local providence for the revegetation site. Seed will be supplied to local nursery wholesalers for propagation.

Planting and brushing works will be completed in the first winter post ripping. Planting will be completed using Stihl BT-45 planting augers with a 70mm width auger attachment, each seedling will be provided 1 10mg Australian native fertiliser tablet and water saving crystals to maximise growth and survival rates. A total of 550 seedlings will be planted at the site.

Brushing will be completed via chain sawing branches from the surrounding area to provide protection for the seedlings, prevent 4wd use and disperse additional seed within the revegetation area.

1.2 Weed Control

There was very little weed burden present within the revegetation area, washdowns will occur prior to ripping being conducted.

1.3 Disease Hygiene Management

Hygiene measures to minimise the risk of diseases are a standard part of Shire of Esperance's practices when clearing vegetation, including:

- All machinery, plant and equipment shall be free of soil and vegetative matter prior to entering and leaving the site.
- The movement of soil shall be avoided in wet conditions.

1.4 Completion criteria

A moderate species richness was present at site C circle Valley, due to a 7km section of road reserve having been surveyed the Circle Valley Road species list could not be used as a benchmark for species richness. Two 10m*10m quadrats will be established in the neighbouring remnant vegetation for comparison to two 10m*10m quadrats that will be established within the revegetation site to enable comparisons to be made against stem density and species diversity.

Table 1. Completion criteria following the SMART (specific, measurable, achievable, relevant, time-bound) principles for the rehabilitation.

Criterion	Baseline Floristic data	Completion Target	Completion Criteria
1	Stems per 10m*10m in remnant vegetation quadrats.	Stems per 10m*10m in revegetation quadrats.	Stems in revegetation quadrat 70% or higher than the remnant vegetation quadrant
2	Species diversity per 10m*10m in remnant vegetation quadrats.	Species diversity 10m*10m in revegetation quadrats.	Species diversity in revegetation quadrat 70% or higher than the remnant vegetation quadrant
4	Minimal weeds present, mainly small patches of Poaceae weeds.	Minimal weed cover across rehabilitated site after five years	Weed cover < 2% within the rehabilitation area
5	Surrounding vegetation was in an excellent condition.	Vegetation condition of revegetation area is comparable to pre-clearing condition.	Revegetation area is in a Very Good or better condition within 11 years.

1.5 Monitoring

Monitoring of the rehabilitated area following gravel extraction will determine if completion criteria have been successful and if contingency measures are required (Section 1.6).

Due to the low rainfall within the Salmon Gums area, revegetation will occur very slowly, inspections will occur 1- & 3-years post planting to assess seedling survival rates.

Regular monitoring will be completed every 2 years starting at 5 years from planting, this will include monitoring at years 5, 7, 9 & 11 or until monitoring is deemed successful.

The methodology for monitoring will involve onsite visual assessments as well as conducting quadrat monitoring as outlined in Table 4. Monitoring will occur annually by the Shire of Esperance's Environmental Officers, who have a tertiary level education in Environmental Science. Monitoring will coincide with the inspection period of the calendar year Annual Compliance report for the Shire of Esperance 2023/24 strategic purpose permit, normally conducted between January and March.

1.6 Contingency measures

If survival rates for the seedlings are below 70% during 1- & 3-years post planting additional infill planting will be completed.

Where the rehabilitation is deemed unsuccessful by comparison to the completion criteria (table 1), contingency measures will be undertaken, until the completion criteria are met sufficiently. This is an adaptive process and dependent on what completion criteria has failed. A few standard techniques are outlined below:

- If the composition of species does not meet criteria, then specific species will be infill planted and/or seeded during the next revegetation season from April to June.
- If listed environmental weeds exist in the site then herbicide and or manual control will be applied to affected areas.

1.7 Species selection

Seed will be sourced from the local area from Reserve 24007 and/or the Circle Valley Road Reserve ensuring all species collected are appropriate for the revegetation.

1.8 Photos and Map



Figure 1. Photo of Proposed revegetation area. Photo taken by Kathrine Walkerden on the 20.09.2024.



Figure 2. Photo of Proposed revegetation area. Photo taken by Kathrine Walkerden on the 20.09.2024.

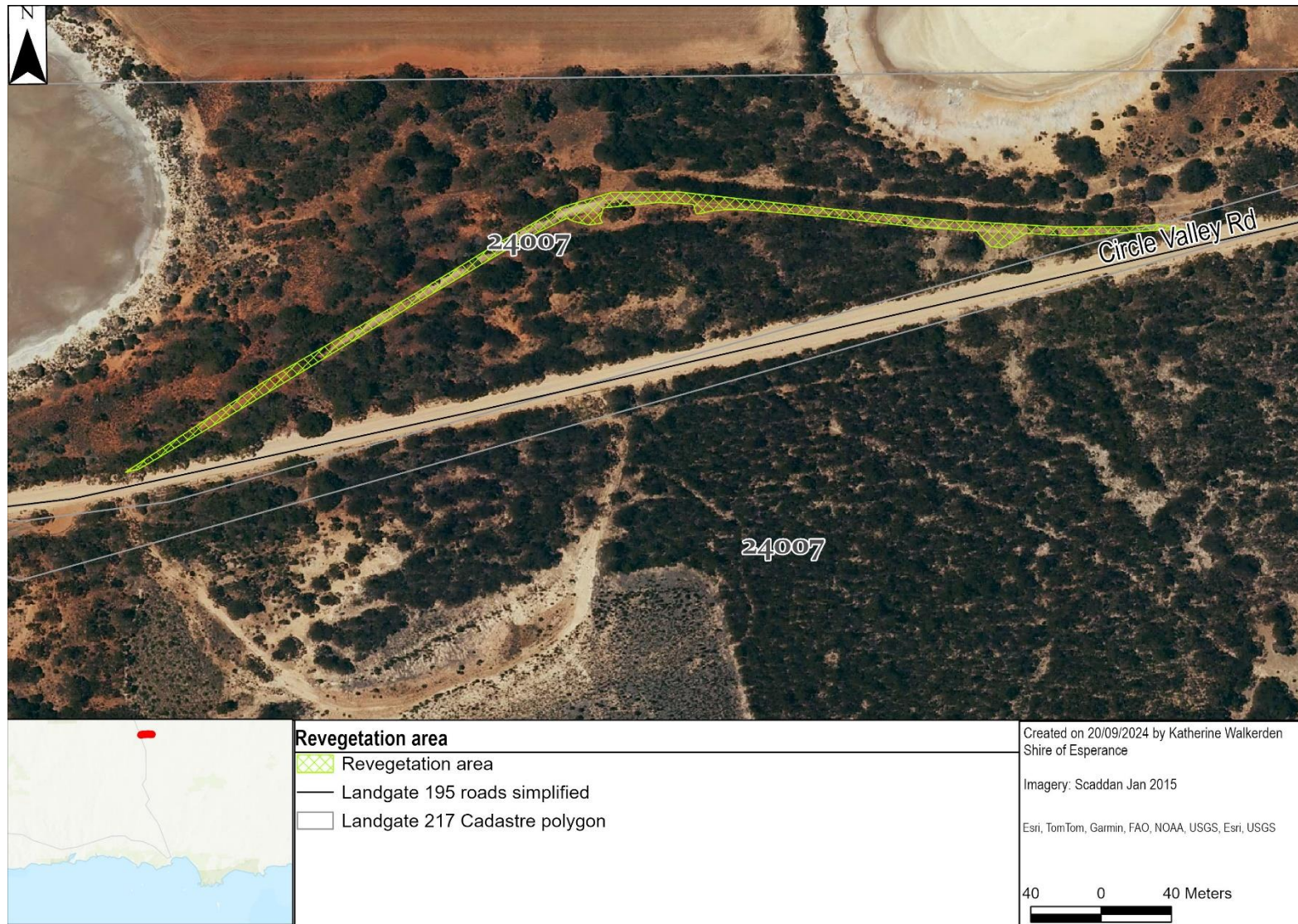


Figure 3. Map of proposed revegetation area.