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# Main Roads Western Australia

Fregon Pit 6  
Pit Management Plan

May 2011



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# 1. Introduction

This Pit Management Plan (PMP) has been prepared for Main Roads Western Australia (Main Roads), for the planned development of the Fregon Pit 6. The proposed pit is located in the Shire of Jerramungup adjacent to Devils Creek Road. Devils Creek Road occurs to the north east of the Bremer Bay as shown in Figure 1. Gravel sourced from the pit site will be extracted and used for the upgrading of nearby sections of the 'Point Ann Roads Stage 2'.

A Preliminary Environmental Impact Assessment (GHD, 2011) prepared for the development of the pit has concluded that clearing operations can be conducted under the provisions of the Main Road Statewide Purpose Clearing Permit CPS818/5.

The pit area will be developed and rehabilitated over one construction season as the gravel is required for the upgrading of 'Point Ann Roads Stage 2', located in the Fitzgerald River National Park. The total Fregon Pit 6 is 28.61 ha in area and is located in private property north of Bremer Bay. It is expected that approximately 100 000m<sup>3</sup> of gravel will be won from the pit area for road construction purposes.

Fregon Pit 6 is one of the dieback free gravel resources identified for the upgrade of Point Ann State 2 Roads.

This PMP details environmental management measures to minimise and manage the expected impacts of the gravel extraction and cartage operations, and provide for the rehabilitation of the site. Management measures detailed in this report will be included in the tender documents for the gravel stockpiling undertaken by Main Roads and will be applied when transporting gravel from the site and when rehabilitating the pit area.

The Pit Management Plan addresses the following issues related to the proposed gravel pit planning, development and rehabilitation:

- ▶ Rare flora
- ▶ Aboriginal heritage
- ▶ Pit boundaries
- ▶ Gravel pit access
- ▶ Dieback management
- ▶ Pit clearing
- ▶ Gravel crushing and topsoil management
- ▶ Pit drainage
- ▶ Fire management
- ▶ Pets and firearms
- ▶ Fuel and chemical storage
- ▶ Rubbish disposal
- ▶ Gravel cartage
- ▶ Pit rehabilitation, and



- ▶ **Monitoring of pit management.**

A summary of the specific management measures is included in Appendix A, which is designed for use as a 'stand alone' Environmental Management Plan for the project.



## 2. Gravel Pit Operations and Management

It is proposed that Fregon Pit 6 will be developed and rehabilitated over one construction season as the gravel is required for roadworks on nearby sections of 'Point Ann Roads Stage 2' located in the Fitzgerald River National Park. A locality Plan of the proposed pit area is shown in Figure 1 and the proposed clearing area and vegetation types are shown in Figure 2.

The following section identifies management actions to be followed during the development and rehabilitation of Fregon Pit 6 and the transport of gravel to roadworks on Point Ann Stage 2 Roads. For each management measure the relevant organisation responsible for that management measure is identified.

### 2.1 Rare Flora

A flora survey of the proposed gravel pit area was conducted by an ecologist during February 2011 and a report compiled.

No Declared Rare Flora species as listed by the Department of Environment and Conservation (DEC) or species of national conservation significance listed under the EPBC Act were recorded within Fregon Pit 6 (DEC, 2011).

### 2.2 Aboriginal Heritage

Archaeological surveys of the pit site were carried out by David Guilfoyle, Grahame Minter and Errol Williams in February 2011. These surveys included a site visit. No sites were located within Fregon Pit 6 but one isolated quartz artefact was located in a sandy track bordering the gravel extraction pit (Guilfoyle, 2011). No ethnographic issues were raised with the site (Goode, 2011).

**Action / Responsibility: Main Roads Project Manager**

### 2.3 Pit Boundaries

Prior to the commencement of any works in the pit area the pit boundaries will be marked to ensure that they are clearly visible from within the site.

**Action / Responsibility: Main Roads Project Manager**

### 2.4 Gravel Pit Access

Access to Fregon Pit 6 from Devils Creek Road will be via a new access track between Devils Creek Road and the pit site. The access track will be developed by the removal of vegetation and sheeting with gravel to provide the standard required for heavy vehicles.

**Action / Responsibility: Main Roads Project Manager**

The vegetation removal will be kept to the minimum necessary for the safe use of the track and be conducted under the dieback hygiene conditions detailed at Section 2.5 below.

**Action / Responsibility: Main Roads Project Manager**



Access track development will be carried out under dieback hygiene conditions detailed in Section 2.5 below.

**Action / Responsibility: Main Roads Project Manager**

Truck turn-around loops will be developed within the pit area.

**Action / Responsibility: Main Roads Project Manager**

## 2.5 Dieback and Weed Management

Dieback (*Phytophthora cinnamomi*) mapping conducted by DEC in 2011 showed that Fregon Pit 6 is dieback free.

A site visit by an ecologist in February 2011 found no weeds within Fregon Pit 6 (Sandiford, 2011).

**Action / Responsibility: Main Roads Project Manager**

All activities associated with the pit clearing, vegetation mulching, gravel crushing, stockpiling, cartage operations and rehabilitation works will be conducted under the following dieback hygiene conditions:

1. All contractors and site employees will be advised of the *Phytophthora cinnamomi* management measures.
2. Signs indicating that the pit site is dieback free and that all vehicles are to be 'Clean on Entry' will be installed on the pit access track adjacent to the intersection of Devils Creek Road.
3. Operations and gravel cartage from the pit will be conducted under dry soil conditions. Dry soil conditions are defined as when soil does not clod, adhere or accumulate on plant or vehicles. Should rainfall create wet soil conditions during pit operations split phase operations will be introduced. Where a rainfall event exceeds more than 7.5 mm, works will be suspended. When transitioning from split phase operations to dry phase operations, the site Environmental Officer shall certify that conditions have returned to allow dry phase operations and all plant that was used during split phase operations shall be cleaned and recorded as cleaned by the Site Environmental Officer. Split phase loading areas shall be barriered to prevent access during dry phase operations.
4. The gravel crushing plant and associated machinery will be cleaned free of all soil and plant material prior to arrival and prior to departing the site. Clean down will comprise of:
  - (a) The use of a brush and / or compressed air to remove clods of soil and /or soil water slurry. A metal bar or spade will be used to remove compacted soil where necessary; alternatively,
  - (b) Washdown will be with water from a domestic mains water supply, from a bore within a confined aquifer or water from other sources (ie dams, soaks or creeks) treated with a sterilant solution. Water from other sources will be treated with sodium hypochlorite solution with a concentration of 125 g/l of available chlorine.
5. A solution containing 1 L of hypochlorite solution per 1500 L of water (2 L of hypochlorite solution per 3000 L water tank or 335 ml of hypochlorite per 500 L water tank) is adequate to treat the water for use in washdown. The washdown water will be thoroughly mixed and left to stand for 24 hours prior to its use.
6. Dust adhering to the sides of vehicles does not need to be removed.



7. Water used for dust suppression and plant clean down will be sourced from a town water supply, from a bore located within a confined aquifer or treated with sodium hypochlorite as detailed above.
8. Gravel loading operations carried out under split phase conditions will include a physical barrier such as a log or earth berm or log separating the truck loading and gravel stockpile areas. Gravel cartage trucks will not enter the pit area. Gravel loading areas for split phase operations shall be quarantined from load areas and access tracks for dry phase operations.
9. No plant or vehicles will be permitted to access vegetated areas outside of the pit boundaries.

**Action / Responsibility: Main Roads Project Manager**

## **2.6 Pit Clearing**

It is expected that vegetation clearing, stockpiling and mulching will take place prior to the commencement of gravel extraction. The 28.61 ha of the pit area will be cleared as shown in Figure 2. This area will provide a suitable operating environment for pit operations including, gravel stockpile and topsoil stockpiles, and allow for rehabilitation works to take place soon after the completion of gravel crushing.

**Action / Responsibility: Main Roads Project Manager**

All mulched cleared vegetation and topsoil will be kept within the pit area.

**Action / Responsibility: Main Roads Project Manager**

During clearing, timber debris will be pushed away from the boundary and towards the centre of the pit using a bulldozer equipped with a tree bar and root rake.

**Action / Responsibility: Main Roads Project Manager**

## **2.7 Gravel Crushing and Topsoil Management**

Main Roads proposes to excavate approximately 100 000m<sup>3</sup> of gravel from Fregon Pit 6. All gravel winning and stockpiling operations will be conducted under the conditions outlined in the Dieback Management detailed at Section 2.5.

**Action / Responsibility: Main Roads Project Manager**

Topsoil within the pit area will be stripped to a nominal depth of 100 mm and stockpiled in windrows up to 2 m in height. Topsoil heaps will not be compacted or allowed to become saturated by water ponding.

**Action / Responsibility: Main Roads Project Manager**

Any overburden not incorporated into the gravel will be stockpiled for use as road fill or respread as part of the pit rehabilitation.

**Action / Responsibility: Main Roads Project Manager**

At completion of the gravel winning and stockpiling the excavated pit area will be rehabilitated as detailed at Section 2.14.

**Action / Responsibility: Main Roads Project Manager**



## 2.8 Pit Drainage

The pit area is to be free draining and will not require a detention basin.

## 2.9 Fire Management

During vegetation clearing and mulching and gravel extraction operations, the following fire management conditions will be complied with:

- ▶ All machinery is to be shut down during periods of extreme fire hazard as advised by the Chief Fire Control Officer from the Shire of Jerramungup;
- ▶ A portable fire fighting unit will be provided. A minimum standard being a 450 litre tank with a petrol driven water pump connected to a 20m hose with a nozzle attached;
- ▶ All machinery to be fitted with fire extinguishers
- ▶ A loader equipped with forks with the additional capacity to cut firebreaks will be available on-site.

**Action / Responsibility: Main Roads Project Manager**

No fires will be permitted in Fregon Pit 6 during gravel crushing operations.

**Action / Responsibility: Main Roads Project Manager**

## 2.10 Pets and Firearms

No firearms and / or pets will be permitted on the site during the development, operation and / or rehabilitation of the site.

**Action / Responsibility: Main Roads Project Manager**

## 2.11 Fuel and Chemical Storage

If possible, on-site fuel and chemical storage will be avoided. Where on-site storage of flammable and combustible liquids, such as hydrocarbons, exceeds 250 litres they will be stored in a bunded area in accordance with Australian Standard 1940-2004: *The Storage and handling of flammable and combustible liquids*.

**Action / Responsibility: Main Roads Project Manager**

Any fuel or chemical spills will be cleaned up immediately and any contaminated soils will be treated and disposed of in an appropriate manner as required.

**Action / Responsibility: Main Roads Project Manager**

DEC will be advised of any fuel or chemical spills as soon as practicable after they occur.

**Action / Responsibility: Main Roads Project Manager**





## 2.12 Rubbish Disposal

Domestic site rubbish will not be disposed of by burning. All domestic rubbish will be disposed of at a waste disposal site approved by the Shire of Jerramungup.

**Action / Responsibility: Main Roads Project Manager**

## 2.13 Gravel Cartage

Stockpiled gravel will be trucked from the pit area during road upgrading works.

Haulage trucks will enter the pit via the sheeted access track and turn-around where trucks will be loaded with stockpiled gravel. The loading area will be located within the pit area and restricted to a 10 m wide section adjacent to the pit access track / truck turn-around.

**Action / Responsibility: Main Roads Project Manager**

Gravel cartage will be conducted under dry soil conditions. Should rainfall create wet soil conditions during pit operations, gravel loading operations will be carried out under split phase conditions with a physical barrier such as a log or earth berm separating the loading and stockpile areas. Split phase operations and the transitioning from split phase to dry phase operations shall be undertaken in accordance with section 2.5.

**Action / Responsibility: Main Roads Project Manager**

## 2.14 Pit Rehabilitation

At the completion of gravel extraction activities Fregon Pit 6 will be rehabilitated as described below.

It should be recognised that the stockpile storage and truck loading area will not be rehabilitated until the stockpiled gravel has been removed. This will require the retention of some overburden and topsoil in stockpiles for later rehabilitation works.

**Action / Responsibility: Main Roads Project Manager**

### 2.14.1 Earthworks – Gravel Pit Area

At the completion of gravel crushing and stockpiling operations the pit area will be rehabilitated as described below:

- 1 Pit walls will be battered to a slope no more than 1 in 4 by pushing up material from the pit floor.
- 2 The pit floor will be shaped with a minimum 1 in 100 fall to avoid water ponding with any drainage directed downslope to the detention basins.
- 3 The pit floor and wall (batters) will be ripped during summer at 1 m spacings across the contour to a depth of at least 800 mm.
4. The pit area will be shaped to conform and blend into the adjacent landform as far as practical.
- 5 Topsoil and any overburden will be evenly respread over the pit area leaving a rough surface.
6. Any rock exposed during pit ripping will be used to construct fauna habitat within the pit area.

**Action / Responsibility: Main Roads Project Manager**



At the completion of gravel carting the stockpile storage area and truck loading area will be rehabilitated as described above.

**Action / Responsibility: Main Roads Project Manager**

#### **2.14.2 Revegetation of Pit Area**

Revegetation will occur as the gravel extraction and carting is completed. As they become available, disturbed areas will be revegetated as described below:

- 1 Topsoil piles will be spread evenly across the ripped area.
- 2 Sufficient topsoil will be withheld to provide coverage of stockpile sites and access tracks due for later rehabilitation.
- 3 Seeding if required, at the direction of the Main Roads Environmental Manager, will be conducted at the break of the season.
- 4 All species planted will be locally occurring indigenous species sourced from within the provenance.

At the time of writing this report, it is understood that Main Roads will carry out the seeding, planting and monitoring of the site.

**Action / Responsibility: Main Roads Project Manager**

#### **2.15 Monitoring of Pit Management**

Main Roads is responsible for development, operation and rehabilitation of Fregon Pit 6. The management measures detailed in this Pit Management Plan will be followed during the development, operation and rehabilitation of the gravel pit, and during gravel cartage operations.

**Action / Responsibility: Main Roads Project Manager**

Main Roads Construction Supervisor will be provided with a copy of the Pit Management Plan and made aware of their responsibilities as detailed in this plan.

**Action / Responsibility: Main Roads Project Manager**

Main Roads Superintendent for the gravel extraction operations will be responsible for pit management and monitor their compliance.

**Action / Responsibility: Main Roads Project Manager**



### 3. References

Department of Environment and Conservation (2011). Floristic survey for a proposed gravel quarry on Swamp Rd. Unpublished Report. Prepared by Damien Rathbone

GHD (2011), Fregon Pit 6 – Preliminary Environmental Impact Assessment, Unpublished Report, Prepared on Behalf of Main Roads Albany, February 2011

Goode, B (2010) AN ETHNOGRAPHIC ABORIGINAL HERITAGE SURVEY OF ROAD AND RECREATION FACILITY UPGRADES AT POINT ANN IN THE FITZGERALD RIVER NATIONAL PARK, WESTERN AUSTRALIA. Unpublished Report. Prepared on Behalf of Main Roads Albany.

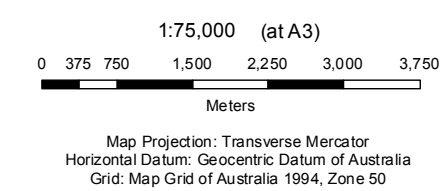
Guilfoyle, D. (2011). Report of an Archaeological Assessment of Road and Recreation Facility Upgrades, at Point Ann in the Fitzgerald River National Park, Western Australia. Unpublished Report. Prepared on Behalf of Main Roads Albany.

Sandiford, E.M. (2011). Flora and Vegetation Survey of proposed “Fregon” gravel pit on Devils Creek Rd. Unpublished Report. Prepared on Behalf of Main Roads Albany.

Standards Australia. (2004). The storage and handling of flammable and combustible liquids AS 1940-2004. Standards Association Australia. Homebush NSW.



## Figures



**LEGEND**

Road	Point Ann Roads Stage 2
Fregon Gravel Pit	DEC Estate



Main Roads WA - ETS  
Fitzgerald River National Park  
- Permits and Approvals

Job Number	61-26658
Revision	1
Date	26 May 2011

Locality Map

Figure 1



Fregon Pit 6

DEVILS CREEK RD



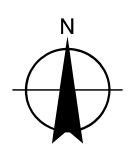
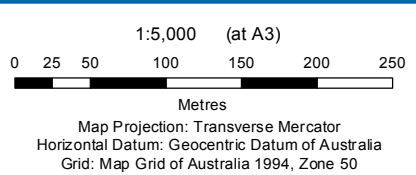
**LEGEND**

- Roads
- Cadastral Boundary
- Fregon Gravel Pit - Cleared Area: 28.61 ha

**Vegetation Type**

*Eucalyptus buprestium*/*E. pleurocapra* Very Open Tree Mallee over *Lambertia inermis* Tall Open Shrubland, Mixed Open Heath, Mixed Open Low Heath and Mixed Very Open Sedgeland

*Bushland Condition: 2 - Excellent*



Main Roads WA - ETS  
Fitzgerald River National Park  
- Permits and Approvals

Job Number | 61-26658  
Revision | 0  
Date | 19 May 2011

**Fregon Pit 6  
Proposed Clearing Area**

**Figure 2**



Appendix A

# Summary of Environmental Management Requirements



**Table 1 Summary of Environmental Management Requirements**

<b>Issue</b>	<b>Management Measure</b>	<b>Responsibility</b>
<b>Pit Boundaries</b>	Prior to the commencement of any works in the pit area the pit boundaries will be marked to ensure that they are clearly visible from within the site.	Main Roads Project Manager
<b>Aboriginal Heritage</b>	No artefacts were found within Fregon Pit 6. No further action is required.	
<b>Gravel Pit Access</b>	Access to Fregon Pit 6 will be via a new access track. The vegetation removal will be kept to the minimum necessary for the safe use of the track and be conducted under the dieback hygiene conditions detailed at Section 2.5 below.	Main Roads Project Manager
	Access track development will be carried out under dieback hygiene conditions detailed in Section 2.5 below	Main Roads Project Manager
	Truck turn-around loops will be developed within the pit area.	Main Roads Project Manager





Issue	Management Measure	Responsibility
<b>Dieback Management</b>	<p>All activities associated with the pit clearing, vegetation mulching, gravel crushing, stockpiling, cartage operations and rehabilitation works will be conducted under the following dieback hygiene conditions:</p> <ol style="list-style-type: none"><li>1 All contractors and site employees will be advised of the <i>Phytophthora cinnamomi</i> management measures.</li><li>2 Signs indicating that the pit site is dieback free and that vehicles are to be 'Clean on Entry' will be installed on the pit access track adjacent to the intersection of Devils Creek Road.</li><li>3 Operations and gravel cartage from the pit will be conducted under dry soil conditions. Dry soil conditions are defined as when soil does not clod, adhere or accumulate on plant or vehicles. Should rainfall create wet soil conditions during pit operations split phase operations will be introduced. If there is any rainfall event of more than 7.5mm works will be suspended. When transitioning from split phase operations to dry phase operations, the site Environmental Officer shall certify that conditions have returned to allow dry phase operations and all plant that was used during split phase operations shall be cleaned and recorded as cleaned by the Site Environmental Officer. Split phase loading areas shall be barriered off to prevent access during dry phase operations.</li></ol>	Main Roads Project Manager



Issue	Management Measure	Responsibility
<b>Dieback Management</b>	<p>4 The gravel crushing plant and associated machinery will be cleaned free of all soil and plant material prior to arrival and prior to departing the site. Clean down will comprise of:</p> <p>(a) The use of a brush and / or compressed air to remove clods of soil and / or soil water slurry. A metal bar or spade will be used to remove compacted soil where necessary.</p> <p>Alternately,</p> <p>(b) Washdown will be with water from a domestic mains water supply, from a bore within a confined aquifer or water from other sources (ie dams, soaks or creeks) treated with a sterilant solution. Water from other sources will be treated with sodium hypochlorite solution with a concentration of 125 g/l of available chlorine.</p> <p>5 A solution containing 1 L of hypochlorite solution per 1500 L of water (2 L of hypochlorite solution per 3000 L water tank or 335 ml of hypochlorite per 500 L water tank) is adequate to treat the water for use in washdown. The washdown water will be thoroughly mixed and left to stand for 24 hours prior to its use.</p> <p>6 Dust adhering to the sides of vehicles does not need to be removed.</p> <p>7 Water used for dust suppression and plant clean down will be sourced from a town water supply, from a bore located within a confined aquifer or treated with sodium hypochlorite as detailed above.</p> <p>8 Gravel loading operations carried out under split phase conditions will include a physical barrier such as a log or earth berm or log separating the truck loading and gravel stockpile areas. Gravel cartage trucks will not enter the pit area. Gravel loading areas for split phase operations shall be quarantined from load areas and access tracks for dry phase operations</p> <p>9 No plant or vehicles will be permitted to access vegetated areas outside of the pit boundaries.</p>	Main Roads Project Manager



Issue	Management Measure	Responsibility
<b>Pit Clearing</b>	The 28.61 ha of the pit will be cleared and the pit developed, the pit area is shown in Figure 2.	Main Roads Project Manager
	All mulched vegetation and topsoil will be kept within the pit area.	Main Roads Project Manager
	During clearing, timber debris will be pushed away from the boundary and towards the centre of the pit using a bulldozer equipped with a tree bar and root rake.	Main Roads Project Manager
<b>Gravel Crushing and Topsoil management</b>	The Main Roads proposes to excavate approximately 100 000m <sup>3</sup> of gravel from Fregon Pit 6. All gravel winning and stockpiling operations will be conducted under the conditions outlined in the Dieback Management detailed in the Pit Management Plan.	Main Roads Project Manager
	Topsoil within the pit area will be stripped to a nominal depth of 100 m and stockpiled in windrows up to 2m in height. Topsoil heaps will not be compacted or allowed to become saturated by water ponding.	Main Roads Project Manager
	Any overburden not incorporated into the gravel will be stockpiled for use as road fill or respread as part of the pit rehabilitation.	Main Roads Project Manager
	At completion of the gravel winning and stockpiling the excavated pit area will be rehabilitated as detailed in the Pit Management Plan.	Main Roads Project Manager
<b>Pit Drainage</b>	The pit area is to be free draining and will not require a detention basin.	Main Roads Project Manager



Issue	Management Measure	Responsibility
<b>Fire Management</b>	<p>During vegetation clearing and mulching and gravel extraction operations the following fire management conditions will be complied with:</p> <ol style="list-style-type: none"> <li>1. All machinery to be shut down during periods of extreme fire hazard as advised by the Chief Fire Control Officer from the Shire of Jerramungup</li> <li>2. The provision of a portable fire fighting unit. A minimum standard being a 450 litre tank with a petrol driven water pump connected to a 20m hose with a nozzle attached</li> <li>3. All machinery to be fitted with fire extinguishers</li> <li>4. A loader equipped with forks with the additional capacity to cut firebreaks will be available on-site</li> </ol>	Main Roads Project Manager
<b>Fire Management</b>	No fires will be permitted in the pit area during gravel crushing operations.	Main Roads Project Manager
<b>Pets and Firearms</b>	No firearms and / or pets will be permitted on the site during the development, operation and / or rehabilitation of the site	Main Roads Project Manager
<b>Fuel and Chemical Storage</b>	<p>If possible on-site fuel and chemical storage will be avoided. Where on-site storage of flammable and combustible liquids, such hydrocarbons, exceeds 250 litres they will be stored in a bunded area in accordance with Australian Standard 1940-2004: <i>The Storage and handling of flammable and combustible liquids</i>.</p>	Main Roads Project Manager
	Any fuel or chemical spills will be cleaned up immediately and any contaminated soils will be treated and disposed of in an appropriate manner as required.	Main Roads Project Manager
	DEC will be advised of any fuel or chemical spills as soon as practicable after they occur.	Main Roads Project Manager



<b>Issue</b>	<b>Management Measure</b>	<b>Responsibility</b>
<b>Rubbish Disposal</b>	Domestic site rubbish will not be disposed of by burning. All domestic rubbish will be disposed of at a waste disposal site approved by the Shire of Jerramungup	Main Roads Project Manager
<b>Gravel Cartage</b>	Haulage trucks will enter the pit via the sheeted access track and turn-around where trucks will be loaded with stockpiled gravel. The loading area will be located within the pit area and restricted to a 10 m wide section adjacent to the pit access track / truck turn-around.	Main Roads Project Manager
	Gravel cartage will be conducted under dry soil conditions. Should rainfall create wet soil conditions during pit operations gravel loading operations will be carried out under split phase conditions with a physical barrier such as a log or earth berm separating the loading and stockpile areas. Split phase operations and the transitioning from split phase to dry phase operations shall be undertaken in accordance with section 2.5.	Main Roads Project Manager
<b>Pit Rehabilitation</b>	<p>At the completion of gravel extraction and stockpiling operations Fregon Pit 6 will be rehabilitated as described below.</p> <p>It should be recognised that the stockpile storage and truck loading area will remain un-rehabilitated until the stockpiled gravel has been removed. This will require the retention of some overburden and topsoil in stockpiles for later rehabilitation works.</p>	Main Roads Project Manager



Issue	Management Measure	Responsibility
<b>Pit Rehabilitation – Earthworks Gravel Pit Area</b>	<p>At the completion of gravel extraction and stockpiling operations the pit area will be rehabilitated as described below:</p> <ol style="list-style-type: none"> <li>1 Pit walls will be battered to a slope no more than 1 in 4 by pushing up material from the pit floor.</li> <li>2 The pit floor will be shaped with a minimum 1 in 100 fall to avoid water ponding with any drainage directed downslope to the detention basins.</li> <li>3 The pit floor and wall (batters) will be ripped during summer at 1 m spacings across the contour to a depth of at least 800 mm.</li> <li>4. The pit area will be shaped to conform and blend into the adjacent landform as far as practical.</li> <li>5 Topsoil and any overburden will be evenly respread over the pit area leaving a rough surface.</li> <li>6. Any rock exposed during pit ripping will be used to construct fauna habitat within the pit area.</li> </ol>	Main Roads Project Manager
<b>Revegetation of Pit Area</b>	<p>Revegetation will occur as the gravel extraction and carting is completed. Disturbed areas will be revegetated as described below:</p> <ol style="list-style-type: none"> <li>1 Topsoil piles will be spread evenly across the ripped area.</li> <li>2 Sufficient topsoil will be withheld to provide coverage of stockpile sites and access tracks due for later rehabilitation.</li> <li>3 Seeding if required, at the direction of the Main Roads Environmental Manager, will be conducted at the break of the season.</li> <li>4 All species planted will be locally occurring indigenous species sourced from within the provenance.</li> </ol> <p>At this stage it is understood that Main Roads will carry out the seeding, planting and monitoring of the site.</p>	Main Roads Project Manager



Issue	Management Measure	Responsibility
<b>Monitoring of Pit Management</b>	Main Roads is responsible for development, operation and rehabilitation of the Fregon Pit 6. The management measures detailed in this Pit Management Plan will be followed during the development, operation and rehabilitation of the gravel pit, and during gravel cartage operations.	Main Roads Project Manager
	Main Roads Construction Supervisor will be provided with a copy of the Pit Management Plan and made aware of their responsibilities detailed in this plan.	Main Roads Project Manager
<b>Monitoring of Pit Management</b>	Main Roads Superintendent for the gravel extraction operations will be responsible for pit management and monitor their compliance	Main Roads Project Manager



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