

REVEGETATION PLAN
Ord River Irrigation Development
Clearing for Geotechnical Investigations



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ORD RIVER IRRIGATION DEVELOPMENT CLEARING FOR GEOTECHNICAL INVESTIGATIONS

REVEGETATION PLAN

1. PROJECT DESCRIPTION

1.1 Purpose

Main Roads Western Australia (MRWA) has a policy aim to “protect and enhance the environmental values of road reserves”. This document has been prepared to ensure compliance with Main Roads’ Environmental Policy and Main Roads’ statewide Purpose Permit CPS 818/4.

In the process of establishing new roads and upgrading existing roads, there is often a need to undertake revegetation of the road reserve or other affected areas. Where clearing of native vegetation is to occur under Main Roads’ statewide Purpose Permit CPS 818/4, a revegetation plan is required for temporary clearing (eg. borrow pits, access tracks, camps etc.). Where the temporary clearing exceeds 0.5ha, the revegetation plan needs to be forwarded to the Department of Environment and Conservation prior to clearing.

This revegetation plan sets out the revegetation requirements for clearing associated with geotechnical investigations which will occur as part of the Ord River Irrigation Development.

The purpose of the revegetation plan is to identify effective revegetation practices that help accelerate the natural succession processes that occur following the clearing of native vegetation and soil disturbance.

1.2 Background

Main Roads Western Australia (MRWA) proposes to undertake geotechnical surveys in the eastern Kununurra region at two areas (Area 8 & Area 9; refer to Figures 1 & 2) during the 2009 dry season. The surveys will determine the suitability of each site for extraction of material required for upgrade and realignment of Weaber Plain Road and construction of ‘Loop Road’ and associated roads in the Ord River Irrigation Area.

1.3 Previous Assessment Work

Strategen (June 2009) PEIA Ord River Irrigation Development – Clearing for Geotechnical Investigations.

1.4 Project Description

Geotechnical investigations will involve clearing of native vegetation at 100 m intervals (on average) on a grid plan over Area 8 and Area 9 (refer to Figures 3 & 4) which will result in excavation of approximately 760 test pits. Each test pit will involve clearing an area of approximately 5 m², resulting in total area of 0.38 ha of clearing for test pits.

Clearing will also be required to facilitate vehicle access to Area 8 and Area 9. In most cases existing fence lines, tracks and firebreaks will be used; however, it is anticipated that approximately 6.2 ha of clearing could occur to establish access tracks for vehicles.

Altogether, the proposed geotechnical surveys (clearing for test pits and establishment of access tracks) will require temporary clearing of approximately 7 ha of native vegetation.

The areas to be rehabilitated are shown in Table 1:

Table 1: Revegetation Area Details

Type	Area
Temporary clearing revegetation	7 hectares
Other revegetation	Nil

Figure 1...Ord River Irrigation Development – Geotechnical Investigations, Area 8.

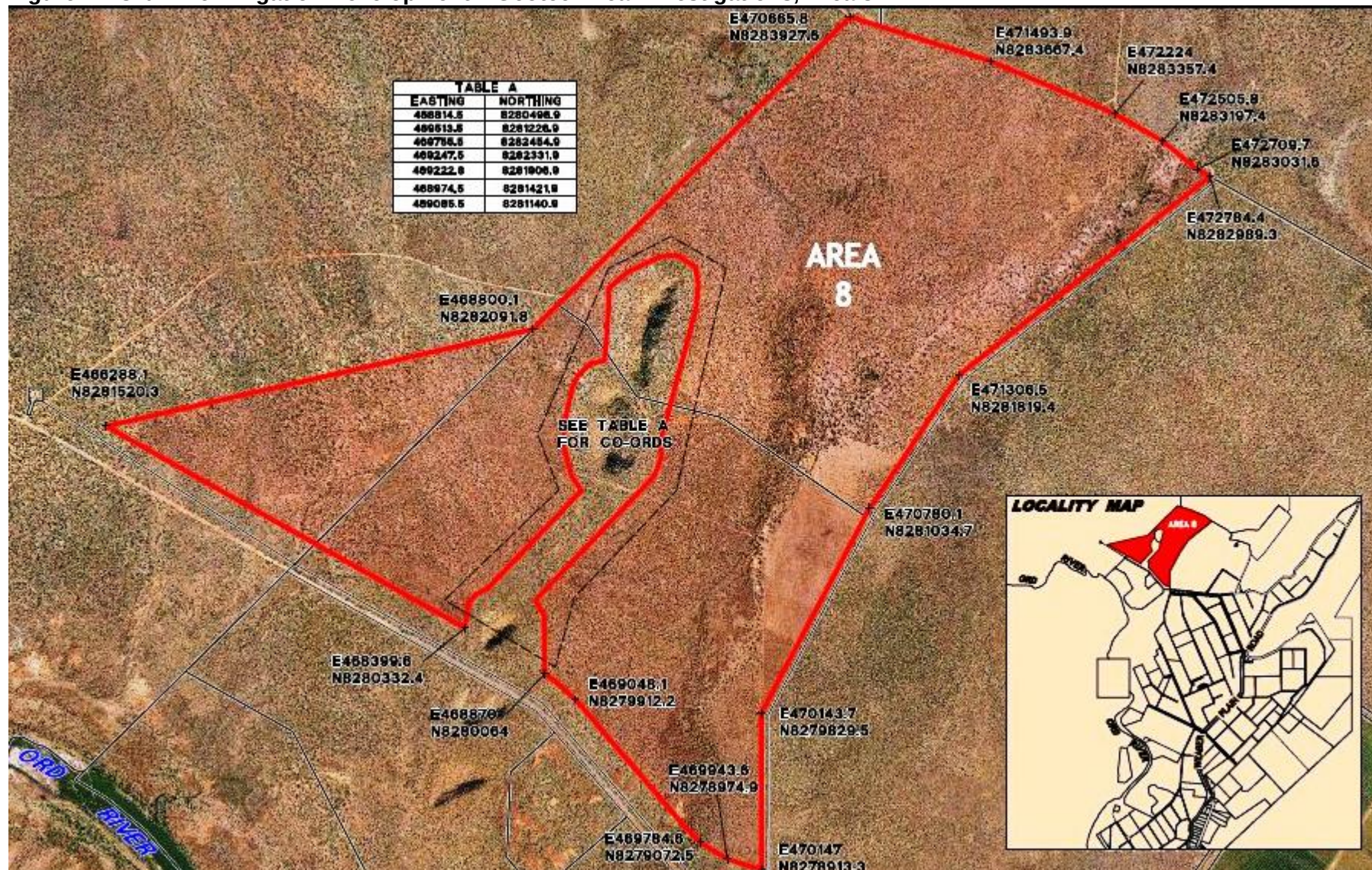


Figure 2...Ord River Irrigation Development – Geotechnical Investigations, Area 9.

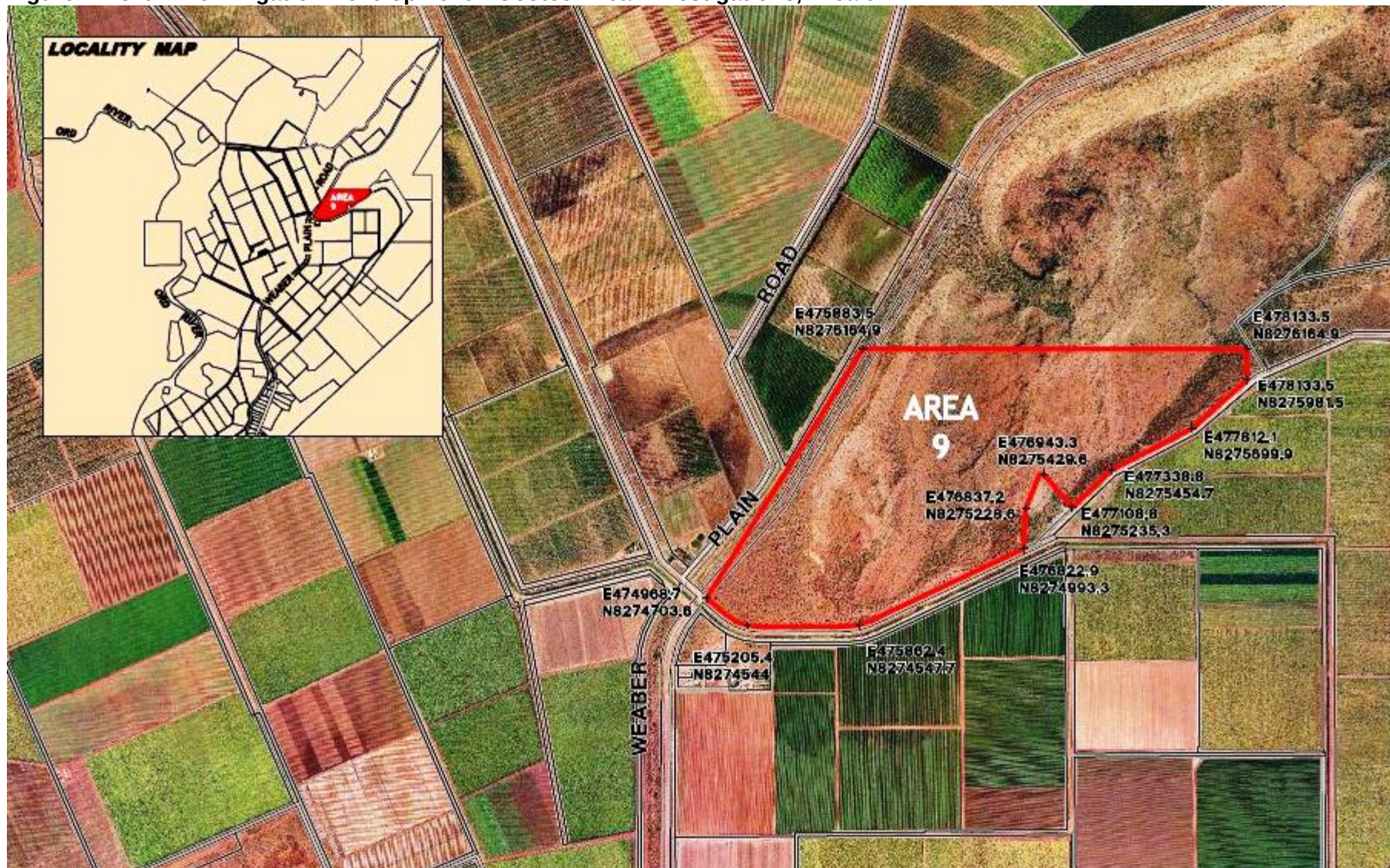


Figure 3...Ord River Irrigation Development – Geotechnical Investigations, Area 8 – test pits that will be cleared and rehabilitated.

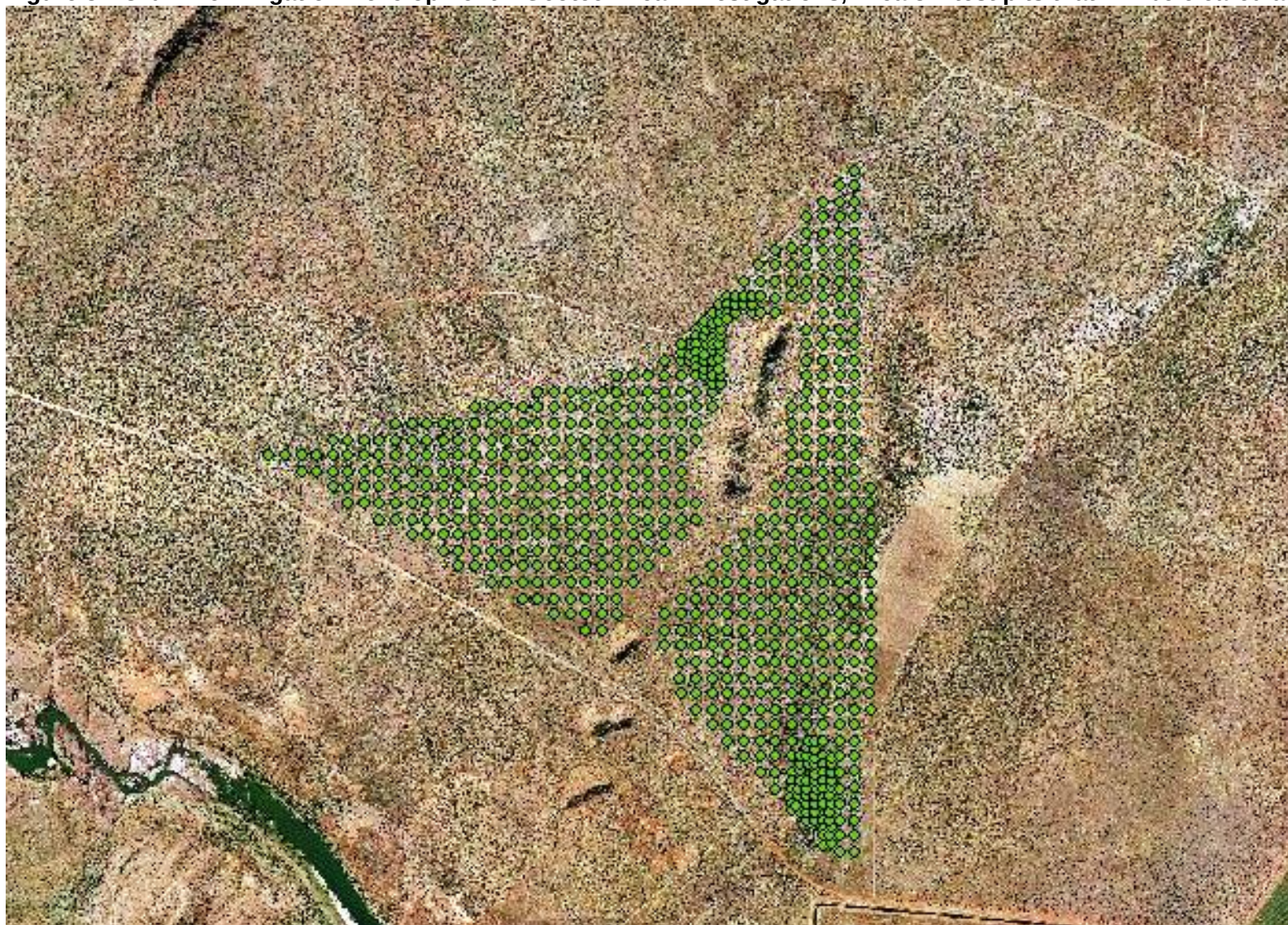


Figure 4...Ord River Irrigation Development – Geotechnical Investigations, Area 9 – test pits that will be cleared and rehabilitated.



1.5 Existing vegetation

Vegetation type, extent and conservation status (after Shepherd *et al.*, 2002) for the Ord River Irrigation Development, Clearing for Geotechnical Investigations:

Vegetation Association Number	Association Description	% Remaining
52	Grasslands, high grass savanna woodland; bloodwood & stringybark over upland tall grass & curly spinifex	100.0
59	Grasslands, high grass savanna sparse tree; bauhinia & coolabah over mitchell, blue & tall upland grasses	88.2
909	Grasslands, high grass savanna woodland; bloodwood, stringybark & woollybutt over upland tall grass & curly	99.6
916	Grasslands, high grass savanna woodland; grey box, Eucalyptus confertifolia & E. foelscheana over spinifex, white	100.0

1.6 Weeds

Declared weeds occurring in the Ord River Irrigation Area or along the Ord River include *Ziziphus mauritiana*, *Parkinsonia aculeate*, *Sorghum alum*, *Datura stramonium*, *Xanthium occidentale*, and *Calotropis procera*. Weeds that are listed as environmental weeds for the area include *Phoenix dactylifera*, *Hyptis suaveolens*, *Alternanthera pungens*, *Lantana camara*, *Leucaena leucocephala* and *Acacia nilotica*.

Although the majority of the areas in which disturbance may occur are uncleared, weeds, erosion and degradation are present, mainly due to the historical use of much of the land for cattle grazing.

2. SITE PREPARATION

2.1 Vegetation clearing, mulching and re-use

Vegetation will be pushed over with a backhoe and moved to the side of the cleared line to enable vehicle access. Only vegetation preventing vehicle access will be cleared from the works area and non-weed infested vegetation will be stockpiled. The backhoe bucket will reinstate stockpiled vegetation. Weed infested vegetation will be disposed of at an appropriate site. Burning of the cleared vegetation will not be permitted.

2.2 Topsoil stripping and re-use

Removal of topsoil will only be required in limited locations to enable vehicle access. On completion of clearing for the test pits, any removed topsoil will be immediately replaced to ensure successful regrowth. Topsoil will be stripped to a maximum depth of 100 mm.

Where topsoil is removed, it will be stored in a weed free (as far as practicable) area, as close as possible to the area to be rehabilitated.

3. WEED CONTROL

Adequate control measures will be incorporated to ensure weeds are killed or not transported to other areas. Control measures include removal of weeds to an approved dump site or treatment of weeds such as using herbicide spraying.

Herbicide spraying shall only be carried out by licensed operators and herbicide shall be mixed and applied in accordance with manufacturer's instructions.

Where practicable, weeds should not be removed when they are in flower or seeding.

All machinery shall be free of built up soil and vegetative material before entering and leaving the site to help minimise the transportation of weeds and their seeds.

Exposed areas such as bare batters and borrow pits shall be promptly rehabilitated to reduce the ingress of weeds.

Where works are adjacent to good quality vegetation, weeds within the project area will be removed or killed once a year for 5 years.

4. REVEGETATION THROUGH REGENERATION

4.1 Revegetation objectives

The revegetation objectives are to:

- Ensure roadside stability and minimise ongoing maintenance;
- Ensure that conservation values and biodiversity are protected; and
- Ensure local amenity and aesthetics are enhanced.

4.2 Required vegetation cover

The roadside vegetation should be similar in structure and content to comparable naturally occurring vegetation in the local area and will reflect the vegetation communities present in the road reserve and adjacent bushland. The width of the vegetation setbacks and clearances will be appropriate for the specific location and will be dependent on an assessment of the road design speed, road alignment and the roadside batter slopes.

4.3 Revegetation Techniques

The following rehabilitation works shall be undertaken on areas of disturbed earth requiring rehabilitation:

- Topsoil will be uniformly respread to a minimum depth of 100mm over the area; and
- Area to be ripped to a minimum depth of 200mm deep with rip lines approximately 300mm apart. Where slopes are present, rip lines shall be along contours.

The following rehabilitation work shall be undertaken at test pits:

- Overburden and then topsoil shall be uniformly and evenly spread over the disturbed areas of the pit. Depending on the slope of drainage lines within the test pit, it may be necessary to form small swales from the topsoil to reduce erosion velocities and encourage the deposition of seeds.

5. VEGETATION ESTABLISHMENT PERIOD

The vegetation establishment period will be for at least twelve months following the completion of the works. During this period, the maintenance and monitoring will be undertaken, see Section 6.

6. ONGOING MAINTENANCE AND MONITORING

Maintenance and monitoring of the project shall be ongoing to measure regeneration effectiveness and to control weeds.

6.1 Maintenance and Monitoring

After revegetation works, revegetated areas will be inspected every twelve months for a total of 24 months to monitor and control weeds and to measure the effectiveness of revegetation works.

Monitoring will comprise the use of criteria. Essentially, this involves visual assessment to ensure the revegetation works have been implemented as planned. Table 2 shall be used as the monitoring guide to assess the success or otherwise of the revegetation plan.

Due to the variable rainfall patterns in pastoral areas, revegetation works may not be successful, despite the use of best management practices.

Table 2: Revegetation Monitoring Guide

Criterion	Target	After three months	After one year	After three years
Mean vegetation foliage cover (%) excluding weeds.	>50	0	20	40
Mean weed foliage cover (%).	<20	<20	<20	<20
Amount of bare soil areas >4m ² (%).	<30	<100	<80	<70