

REVEGETATION PLAN
Gibb River Road Upgrade, SLK 62.3 – 110.22



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GIBB RIVER ROAD UPGRADE, SLK 62.3 – 110.22

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 818/3.

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 818/3, 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 the Gibb River Road Upgrade, SLK 62.3 – 110.22.

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

The Gibb River Road runs approximately 650km between Derby and intersects with the Great Northern Highway between Wyndham and Kununurra. The original Gibb River Road, predominantly built of gravel, provided road user access to remote Kimberley stations and served as an access point for vehicles travelling to Kalumburu on the Kalumburu Road.

Of late, the Gibb River Road has developed into one of the Kimberley’s premier wilderness tourist attractions. During the dry season the average daily traffic (ADT) increases to approximately 140 vehicles per day, with approximately 95% being light vehicles, some with caravans and trailers.

Main Roads Kimberley proposes to improve the formation and drainage of approximately 48 km of pavement along the Gibb River Road (SLK 62.3 – SLK 110.22). The proposed work will restore road condition, provide increased serviceability, reduce maintenance and freight costs and improve the level of service to the local community.

No clearing of remnant native vegetation will occur for road upgrade works and all road rehabilitation work will occur within the maintenance zone. However, three areas outside the road reserve will be disturbed to remove gravel and borrow material for road upgrade works.

1.3 Project Description

The proposed scope of works will involve resealing of the current road pavement, upgrade of floodways through cement stabilisation and extraction of gravel and borrow material for construction works. Road rehabilitation works will be contained within the road reserve.

Figures 1 and 2 on the following page provide broad locality maps of the proposed works.

Borrow and gravel is to be sourced from three different areas (SLK 64, SLK 68 and SLK 110.22) (refer to Figures 3 and 4). It is proposed to investigate the areas delineated on the aerial maps and locate naturally occurring gravels suitable for the upgrade and seal of the Gibb River Road project. Not all of the areas detailed will be required to be cleared and excavated but the best available materials will be sourced from within the areas. Therefore materials may be extracted from one or several locations within the proposed investigation areas. An investigation of the entire proposed areas may not be required as once suitable materials are located the investigation will be terminated due to time and cost constraints.

To source and extract the quantity of materials required for the works it is estimated that a maximum additional clearing of 4 ha will be required to be cleared at each of the proposed materials search areas. This includes clearing to accommodate access tracks and vehicle/plant turnaround areas, initial search cleared lines are used where possible for access tracks and widened to 8.0 m wide to allow vehicles to safely pass each other.

Maximum required clearing is estimated below:

Proposed Area	Estimated Total Area Ha	Maximum Investigation Clearing Ha	Material Extraction Clearing Ha	Est. Total Clearing Ha
SLK 64	62.5	12.5	4	16.5
SLK 68	93	18.6	4	22.6
SLK 110.22	46.5	9.3	4	13.3
Total Clearing Ha				52.4

Of the three material extraction areas, SLK 64 and 68 will be rehabilitated. However, materials at SLK 110.22 may continue to be accessed at a later date for further excavation. Therefore, altogether approximately 39 ha of land will be rehabilitated once road construction work is finalised.

The areas to be rehabilitated are shown in Table 1:

Table 1: Revegetation Area Details

Type	Area
Temporary clearing revegetation	39 hectares
Other revegetation	13.3 hectares

The location and boundaries of the project area are shown on Figures 1 & 2.

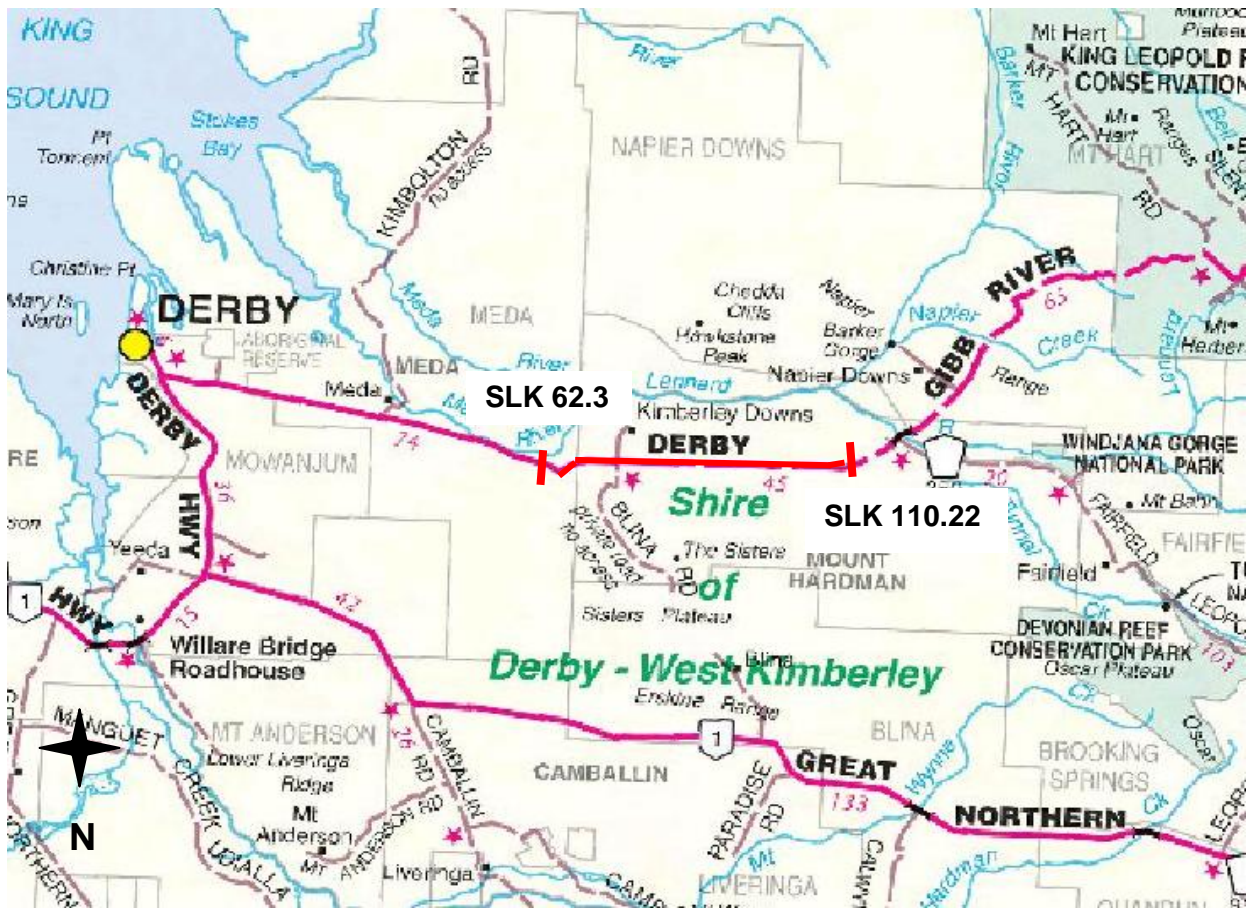


Figure 1...Broad Locality Map

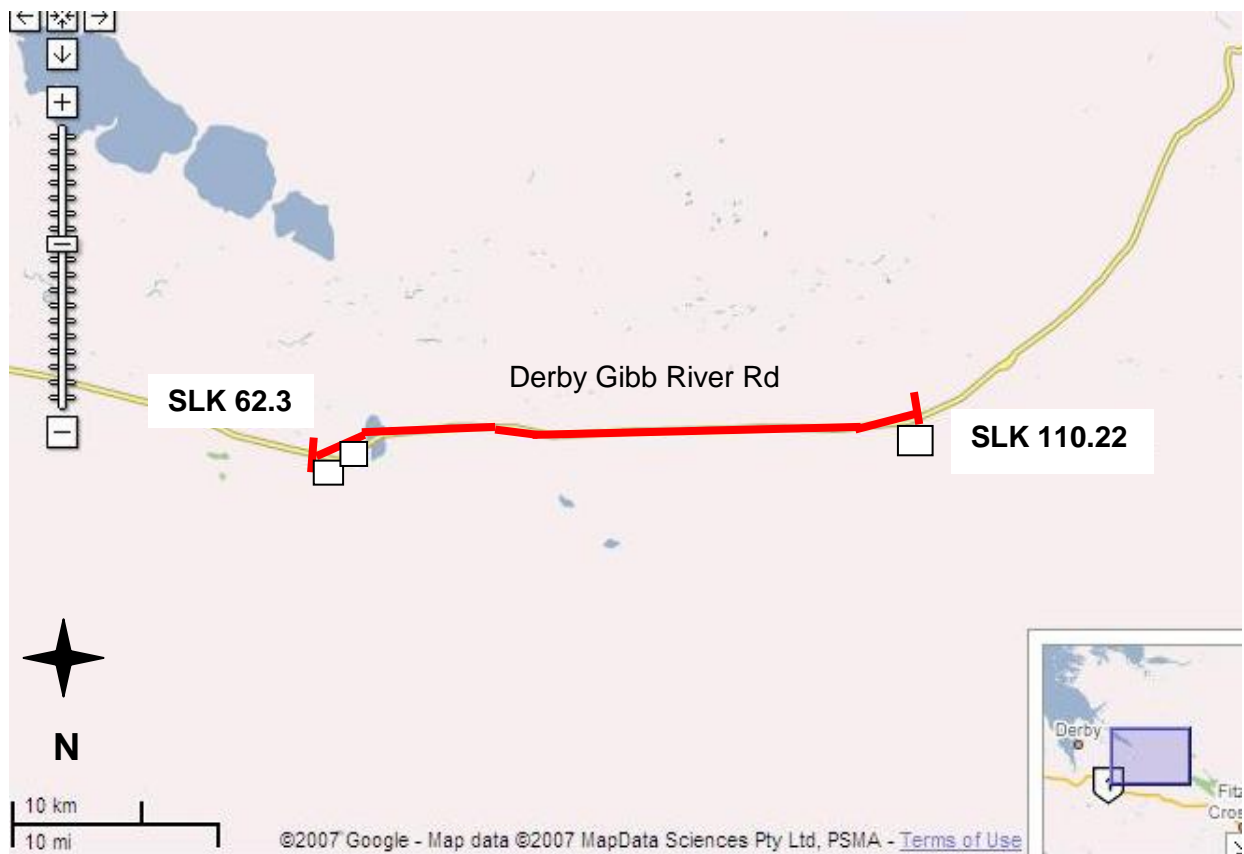


Figure 2...Proposed Materials Investigation Areas



Figure 3...Proposed Materials Investigation Areas, SLK 64 & SLK 68

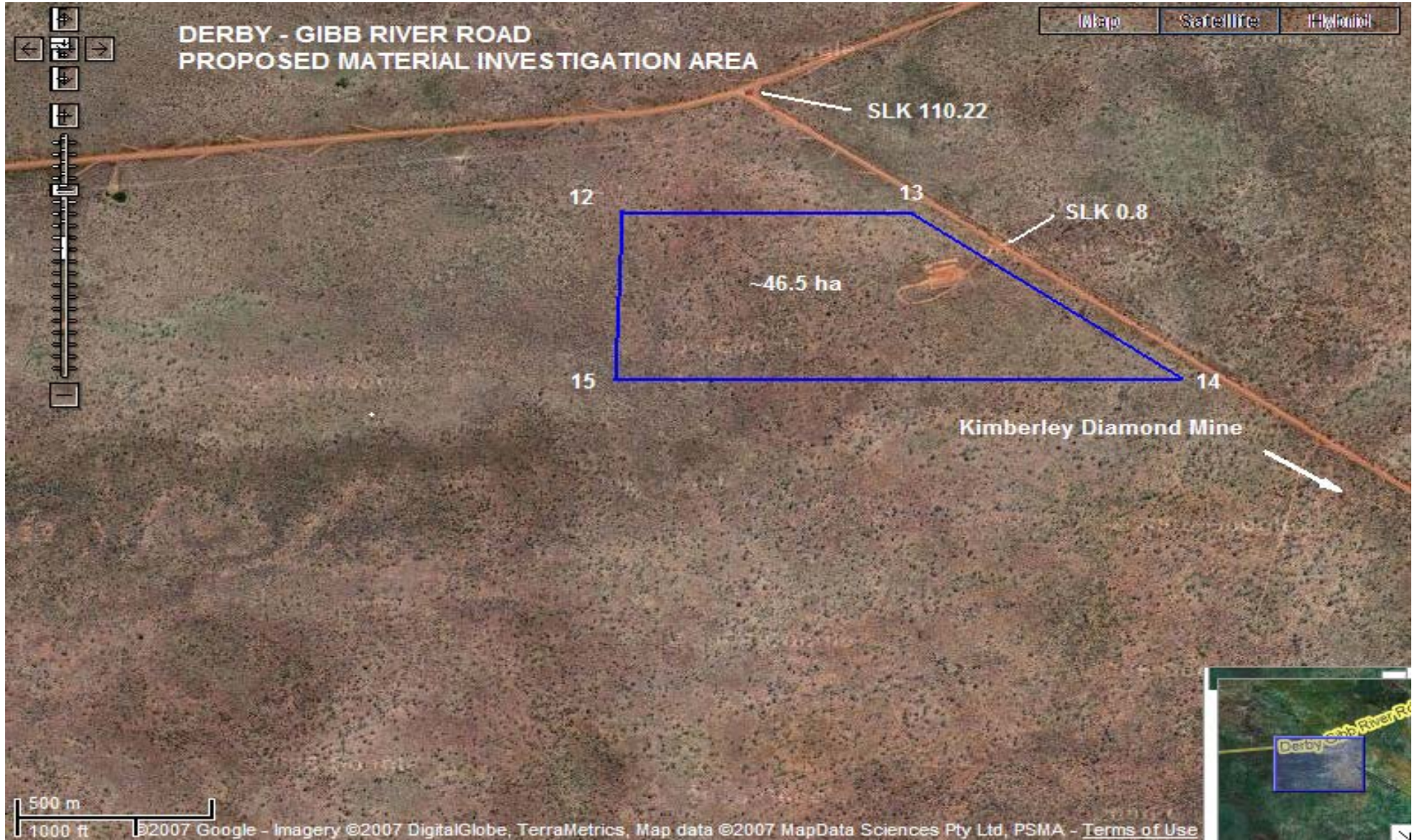


Figure 4...Proposed Materials Investigation Area, SLK 110.22

1.4 Existing vegetation

Vegetation type, extent and conservation status (after Shepherd et al., 2002) for the Gibb River Road Upgrade:

Vegetation Association Number	Association Description	% Remaining
67	Grasslands, tall bunch grass savannah, sparse low tree; ribbon grass & paperbarks	100.0
737	Shrublands, pindan; Acacia tumida shrubland with scattered low bloodwood & Eucalyptus setosa over curly spinifex	100.0
706	Grasslands, tall bunch grass savannah, mitchell & ribbon/blue grass	99.5
744	Grasslands, tall bunch grass savannah sparse low tree; Acacia suberosa & bauhinia over mitchell & ribbon/blue grass on black soil	100.0
745	Shrublands, pindan; acacia shrubland with scattered low trees over spinifex	100.0
755	Shrublands, pindan; Acacia tumida & A. oimpressa shrubland with scattered low bloodwood & Eucalyptus setosa over ribbon & curly spinifex	100.0
757	Shrublands, pindan; Acacia tumida & A. oimpressa shrubland with scattered low bloodwood & Eucalyptus setosa over ribbon & curly spinifex	100.0

1.5 Weeds

No Declared Plants were recorded from the survey area.

2. SITE PREPARATION

2.1 Vegetation clearing, mulching and re-use

All vegetation will be cleared from the works area and non-weed infested vegetation will be stockpiled. Stockpiled vegetation will not be placed on the very edge of the approved cleared area in order to prevent machinery going outside the cleared area to push the stockpile forward again. 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

Topsoil will be stripped to a maximum depth of 100 mm. Topsoil will be stored in a weed free (as far as possible) area, as close as possible to the area to be rehabilitated. The topsoil will be placed in windrows of less than 1.5m in height and reinstated as soon as possible, to prevent deterioration to the in-situ seeds and maintain seed viability.

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 borrow/gravel 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 pit, it may be necessary to form small swales from the topsoil to reduce erosion velocities and encourage the deposition of seeds.
- The existing pit floor shall be ripped to a depth of 300 – 500mm deep with rip lines between 500 - 800mm apart, if the material in the floor of the pit is able to be ripped. The whole area of the pit, including drainage lines, shall be ripped.
- All stockpiled vegetation shall be spread along the contour and pit floor to help promote seed deposition and further reduce erosion velocities.

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 six 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