

**REVEGETATION PLAN**  
Derby Highway Reconstruction, Stages 3 & 4 (SLK 0.2 – 19.2)



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# DERBY HIGHWAY RECONSTRUCTION PROJECT

## 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 Derby Highway Reconstruction project, Stage 3 and 4.

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

Reconstruction and rehabilitation works are required on sections of the Derby Highway (SLK 0.2 – 19.2) between the intersection with the Great Northern Highway and Derby townsite. The location and boundaries of the study area are shown on Figure 1. Reconstruction modifications involve:

- Reconstruction of the floodway sections;
- Overlay of the raised pavement sections;
- Clearing to approximately 10 m wide and construction of a side track on the western side of the existing alignment at an off-set of approximately 60 m from the existing Highway;
- Clearing and extraction of material from nineteen borrow pits of approximately one hectare each, located approximately 200 m from the road centreline on the eastern side of the alignment; and,
- Regarding and refurbishment of existing drainage structures; and,
- There will be no changes to the existing horizontal road alignment;

#### 1.3 Previous Assessment Work

*GHD (2006) Derby Highway Reconstruction Environmental Impact Assessment and Management Plan.*

## 1.4 Project Description

Main Roads Kimberley proposes to reconstruct Stage 4 of the Derby Highway between SLK 0.20 – 13.2. The proposed project involves rehabilitation of the road pavement, reconstruction of the floodway sections and extraction of borrow material. The total amount of clearing required for completion of project work is expected to reach approximately 24 ha. Clearing will only be undertaken temporarily for the extraction of borrow material and the establishment of the sidetrack and lay down areas.

Stage 3 of the Derby Highway Reconstruction project SLK 13.2 – 19.2 (which was recently completed) involved the same type of pavement rehabilitation, floodway reconstruction and extraction of materials.

Clearing quantities for Stages 3 and 4 are as follows:

Stage 3 (SLK 13.2 – 19.2) = 28 ha of clearing of native vegetation. Of this amount, 19 ha has been permanently cleared for road construction works and 9 ha was temporarily cleared for extraction of borrow and gravel material, sidetrack establishment and laydown areas. The 9 ha of permanently cleared land has since been revegetated.

Stage 4 (SLK 0.2 – 13.2) = 24 ha of clearing of native vegetation. Of this amount, the whole 24 ha will be temporarily cleared for the extraction of borrow and gravel material, sidetrack establishment and laydown areas.

A total of 52 ha will be cleared for construction works. Of this area, 19 ha of native vegetation will be permanently cleared and 33 ha of native vegetation will be temporarily cleared.

Rehabilitation shall be applied to the following areas:

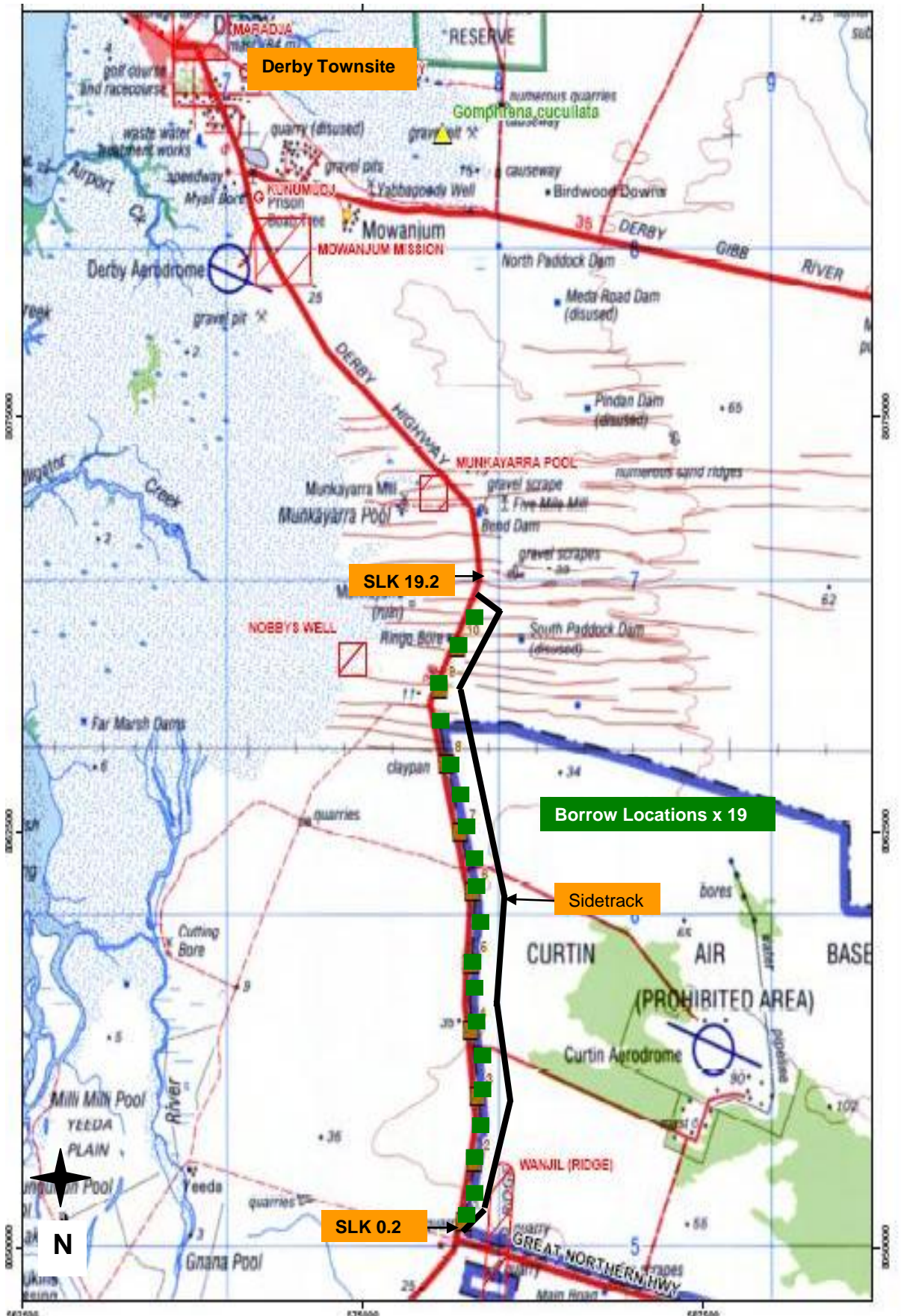
- Unused sections of the existing road;
- Side and access tracks;
- Gravel/borrow pits and turkey's nests;
- Construction camp; and,
- Machinery/vehicle maintenance sites.

The areas to be rehabilitated are shown in Table 1:

Table 1: Revegetation Area Details

<b>Type</b>	<b>Area</b>
Temporary clearing revegetation	33 hectares
Other revegetation	Nil

The location and boundaries of the project area are shown on Figure 1.



**Figure 1...Locality Plan of Stage 3 & 4 Derby Highway Reconstruction Project  
SLK 0.2 – 19.2**

## 1.5 Existing vegetation

Vegetation type, extent and conservation status (after Shepherd et al., 2002) for the Derby Highway Upgrade project area (SLK 0.2 – 19.2):

Beard Code	Vegetation Association Number	Association Description	Pre-European Extent (ha)	Current Extent (ha)	% Remaining
e24,53Lr a28,29SC cp3Gi	764	Shrublands, pindan; Acacia eriopoda & A. tumida shrubland with scattered low bloodwood & Eucalyptus setosa over ribbon & Curly spinifex	581,958	581,958	100.0

## 1.6 Weeds

No Declared Plants were recorded from the survey area (GHD, 2006).

## 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 <sup>2</sup> (%).	<30	<100	<80	<70