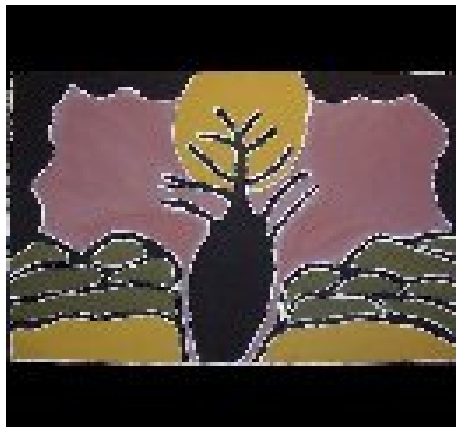


**PRELIMINARY ENVIRONMENTAL IMPACT  
ASSESSMENT**  
**Gibb River Road**  
**Road Train Improvements Stage 2**  
**Pentecost Range SLK 573.21 – 577.00**



Prepared by:

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Date: December 2007

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# **GIBB RIVER ROAD ROAD TRAIN IMPROVEMENTS STAGE 2 PENTECOST RANGE SLK 573.21 – 577.00**

## **PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT**

### **1. INTRODUCTION**

Main Roads Kimberley region proposes to upgrade the Pentecost Range section of the Gibb River Road (SLK 573.21 – 577.00). The proposed works will involve:

- Improvement of formation and drainage, improvement to minor horizontal alignments (SLK 573.21 – 575.30);
- Improvement of vertical alignment, the road profile will be raised over minor run-off gullies and small culverts are to be installed (SLK 575.30 – 576.00); and,
- Major cut to fill earthworks to improve both vertical and horizontal alignment (SLK 576.00 – 577.00).

The proposed works are located within the Shire of Wyndham-East Kimberley.

### **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.

The gravel road has a derestricted speed zone and flooding can cause washouts and other road hazards on parts of the road. Upgrading of the road will enhance road user accessibility and provide significant improvement to traffic safety.

As per Main Roads' Environmental Assessment and Approval process, the Low Impact Environmental Screening Checklist has been completed for the proposal, refer Appendix A. As the project will involve ground disturbance and clearing of native vegetation the project will require further environmental investigations such as the preparation of a project specific Preliminary Environmental Impact Assessment. This report fulfils this requirement.

### 3. DESCRIPTION OF THE PROJECT

#### *Pentecost Range road realignment SLK 573.21 to 577.00, Gibb River Road*

The scope of works for this section involves a road realignment of approximately 3.8 km, cleared to a width of minimum 15 metres up to a maximum of 100 meters. The section is broken in to three subsections:

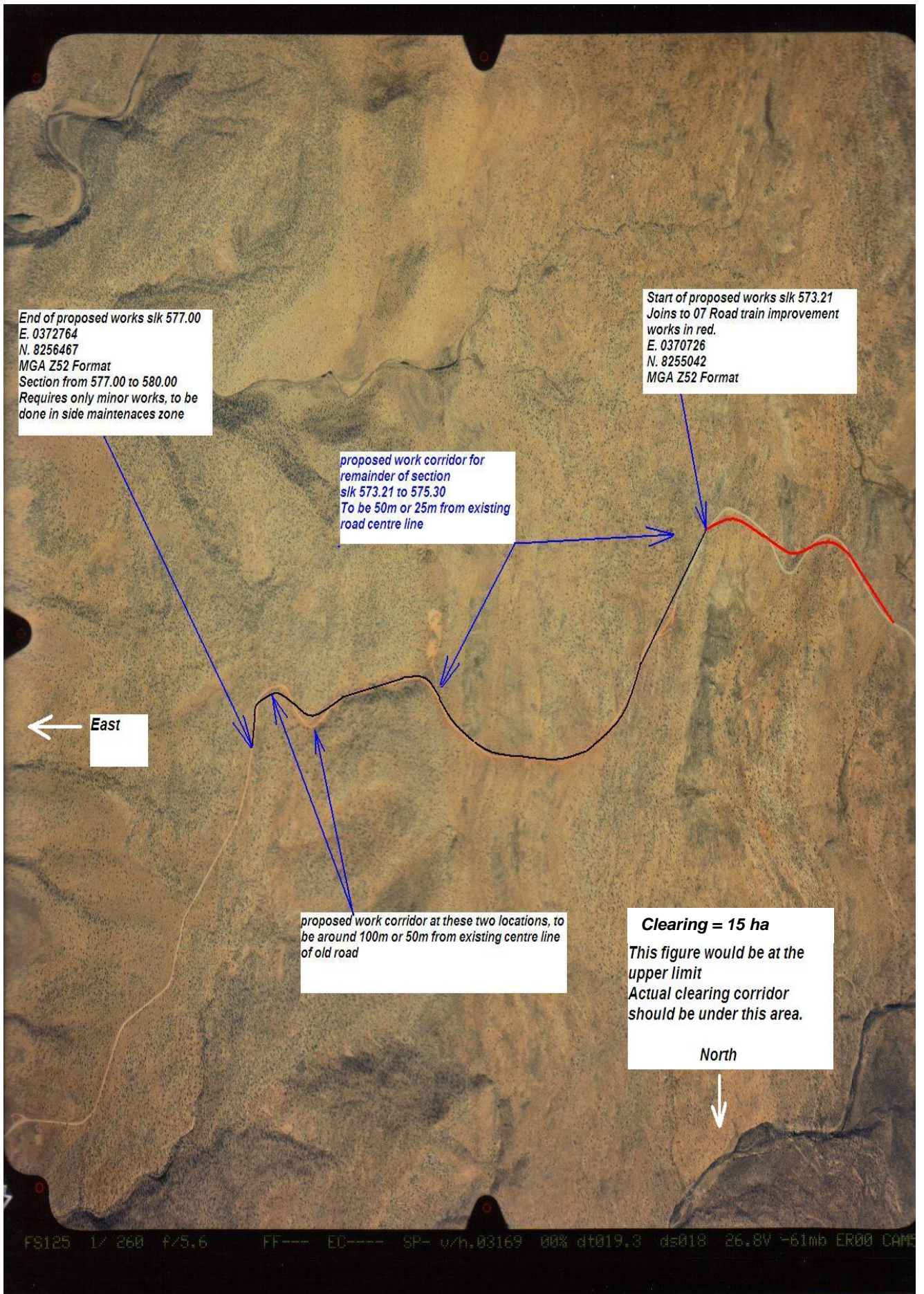
- *SLK 573.21 to 575.00, clearing width 20 m from existing alignment –*  
The scope of works for this section involves improvement of minor horizontal alignments, improved formation and drainage. This section is to be constructed to an unsealed standard with a finished pavement width of 8 m.
- *SLK 575.00 to 576.00, clearing width 15 m from existing alignment –*  
The scope of works for the above section will involve improvement to the vertical alignment. The road profile will be raised over minor run off gullies and small culverts will be installed. No deviation from the existing alignment will occur – the existing road profile will be widened and pavement will be finished to bitumen seal.
- *SLK 576.00 to 577.00, clearing width 50 m – 100 m from existing alignment –*  
Major cut to fill earthworks shall be used to improve both vertical and horizontal alignment. This will involve substantial widening and lifting of the embankment and constructing pavement for bitumen seal. This section of road will require the installation of two medium size culverts to improve drainage.

Borrow and gravel is to be sourced from existing pits and insitu cut from the batter works. Rock for protection of the road formation will be extracted from a quarry area.

Figures 1 and 2 show the location and boundaries of the proposed works. The areas required to be cleared are as follows:

- SLK 573.21 to 575.00, 1.79 km x 20m **3.58 ha**
- SLK 575.00 to 576.00, 1 km x 15m **1.5 ha**
- SLK 576.00 to 577.00, 1 km x 50 m – 100 m **10 ha (as an upper limit)**
- Rock extraction from quarry **10 ha**

At the most, a total of approximately 25 ha will be permanently cleared for construction works, which are expected to commence June 2008. The rock quarry will be fenced off and signage installed.



**Figure 1...Location and boundaries of the proposed works along Pentecost Range, Gibb River Road (SLK 573.21 – 577.00)**

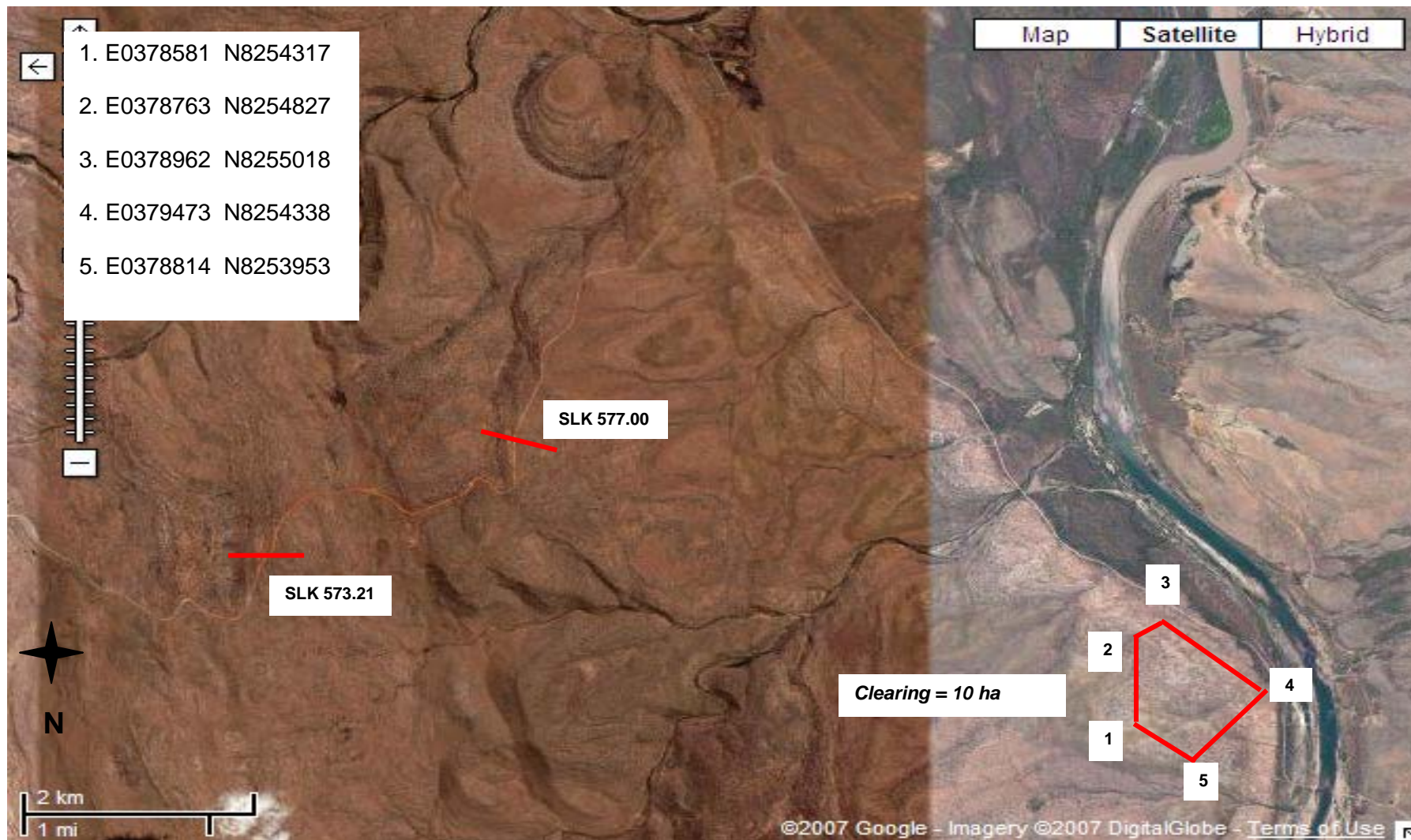


Figure 2...Pentecost Range Materials Investigation Area



Image 1...Typical vegetation that will be cleared for the proposal



Image 2...Typical vegetation that will be cleared for the proposal

## **3.1 Methodology**

### **3.1.1 Preliminary Desktop Study**

An assessment of the project area and its potential constraints was undertaken by reviewing a number of government agency managed databases.

#### **Wetlands**

The locations of wetlands and ESAs within the project area were determined using the Department of Environment and Conservation (DEC) Environmentally Sensitive Area (ESA) mapping tool ([http://portal.environment.wa.gov.au/portal/page?\\_pageid=53,2569721&\\_dad=portal&\\_sc\\_hema=PORTAL](http://portal.environment.wa.gov.au/portal/page?_pageid=53,2569721&_dad=portal&_sc_hema=PORTAL)), refer Appendix B, and by seeking advice from the regional DoW officer, refer Appendix F.

#### **Threatened Flora, Fauna and Communities, Conservation Reserves and ESAs**

DEC database was searched for known populations of threatened flora, fauna and Threatened Ecological Communities (TECs) and conservation reserves, refer Appendix C.

#### **Air Quality**

The need for a local air quality assessment was determined using the criteria outlined in the MRWA environmental guideline, Air Quality.

#### **Heritage**

Non-indigenous heritage was examined utilising the Australian Heritage Places Inventory (<http://www.heritage.gov.au>), Heritage Council of Western Australia (<http://register.heritage.wa.gov.au/>) and the Broome Shire Municipal Heritage Inventory refer Appendix D.

#### **Aboriginal Heritage**

A Search of the Department of Indigenous Affairs' (DIA's) (<http://www.dia.wa.gov.au/Heritage/SitesSurveysSearch.aspx>) database was undertaken to determine whether the project area contains any sites of Aboriginal heritage, refer Appendix E.

#### **Sensitive Water Resources**

The Water Information Officer of the Department of Water's (DoW's) regional office was consulted on sensitive water resources (including Public Drinking Water Source Areas) to determine whether the project area supported, or was adjacent to, any significant lakes, rivers or wetlands or proclaimed areas, refer Appendix F.

#### **Contaminated Sites**

There are no known previous land use activities on or adjacent to the project area that have the potential to create contamination, eg petrol station.

#### **Acid Sulfate Soils**

The Western Australian Planning Commission's acid sulfate soils maps were reviewed and the self assessment done (<http://www.wapc.wa.gov.au/Publications/213.aspx>) to determine what level of risk the project area is exposed to, refer Appendix G.



## **Weeds**

Consultation was undertaken with the Department of Agriculture and Food to determine whether there are any known populations of declared plants or significant weeds in or adjacent to the project area, refer Appendix H.

## **Dieback**

Dieback is not an issue in the area where proposed works are expected to be undertaken.

## **Commonwealth Referral**

The decision to refer the project to the Commonwealths Department of Environment and Heritage (DEH) was based upon whether the project was going to impact upon matters of national significance, eg World Heritage properties, protected wetlands and migratory species, Commonwealth marine areas, threatened species or communities or nuclear actions (refer to the Commonwealth webpage [www.deh.gov.au/epbc/assessmentsapprovals/index.html](http://www.deh.gov.au/epbc/assessmentsapprovals/index.html) for further information and the search tool page at <http://www.deh.gov.au/erin/ert/epbc/imap/map.html>), refer Appendix I.

### **3.1.2 Site Investigation**

A site visit was carried out by Project Manager Neville Walters and Environment Officer Marni Baetge on 30/11/07 to examine the general features of the area. The broad vegetation types in the vicinity of the project areas were identified. Other issues that were considered included topography, the impacts on creek lines, property access and the potential for noise and vibration impacts (dilapidation).

## **4. EXISTING ENVIRONMENT**

The proposed works along the Gibb River Road are located in the Central Kimberley Region within the Fitzgerald Botanical District. The Fitzgerald Botanical District is broadly characterised by the occurrence of 'curly spinifex' (*Plectrachne pungens*) communities which cover 70% of the area (Beard, 1979).

Vegetation data that has been developed between DEC and the Development Assessment Forum (DAF) indicated that vegetation within the three project areas is as follows:

Road realignment and upgrade works (SLK 573.21 – 577.00) and rock quarry:

- Grasslands, curly spinifex, low tree savanna woodland; gnaingar (*Eucalyptus phoenicea*) & *Eucalyptus ferruginea* over *Triodia pungens*. This vegetation association is well represented throughout the region with 100% remaining.

No declared weeds or serious environmental weeds were detected in the project area.

## 5. CLEARING OF NATIVE VEGETATION

Under the amended *Environmental Protection Act 1986 (EP Act)* clearing of native vegetation must be under the authority of a clearing permit. In assessing whether the project is likely to have a significant impact on the environment, the project has been assessed against the DEC's 10 principles of clearing, see report below.

### MRWA Vegetation Clearing Assessment Report

This guideline has been prepared to assist MRWA in addressing condition 7 "Assessment of Clearing Impacts" under Clearing Permit CPS 818/4.

For guidance on how to complete the form, refer to DEC completed reports (active permits) at [http://203.20.251.100/cps\\_reports/](http://203.20.251.100/cps_reports/).

#### Area Under Assessment Details

##### Proponent details

Proponent's name:

Main Roads Western Australia

Contacts:

Name: Marni Baetge

Phone: 08 9158 4318

Fax: 08 9158 4334

Email: marni.baetge@mainroads.wa.gov.au

##### Property details

Property:

Indigenous Land Corporation

Colloquial name:

Pentecost Range road realignment SLK 573.21 to 577.00

##### Area under assessment

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:	Site Plan Attached
25 ha	Several	Mechanical	Road Upgrade	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

##### Avoidance/Minimise clearing

How have the clearing impacts been minimised?

All clearing associated with construction works and installing culvert/s shall be kept to an absolute minimum. Mature and selected trees shall be conserved as far as practicable to provide for faunal habitat and Aboriginal values. The Contractor shall take all precautions necessary to prevent damage to growing trees and shrubs outside the designated areas and to selected trees within areas designated for clearing.

#### Background

##### Existing environment and information

Description of the native vegetation under application

(suggestion: To determine Vegetation Condition use - Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.)

Site Visit Undertaken	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Fauna / Flora Survey Undertaken	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Site Report Attached	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Fauna / Flora Survey Report Attached	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Site Photos Attached	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other Relevant References Attached	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Vegetation Complex  
75

Clearing Description  
Mechanical

Vegetation Condition  
Good

## Assessment of application against Clearing Principles

### **(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.**

**Comments** The area proposed to be cleared is highly homogenous and the condition of vegetation is somewhat degraded. Diversity will not be compromised and therefore the proposal is not at variance with this Principle.

**Methodology** Site visit (30/11/07)  
Vegetation data developed between DEC and the Development Assessment Forum (DAF)

### **(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.**

**Comments** The EPBC Act Protected Matters Report listed a number of threatened, migratory and marine species potentially occurring in the project area. A search of the DEC threatened and priority fauna database also identified a number of fauna species within the area where construction is proposed. A habitat assessment was carried out in November 2007 to determine if it was likely that any of the threatened species would be utilising the areas that will be impacted on as a consequence of the proposed works. No specific habitats identified during the assessment appear to be spatially restricted to the area of impact or to be supporting important populations of significant species of fauna communities. Proposed works will have at worst a short term effect on any fauna species utilising this habitat. This proposal is therefore not at variance to this Principle.

**Methodology** Site visit (30/11/07)  
EPBC Act Protected Matters Report database  
DEC threatened and priority fauna database

### **(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Comments** DEC Threatened Flora Database search indicated that no known Declared Rare or Priority Flora are within close proximity to the project area. Therefore, the proposal is not at variance to this Principle.

**Methodology** Site visit (30/11/07)  
DEC Threatened Flora Database

### **(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**

**Comments** The proposal is not at variance to this Principle as no Threatened Ecological Communities (TEC's) have been identified within the project area.

**Methodology** Site visit (30/11/07)  
DEC Threatened Flora Database

### **(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Comments** The vegetation types under application are representative of Beard Vegetation Associations 75 (Hopkins et al. 2001) of which there is at least 100% extent remaining (Shepherd et al. 2001). Beard Vegetation Association is of 'least concern' for biodiversity conservation and therefore this proposal is not at variance with this Principle.

**Methodology** GIS Databases:  
- Interim Biogeographic Regionalisation of Australia – 20/11/07  
- Pre-European Vegetation

### **(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Comments** The area under application does not consist of a watercourse or wetland. This proposal is therefore not at variance with this Principle.

**Methodology** Site visit (30/11/07)  
DEC's web based Geographic Data Atlas mapping tool

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

**Comments** The clearing of remnant vegetation will possibly cause some alterations to the health of adjacent lands, such as through weed dispersal. The proposal is not likely to be at variance to this Principle as impacts will be minimised to that which is essential.

**Methodology** Site visit (30/11/07)

**(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.**

**Comments** The proposal is not at variance with this Principle as remnant native vegetation in the project area is not associated with any adjacent or nearby conservation areas.

**Methodology** Site visit (30/11/07)  
DEC's web based Geographic Data Atlas mapping tool

**(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**

**Comments** The potential clearing of remnant native vegetation is considered unlikely to cause deterioration in the quality of surface or underground waters. Therefore, clearing is not likely to be at variance with this Principle.

**Methodology** Site visit (30/11/07)  
DEC's web based Geographic Data Atlas mapping tool

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

**Comments** The proposal is not at variance with this Principle as clearing of native vegetation for this project is not considered to be likely to cause or exacerbate the incidence or intensity of flooding. Proposed upgrading should aim to minimise changes to natural flows and reduce the impact of flooding and channel erosion.

**Methodology** Site visit (30/11/07)

**Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.**

**Comments** There is no further requirement for a RIWI Act Licence, Works Approval or EP Act Licence for the area under application.

## Submissions

### If required have submissions been requested and addressed

Submission Requested from	Request Sent (Date)	Submission Received (Date)	Issues Raised / Comments Made
---------------------------	---------------------	----------------------------	-------------------------------

## Assessor's recommendations

List of Principles seriously at variance, at variance or maybe at variance	Recommendation
	No Revegetation Management Plan. Environmental Management Plan will be developed and implemented to manage impact of the proposed works

## References

### OFFICER PREPARING REPORT

Marni Baetge (Graduate Environment Officer)  
Kimberley Regional Office MRWA  
Phone 08 9158 4318  
Date 5/12/2007

Upgrade works along the Gibb River Road are expected to involve clearing of, at the most, approximately 25 hectares of vegetation. Basecourse material for construction of the proposed works will be sourced from existing pits and insitu cut from the batter works. Therefore, no additional clearing will be required for borrow or gravel pits or associated access tracks. Rock for protection of the road will be extracted from a quarry area – this area will be fenced off and signage installed once extraction of material is complete. All vegetation to be impacted is well represented in the region and no Declared Rare Flora or Priority Flora has been recorded at either three areas where proposed works are expected to take place.

All clearing associated with construction works shall be kept to an absolute minimum. Mature and selected trees shall be conserved as far as practicable to provide for faunal habitat and environmental integrity. The Contractor shall take all precautions necessary to prevent damage to growing trees and shrubs outside the designated areas and to selected trees within areas designated for clearing.

Prior to clearing the Contractor shall mark out clearing limits and certify to MRWA that the clearing areas are clearly defined. All clearing shall comply with **Specification 301: Clearing**. The removal and re-spread of topsoil shall be undertaken in accordance with **Specification 302: Earthworks**.

## 6. ASSESSMENT OF ASPECTS AND IMPACTS

**Table 1: Aspects and Impacts – Gibb River Road, Pentecost Range Improvement Works**

<b>Aspect</b>	<b>Evaluation of Potential Impacts</b>
Air quality	Not relevant to the proposed works. Local air quality assessment is not required for the project since: <ul style="list-style-type: none"> <li>the predicted traffic flow is less than 15,000 vehicles per day;</li> <li>residential and other sensitive receptors are not within 200 meters of the road centre</li> </ul>
Dust	Likely to be a minor issue during earthworks. Standard dust control measures shall be undertaken to minimise dust production during construction.
Fauna	The EPBC Act Protected Matters Report listed a number of threatened, migratory and marine species potentially occurring in the general areas of each of the project sites (Appendix I). However, subsequent consultation with DEC confirmed that the Red Goshawk, Bush Stone curlew, Purple-crown Fairy-wren, and the Pymnbriarens nimmerlinus potentially inhabit the project areas. Assessment of the two sites identified that the vegetation to be cleared for the proposed works is not likely to support important populations of significant species of fauna communities. The presence of similar habitat in adjacent areas will enable fauna to relocate if necessary.
Vegetation – clearing	At the most, a total of 25 hectares of vegetation is expected to be cleared using the purpose permit. The vegetation type expected to be impacted by the proposed works is well represented throughout the region.
Vegetation – TECs/DRF	No known occurrences of Threatened Ecological Communities, Declared Rare or Priority Flora were recorded in the project area.
Vegetation – weeds	No declared weeds or serious environmental weeds were identified in the project areas.
Vegetation – dieback	Not an issue given that the project area lies within the Kimberley Region.
Reserves / Conservation areas	No reserves or conservation areas are expected to be impacted by the proposed works.
Heritage (non-indigenous)	A search of the Australian Heritage Places Inventory and Heritage Council of Western Australia databases has indicated that there are no heritage significant listed sites present in the proposed works areas.
Aboriginal heritage	A search of the DIA database identified no sites of Aboriginal heritage significance in either of the project areas. However, since some of the project area may not have been surveyed, the Kununurra Kimberley Land Council has been consulted. If any issues relating to Aboriginal heritage arise, these issues will be managed separately before any construction work proceeds.
Surface water/drainage	Consultation with DoW has confirmed that the proposed works will not disturb or interrupt any natural drainage and surface run-off patterns (Appendix F).
Wetlands	No wetlands will be impacted by the proposed works.
Groundwater	A search of the DoW Geographic Data Atlas indicated that the study areas are not within any Gazetted Public Drinking Water Source Areas. However, they do lie within the Canning-Kimberley Groundwater Area which covers the entire Kimberley sub-region. No dewatering or drainage modifications are required, hence no change to groundwater level or quality.

**Table 1: Aspects and Impacts – Gibb River Road, Pentecost Range Improvement Works**

<b>Aspect</b>	<b>Evaluation of Potential Impacts</b>
Noise and vibration	No major sensitive local receivers. Construction works would not be expected to significantly contribute to noise levels at the nearest sensitive receivers, provided works are limited to normal working hours. The requirements of the Shire of Broome must be met in respect of noise management and construction working hours.
Visual amenity	The proposed works will result in minor and short-term visual impacts during construction. Suitable site completion treatments, including landscape planting and rehabilitation, could result in an improvement in local visual amenity.
Public safety and risk	Provided traffic management and signage to Main Roads standards is employed, none of the proposed works present any significant hazards to public safety. The proposed works will serve to enhance public safety by improving road conditions during flooding events.
Hazardous substances	Not relevant to the proposed works.
Contamination	There are no known previous land use activities on or adjacent to the project area that have the potential to create contamination, eg petrol station.
Salinity	There were no visual signs of salinity observed in the project area.
Acid Sulfate Soils	The WAPC's self-assessment (Planning Bulletin 64) indicates that no further soil investigation is required for the project.
Statutory Land Use Planning	As the proposed works is entirely within the existing road reserve, no further amendments would be required to the Local Government Planning Scheme or Region Scheme.

## **7. DECISION TO REFER**

Given the scale of the project, the low significance of its impacts to the surrounding environment and the environmental management measures proposed, the project does not require referral to the WA Environmental Protection Authority or the Commonwealth Department of the Environment and Heritage.

## **8. ENVIRONMENTAL MANAGEMENT PLAN**

This section of the report (the EMP) has been developed for the project area following the completion of the above sections. The main aims of this EMP is to provide a management plan to assist in minimising the environmental impacts of the activities associated with the proposed works and identify who is responsible for the implementation of the management strategies.

This EMP will only address the actions already listed as well as any site-specific issues that were identified during the Environmental Review. The environmental management measures/conditions in Main Road's Specifications 203, 204, 301, 302 and 304 will be followed where applicable.

The areas that require special management will be addressed in terms of:

- area of management (eg vegetation);
- the timing of the various management requirements;
- the management objectives for each area;
- the management strategies that are necessary to minimise the impact;
- the person/s responsible for implementing the management action; and
- on whose advise or Main Roads requirement.



ENVIRONMENTAL MANAGEMENT PLAN					
Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
<b>Induction</b>	Pre-Construction	Inform all personnel of the management actions/strategies required of them	Develop and implement a communication plan including response to complaints, liaising/reporting to government agencies, engagement with the community and others when work is performed, with specific reference to nuisance issues such as noise, dust and lighting spill	Project Manager	Main Roads
<b>Vegetation Clearing - Record-keeping</b>	All phases of Construction	All projects should maintain the required records relating to clearing native vegetation under the purpose permit	<p>Clearing:</p> <ul style="list-style-type: none"> <li>• a copy of the PEIA &amp; EMP (Minor projects) for small projects;</li> <li>• a map showing the location where the clearing occurred, recorded in an ESRI Shapefile;</li> <li>• the size of the area cleared (in hectares);</li> <li>• the dates on which the clearing was done.</li> </ul>	Environment Officer	DEC
<b>Vegetation - Clearing</b>	Pre-Construction	Ensure that the overall objectives of the alignment and construction works are compatible with maintaining and, where possible, enhancing the biological integrity of the surrounding environment and minimising vegetation loss and degradation	<p>Selection of designs/locations that minimise adverse impacts on the biological environment</p> <p>Construction works to be undertaken in the dry season to reduce the potential for soil erosion and drainage line siltation due to vegetation removal and heavy rains</p> <p>Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either chipped or replaced according to the EMP</p> <p>All clearing shall be done in accordance with Main Roads Specification:</p> <ul style="list-style-type: none"> <li>• <b>301: Clearing</b></li> </ul>	Project Manager	Main Roads

**ENVIRONMENTAL MANAGEMENT PLAN**

Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
<b>Weeds</b>	Construction	Prevent and reduce the introduction and spread of weeds	<p>Control any weed species, if present, within the project area prior to construction to limit the amount of propagative material that may be spread during disturbance</p> <p>Ensure all machinery/vehicles are clean prior to entering the works area. If a new weed infection is identified within the area, measures to reduce its spread should be established such as vehicle wash/brush-down points</p> <p>Main Roads Specifications applicable:</p> <ul style="list-style-type: none"> <li>• <b>204: Environment</b></li> <li>• <b>301: Clearing</b></li> </ul>	Project Manager	Main Roads
<b>Water Courses and Surface Drainage</b>	Pre-Construction/ Construction	Maintain the hydrological regime that exists prior to the construction of the proposal and prevent erosion in areas subject to flooding	<p>Areas subject to erosion as a result of clearing shall be stabilised and designed to minimise rainfall/runoff impacts</p> <p>Works should minimise vegetation and soil disturbance to prevent soil movement. Finished works should be left in a stable condition to minimise the risk of scouring</p> <p>If washdown facilities or chemical storage takes place on site, best management practices will be utilised in accordance with DEC's <i>Water Quality Protection Notes, Mechanical Equipment Washdown</i> to minimise impact on water resources</p> <p>Stormwater drainage shall be treated and disposed of in accordance with DEC requirements</p>	Project Manager	Main Roads

**ENVIRONMENTAL MANAGEMENT PLAN**

Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
			<p>Ensure Main Roads design is followed.</p> <p>Main Roads Specifications applicable:</p> <ul style="list-style-type: none"> <li>• <b>402: Surface Drains</b></li> <li>• <b>405: Drainage Structures</b></li> </ul>		
<b>Visual Amenity</b>	Pre-Construction	Ensure that the road blends in with the surrounding environment	Ensure that the road blends in with the surrounding environment	Project Manager	Main Roads
<b>Noise, Vibration and Dust</b>	Construction	Ensure that the construction of the proposal does not become a nuisance to the public	<p>Access to private property and appropriate traffic management measures should be planned and implemented prior to the construction of works</p> <p>Works associated with the construction of the development should not prevent public access along the adjacent reserve. Public access should be maintained along the reserve at all times</p> <p>Any complaints regarding dust will be attended to as soon as possible</p> <p>Where it is found that trucks leaving the site are carrying excessive material onto sealed surfaces, these areas will be swept to reduce dust generation and maintain traffic safety</p> <p>Watering shall be used as a mitigation measure to protect loose surfaces</p>	Project Manager	Main Roads

**ENVIRONMENTAL MANAGEMENT PLAN**

Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
<b>Pollution and Litter</b>	Construction	Ensure that the construction of the proposal is managed to a standard that minimises any adverse impacts on the environment	<p>Emergency cleanup procedures shall be implemented in the case of any spillage. These will include control of spilled material and removal of contaminated soil to an approved site</p> <p>The Contractor shall ensure appropriate equipment is available at all times to control any spills and shall notify the Project Manager as soon as possible following a spill</p> <p>All waste oil will be collected for recycling and any empty fuel/oil containers, used filters and waste hydraulic parts to be collected and stored in an allocated area then removed to an approved site</p> <p>Dumping or temporary storage of bitumen, asphalt, concrete or aggregate should only occur at designated depots or controlled hardstands</p> <p>The project areas, including hardstand areas, will be kept in a tidy manner at all times. All litter on the project will be placed into lidded bins and disposed of at an approved landfill</p>	Project Manager	Main Roads
<b>Fire</b>	Construction	Ensure that the fire risk associated with the construction of the proposal is minimised	<p>A water tanker will be on site at all times</p> <p>No fires shall be lit within the project area</p>	Project Manager	Main Roads

**ENVIRONMENTAL MANAGEMENT PLAN**

Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
<b>Aboriginal Heritage</b>	Construction	Ensure that there is no unauthorised disturbance to Aboriginal heritage sites during construction	<p>If any materials of significance to Aboriginal people are discovered, works will immediately cease within 100m of the material and the site will be examined by a qualified archaeologist</p> <p>The DIA will be notified in the event of any significant Aboriginal Heritage discovery</p> <p>If skeletal material is uncovered during works the WA Police Service will also be advised immediately</p>	Project Manager	DIA
<b>Rehabilitation</b>	Post-Construction	Leave the project area free from debris	All waste materials from the development are to be completely removed from the site upon completion of the development. Final clean-up shall be to the satisfaction of the Project Manager and the Site Superintendent	Project Manager	Main Roads

## 9. REFERENCES

*Beard, J.S. (1979). Vegetation Survey of Western Australia: Kimberley. University of Western Australia Press, Perth.*

**Appendix A**  
**Low Impact Screening Checklist**

**Checklist - Low Impact Screening Checklist**

The Low Impact Screening Checklist is part of the environmental assessment and approval process, refer to in Figure 2 in the Main Roads environmental guideline Environment Assessment and Approvals. It should be noted that the checklist does not address Aboriginal heritage issues. Please refer to Main Roads guideline *Aboriginal Heritage* for the heritage assessment process.

All projects are to be screened to identify those that are Low Impact.

Projects that have "No" to **all** items are classed as Low Impact and should be implemented using standard contract clauses in the Tender Document Process.

Projects that have "Yes" to **any** item will require further environmental assessment and will be implemented using an Environmental Management Plan.

Tick "Yes" or "No" for every item.

Project Name GIBB RIVER RD, PENTECOST RANGE SLK 573.21-577.00

ITEM NO.	ITEM	Y	N
1	New road or road reserve to be created or expansion of existing road reserve.		N
2	Works require clearing of native vegetation outside the maintenance zone.	Y	
3	Works require clearing of native vegetation that is older than 10 years old within the maintenance zone.	Y	
4	Works to occur outside normal working hours.		N
5	Passes over, adjoins or drains directly into a wetland or sensitive watercourse.		N
6	Local natural drainage regime / hydrology will be changed.		N
7	Dewatering, or a new water bore required.		N
8	Known potential source of hazardous materials within or adjoining project area. e.g. Acid Sulphate Soils, existing petrol station, industrial site or waste disposal site (landfill)		N
9	Buildings will require demolition		N

Completed By: Signature [Signature] Date 04-12-07  
 Name N-Wallers Title A/P.M

To be reviewed by a Main Roads Environment Officer: Signature [Signature] Date 4.12.07  
 Name MARIA BAETGE Title ENVIRONMENT OFFICER


Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

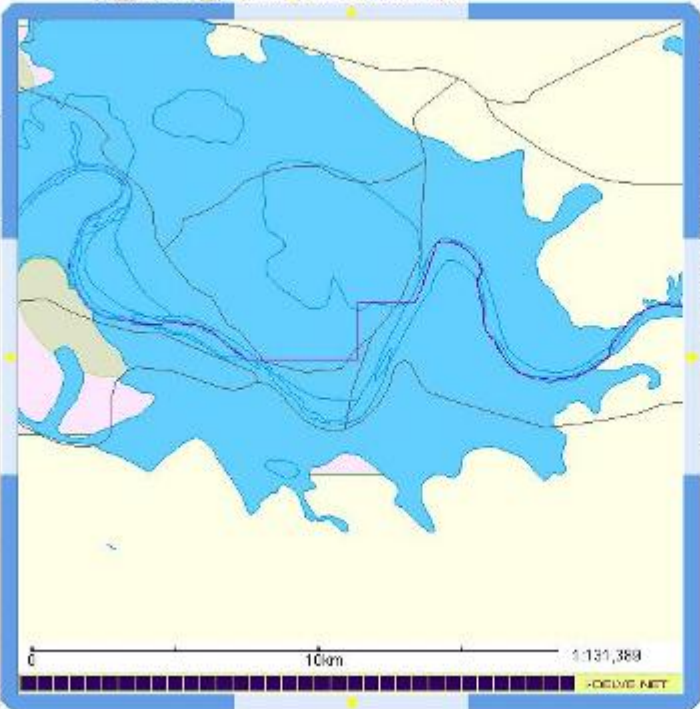


## **Appendix B**

### **Wetlands and Watercourses within the Project Area**

Department of Environment
**Native Vegetation Map Viewer**





Welcome Search Metadata Help

### Welcome

Welcome to the Native Vegetation Map Viewer. This site helps you to identify the following:

- The location of environmentally sensitive areas, as declared by a Notice under section 51B of the Environmental Protection Act 1986.
- Areas where low impact mineral and petroleum activities can NOT occur, as defined under Schedule 1 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

Click on the links below for more information on:

- [Environmentally Sensitive Areas](#)
- [Low Impact Mineral and Petroleum Activities](#)
- [Native Vegetation Disclaimer](#)

Click here for a quick tutorial on using the Native Vegetation Protection map viewer.

- Planning and Cadastre
- Environment
- Clearing Regs - ESA
- Clearing Regs - Schedule
- Clearing Permits
- Inland Waters
  - Rivers - EMR
  - Rivers - DOW
  - Rivers - EA
  - Dams - GMD
  - Lakes - GA
- Transportation
  - Roads - GMD
  - Roads - OLI
- Boundaries
- Location
- Society
- Economy

Zoom in tool. Click and drag a rectangle.

Policy & Legislation

[DEE Home](#) | [Contacts](#) | [Copyright](#) | [Disclaimer](#)

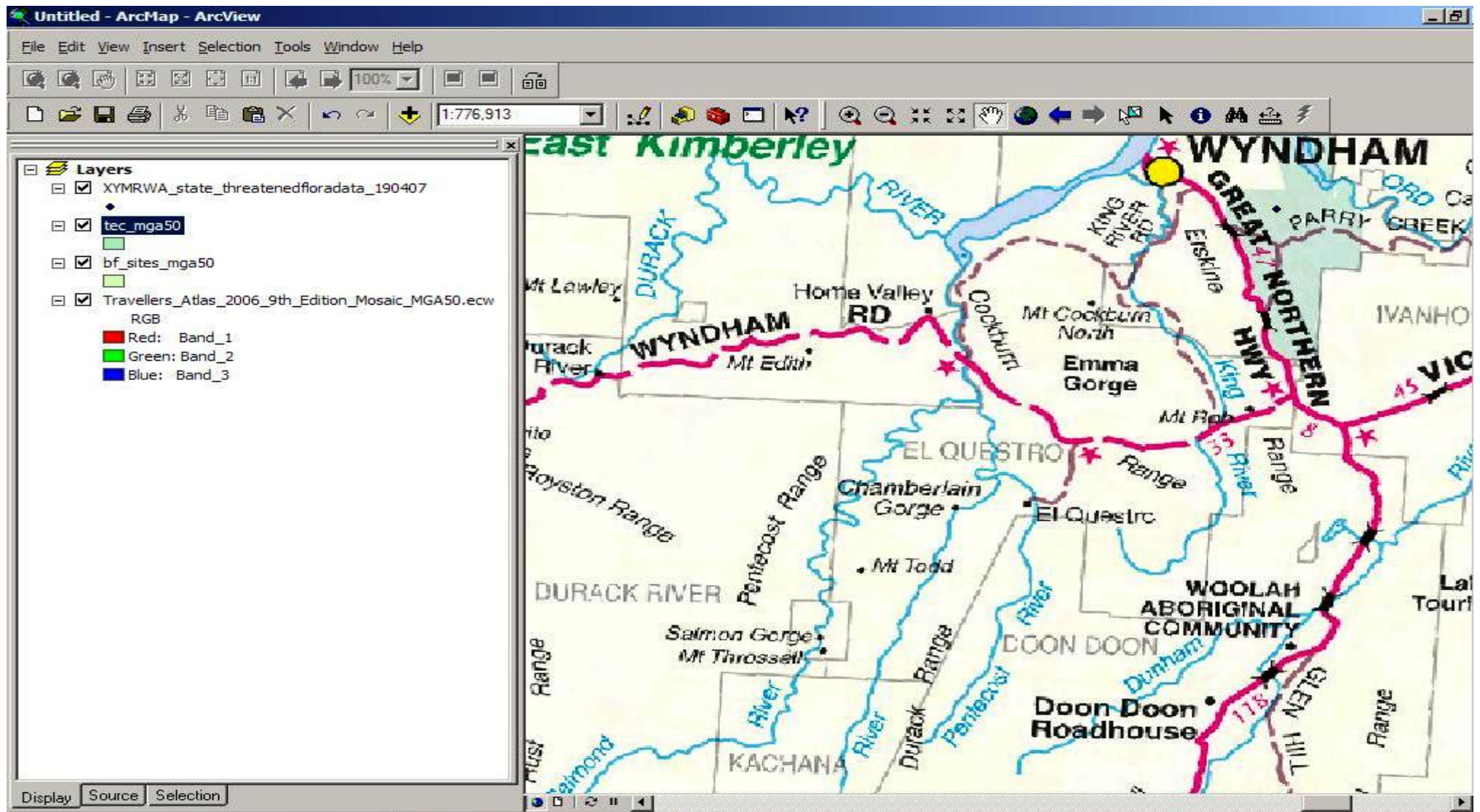
Clearing Permits

Public Reports

## Results from DEC's Native Vegetation Map Viewer, November 2007

## **Appendix C**

### **Department of Environment and Conservation Threatened Flora and Fauna Database Searches**



Results from ArcView GIS – Threatened Ecological Communities, Declared Rare and Priority Flora

## CORRESPONDENCE WITH DEC REGARDING THREATENED FLORA IN PROJECT AREA

Hi Marni

Attached are results for additional search area in Pentecost Range ( plus ~10km buffer). It mostly overlaps with previous results anyway.

Regards  
Kellie

*Kellie Mantle*  
*Species and Communities Branch*  
*Department of Environment and Conservation*  
*Phone (08) 93340579*  
*Fax (08) 93340278*

---

**From:** BAETGE Marni (GEnv) [mailto:marni.baetge@mainroads.wa.gov.au]  
**Sent:** Monday, 26 November 2007 4:13 PM  
**To:** Mantle, Kellie  
**Subject:** RE: Threatened Fauna - Gibb River Rd Upgrade Stage 2

Hi Kellie,

Sorry about this, but an additional materials investigation area for this project has been identified. Could you please determine whether any threatened fauna exist within the area defined on the attached map?

Thanks and regards,

Marni Baetge  
Environment Officer  
MAIN ROADS Western Australia  
Kimberley Region  
Ph: (08) 9158 4318  
Mobile: 0427 474 965  
[marni.baetge@mainroads.wa.gov.au](mailto:marni.baetge@mainroads.wa.gov.au)

---

**From:** Mantle, Kellie [mailto:Kellie.Mantle@dec.wa.gov.au]  
**Sent:** Monday, 26 November 2007 3:45 PM  
**To:** BAETGE Marni (GEnv)  
**Subject:** RE: Threatened Fauna - Gibb River Rd Upgrade Stage 2

Hi Marni

Please find attached the results of the threatened and priority fauna database search for the Pentecost Range section of the Gibb River Rd (plus~10km buffer).

Let me know if you have any questions about the information supplied.

Regards

Kellie

*Kellie Mantle*

---

MAIN ROADS Western Australia

*Species and Communities Branch  
Department of Environment and Conservation  
Phone (08) 93340579  
Fax (08) 93340278*

---

**From:** BAETGE Marni (GEnv) [mailto:marni.baetge@mainroads.wa.gov.au]  
**Sent:** Friday, 23 November 2007 3:13 PM  
**To:** Mantle, Kellie  
**Subject:** Threatened Fauna - Gibb River Rd Upgrade Stage 2

Hi Kellie,

Main Roads Kimberley is proposing to upgrade 3.8 km of the Pentecost Range section of the Gibb River Road. The proposed works will involve improvement to road formation and drainage, enhancing road user accessibility and significantly improving traffic safety.

The attached map shows the location and boundaries of the proposed works. The works start at coordinates E0370726 N 8255042 and finish at E0372764 N8256467 (MGA Z52).

Could you please determine if any threatened fauna exist in the project area and if so please name each species.

Thanks and regards,

Marni Baetge  
Environment Officer  
Main Roads Western Australia  
Kimberley Region  
Ph: (08) 9158 4318 Fax: (08) 9158 4334  
[marni.baetge@mainroads.wa.gov.au](mailto:marni.baetge@mainroads.wa.gov.au)

15.682 °S 127.66 °E / 15.874 °S 127.9 °E Pentecost Range, Gibb R Rd (plus~10km buffer)

\* Date Certainty Seen Location Name Method

**Schedule 1 - Fauna that is rare or is likely to become extinct**

*Erythroriorchus radiatus* Red Goshawk 1 records

A rare inhabitant of well-wooded country, this species nests in large trees and preys largely on birds but also on reptiles and mammals.

1 Durack

**Priority Four: Taxa in need of monitoring**

*Burhinus grallarius* Bush Stonecurlew 6 records

A well camouflaged, ground nesting bird which prefers to 'freeze' rather than fly when disturbed. It inhabits lightly timbered open woodlands.

1999 1 DURACK  
1999 1 DURACK  
1999 1 DURACK  
2001 1 DURACK  
2001 1 DURACK  
2001 1 DURACK

*Malurus coronatus coronatus* Purple-crowned Fairy-wren (western ssp) 2 records

This subspecies is found in riverine habitats but has become very rare in the Kimberley.

1983 1 Durack Day sighting  
1983 1 Durack Day sighting

15.69 °S 127.783 °E / 15.877 °S 127.966 °E Pentecost Range investigation area (plus~10km buffer)

\* Date Certainty Seen Location Name Method

**Priority Three: Taxa with several, poorly known populations, some on conservation lands**

*Prymnbriareus nimmerlinus* *Prymnbriareus nimmerlinus* 1 records

This species of land snail is known to occur on El Questro Station.

1988 1 Cockburn Range

**Priority Four: Taxa in need of monitoring**

*Burhinus grallarius* Bush Stonecurlew 5 records

A well camouflaged, ground nesting bird which prefers to 'freeze' rather than fly when disturbed. It inhabits lightly timbered open woodlands.

1999 1 DURACK  
1999 1 DURACK  
1999 1 DURACK  
2001 1 DURACK  
2001 1 DURACK

*Malurus coronatus coronatus* Purple-crowned Fairy-wren (western ssp) 1 records

This subspecies is found in riverine habitats but has become very rare in the Kimberley.

1983 1 Durack Day sighting

\* Information relating to any records provided for listed species:-

Date: date of recorded observation

Certainty (of correct species identification): 1=Very certain; 2=Moderately certain; and 3=Not sure.

Seen: Number of individuals observed.

Location Name: Name of reserve or nearest locality where observation was made

Method: Method or type of observation

## **Appendix D**

### **Australian Heritage Places Inventory, Heritage Council of Western Australia and the Municipal Heritage Inventory Database Searches**



## OTHER REGISTER INFORMATION:

### WHAT IS THE STATE REGISTER? OTHER HERITAGE LISTS

---

The **State Register of Heritage Places** recognises a place's value and importance to Western Australia. The State Register includes buildings, structures, gardens, cemeteries, landscapes and archaeological sites and has more than 1,200 places on it. The State Register is managed by the Heritage Council and provides a place with statutory protection to ensure it is conserved into the future.

The entire **Places Database** includes places listed in the State Register as well as those included in a Local Government's Municipal Inventory, the Commonwealth's Register of the National Estate and the National Trust's List of Classified Places. There are more than 17,500 places on the Places Database.

To do a search simply enter the details of the place; select whether you want to search the State Register or the Entire Database; and click the 'Search' button below.

It is important to note that the entry of a place in the State Register of Heritage Places does not make the place available for public access.

If you need further advice on whether a property is heritage listed, please call the Heritage Council on 9221 4177.

**SEARCH**

**HELP**

Search In:  State Register of Heritage Places  Entire Database

Place No:

Name Contains:

Street:

Suburb/Town:

Local Govt:

Search logic:

**SEARCH**

**HELP**

---

## PLACES DATABASE ACTIONS:

[QUICK SEARCH](#)  
[ADVANCED SEARCH](#)  
▶ [RESULTS LIST](#)  
[LOCATION REPORT](#)  
[SAVE DATA](#)

**There are no Places matching your search criteria.**

If you'd like to perform a new search, please select a new Places database search, from the menu on the left-hand side.

---

[▲ top of page](#)   [\[ disclaimer \]](#)   © copyright 2007 heritage council of western australia

---

## OTHER REGISTER INFORMATION:

[WHAT IS THE STATE REGISTER?](#)  
[OTHER HERITAGE LISTS](#)

---

## **Appendix E**

### **Department of Indigenous Affairs Database Search**



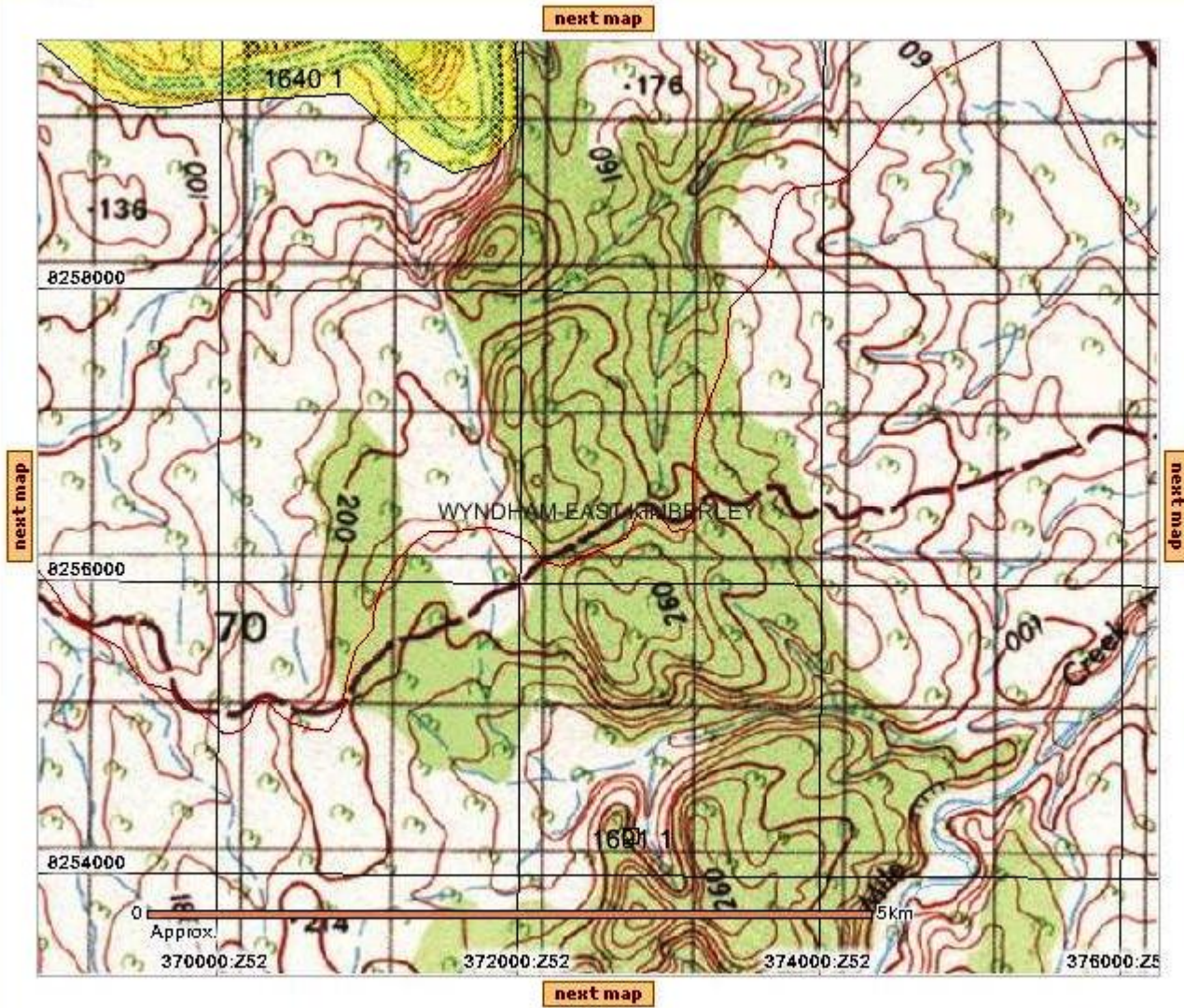
**Show on map**

Aboriginal Sites  
 Heritage Surveys


[refresh](#) [more](#)

**Map size**

Small  
 Medium  
 Large



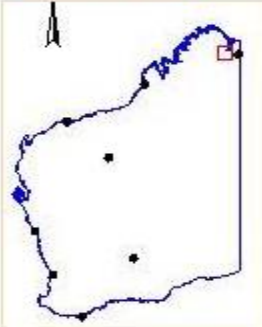
**Getting Started**

1. Zoom in to an area of interest by dragging a box with your mouse in the map.
2. Display sites or surveys by selecting the layer and click refresh (under "show on map" box on the screen's left).
3. Search for site or survey report details by selecting from the "What do you want to do" drop down list, selecting the  red arrow and dragging a selection area on the map. Results and links to the PDF reports are displayed on the right.

**Please Note:**

**Pentecost Range road realignment, Gibb River Road SLK 573.21 to 577.00.**

show legend



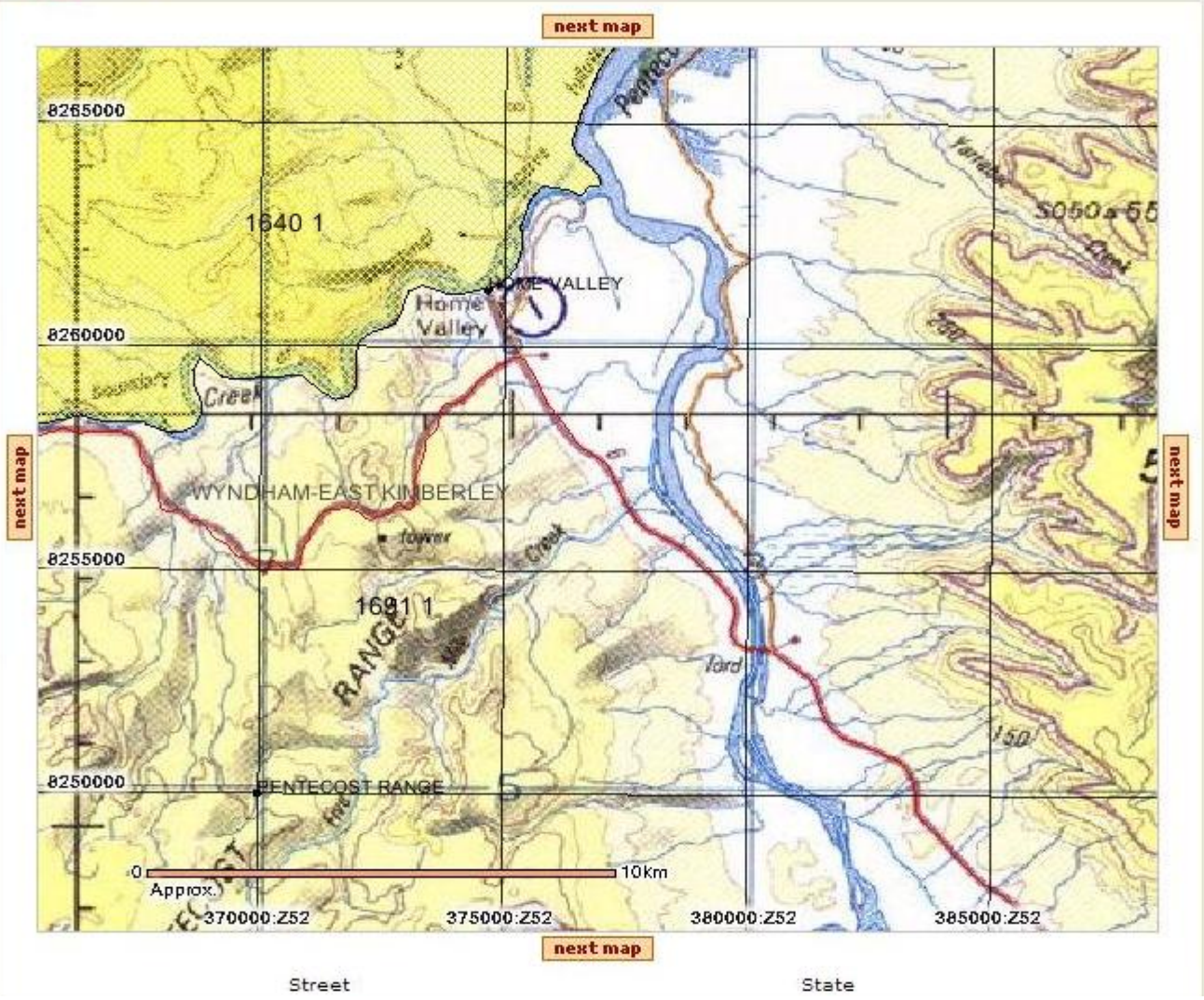
Show on map

- Aboriginal Sites
- Heritage Surveys

refresh more

Map size

- Small
- Medium
- Large



### Getting Started

1. Zoom in to an area of interest by dragging a box with your mouse in the map.
2. Display sites or surveys by selecting the layer and click refresh (under "show on map" box on the screen's left).
3. Search for site or survey report details by selecting from the "What do you want to do" drop down list, selecting the red arrow and dragging a selection area on the map. Results and links to the PDF reports are displayed on the right.

Please Note:

## Pentecost Range Materials Investigation Area.

## **Appendix F**

### **Department of Water Sensitive Water Resources Database Search**

Enquiries: Marni Baetge on 9158 4318  
Our Ref: 07/6751  
Your Ref:

23 November 2007

Dave Munday  
Natural Resource Management Officer  
Department of Water  
PO Box 625  
Kununurra WA 6743

Dear Dave,

**SENSITIVE WATER RESOURCES – PENTECOST RANGE, GIBB RIVER ROAD**

Main Roads Kimberley is proposing to upgrade 3.8 km of the Pentecost Range section of the Gibb River Road. The proposed works will involve improvement to road formation and drainage, enhancing road user accessibility and significantly improving traffic safety.

The attached map shows the location and boundaries of the proposed works.

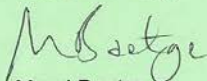
Could you please identify if any of the following sensitive water resources exist in the project area:

Public Drinking Water Source Areas;  
Significant lakes, rivers or wetlands; and/or  
Proclaimed areas

If you require further information do not hesitate to contact me on 9158 4318 or email me at [marni.baetge@mainroads.wa.gov.au](mailto:marni.baetge@mainroads.wa.gov.au)

Thank you for your assistance.

Yours sincerely,



Marni Baetge  
ENVIRONMENT OFFICER

Enc.

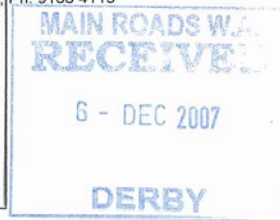


Your ref: 07/6751

Our ref: KN1937

Enquiries: Kellie Loge Ph: 9166 4113

CORRESPONDENCE	
<input type="checkbox"/> Doc No	DOT# 197482
<input type="checkbox"/> File	07/6751
<input type="checkbox"/> Action	
<input type="checkbox"/> Action	ENV OFFICER BAETGE
<input type="checkbox"/> Distribute to	
<input type="checkbox"/> RO Action Complete	



Marnie Baetge  
Environment Officer  
Main Roads WA  
PMB 959  
Loch Street  
Derby WA 6728

Dear Ms Baetge

**Sensitive Water Resources – Pentecost Range, Gibb River Road**

Thank you for requesting advice regarding the Sensitive Water Resources – Pentecost Range, Gibb River Road. The Department of Water offers the following advice:

- The proposal is not within a Public Drinking Water Source Area
- The proposal does not have any significant lakes, rivers, or wetlands in close proximity according to the Department of Water database as at 4 December 2007
- The proposal is not within a Proclaimed Surface Water Area as per the *Rights in Water and Irrigation Act, 1914*
- The proposal is located within the Canning-Kimberley groundwater area proclaimed under the *Rights in Water and Irrigation Act, 1914*. Therefore, if there is a requirement for groundwater to complete the proposed works, application should be made to the Department of Water for a licence. Licences, if granted, may contain conditions on the sustainable use of water.

If you require further information please contact Kellie Loge in the Kununurra Office on 9166 4113.

Yours sincerely

Dave Munday  
Regional Manager - Kimberley  
4 December 2007

Kimberley Region  
Lot 225 Bandicoot Drive Kununurra Western Australia 6743  
PO Box 625 Kununurra Western Australia 6743  
Telephone (08) 9166 4100 Facsimile (08) 9426 4818  
[www.water.wa.gov.au](http://www.water.wa.gov.au)

10/0001/013



**Appendix G**

**WAPC's Acid Sulfate Soils Mapping**



# ACID SULFATE SOILS

## APPLICANT SELF - ASSESSMENT FORM

**PLEASE COMPLETE THIS SELF-ASSESSMENT FORM AND ANSWER THE FOLLOWING:**

### **STEP 1:** **IS THERE EVIDENCE OF A SIGNIFICANT RISK OF DISTURBING ACID SULFATE SOILS AT THIS LOCATION?**

#### **Question 1:**

Is the land depicted in Figures 1 - 10 of the Western Australian Planning Commission's Planning Bulletin No. 64: Acid Sulfate Soils as having a 'high risk of Actual Acid Sulfate Soil (AASS) & Potential Acid Sulfate Soil (PASS) < 3m from surface'?

Note: Planning Bulletin No. 64: Acid Sulfate Soils can be downloaded from:  
<http://www.wapc.wa.gov.au/publications/policies/bulletins/PB64/64Nov03.html>



**TICK BOX AS APPROPRIATE:**

YES

NO

#### **Question 2:**

Is the land located in an area, whether depicted in Figures 1 - 10 or not, where site characteristics and local knowledge lead you to form the view that there is a significant risk of disturbing acid sulfate soils at this location?



**TICK BOX AS APPROPRIATE:**

YES

NO

If YES to either of these two questions go to Step 2.

If NO to both of these questions no further investigation is required.  
Sign this form and submit it with your application.

**STEP 4: CARRY OUT DETAILED SITE ASSESSMENT IN ACCORDANCE WITH DEPARTMENT OF ENVIRONMENT GUIDELINES.**

---

**Question 7:**

Did the Detailed Site Assessment reveal the presence of acid sulfate soils?



**TICK BOX AS APPROPRIATE:**

YES

NO

If YES to this question either modify the design of the proposal to ensure that there is no disturbance to acid sulfate soils at this location or, alternatively, prepare an Acid Sulfate Soil Management Plan to mitigate the potential adverse effects of acid sulfate soil disturbance. Sign this form and submit it with your application together with the written results of the Preliminary and Detailed Site Assessments and, if applicable, the completed Acid Sulfate Soil Management Plan.

If NO to this question then no further investigation is required. Sign this form and submit it with your application together with the written results of the Preliminary and Detailed Site Assessments.

**APPLICANT SIGNATURE:**



.....MARI BAETGE.....  
Full Name



.....M Baetge.....  
Signature



.....23.11.2007.....  
Date

**TICK BOX FOR ATTACHMENTS AS APPROPRIATE:**

Preliminary Site Assessment Results

Detailed Site Assessment Results

The Proposal Has Been Designed To Avoid Disturbance Of Acid Sulfate Soils At This Location

Completed Acid Sulfate Soil Management Plan

## **Appendix H**

### **Department of Agriculture and Food Advice on Declared Weeds**

Hi Marni

No declared plants or serious environmental weeds seem to be present at the Pentecost Range section of the Gibb River Road or at the location where rock is to be extracted.

Regards

Mick Everett

Department of Agriculture

PO Box 278 DERBY WA 6728

Phone (08) 91910328

Mobile 0404904971

Fax (08)91910334

email [meverett@agric.wa.gov.au](mailto:meverett@agric.wa.gov.au)

**From:** BAETGE Marni (GEnv) [<mailto:marni.baetge@mainroads.wa.gov.au>]

**Sent:** Friday, 23 November 2007 3:07 PM

**To:** Everett, Mick

**Subject:** Declared and Environmental Weeds - Gibb River Road Stage 2 Improvement Works

Mick,

Main Roads Kimberley is proposing to upgrade 3.8 km of the Pentecost Range section of the Gibb River Road. The proposed works will involve improvement to road formation and drainage, enhancing road user accessibility and significantly improving traffic safety.

The attached maps show the location and boundaries of the proposed works and the materials investigation areas.

Could you please determine if any declared and/or environmental weeds exist within the project area and if so please name each species.

Thanks and regards,

Marni Baetge

Environment Officer

Main Roads Western Australia

Kimberley Region

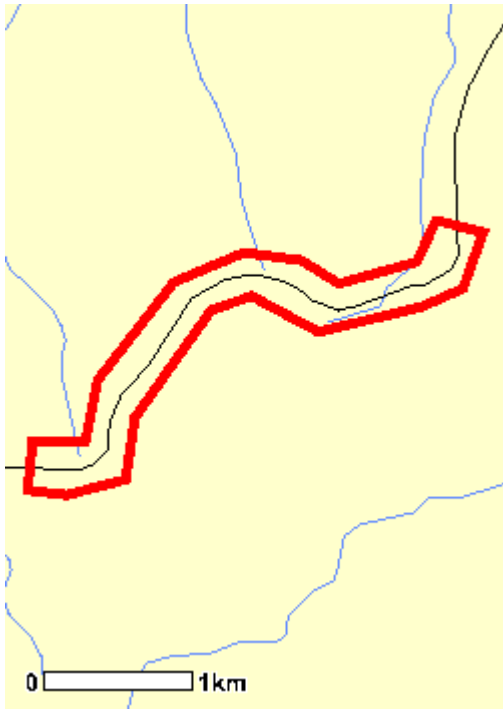
Ph: (08) 9158 4318 Fax: (08) 9158 4334

[marni.baetge@mainroads.wa.gov.au](mailto:marni.baetge@mainroads.wa.gov.au)

# **Appendix I**

## **Department of Environment and Water Resources**

## DEWR DATABASE SEARCH – PENTECOST RANGE IMPROVEMENT WORKS



### Summary

#### Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see <http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html>

<b>World Heritage Properties:</b>	None
<b>National Heritage Places:</b>	None
<b>Wetlands of International Significance: (Ramsar Sites)</b>	None
<b>Commonwealth Marine Areas:</b>	None
<b>Threatened Ecological Communities:</b>	None
<b><u>Threatened Species:</u></b>	4
<b><u>Migratory Species:</u></b>	15

---

## Details

### Matters of National Environmental Significance

Threatened Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Birds</b>		
<a href="#">Erythrotriorchis radiatus</a> * Red Goshawk	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Erythrura gouldiae</a> * Gouldian Finch	Endangered	Species or species habitat may occur within area
<a href="#">Malurus coronatus coronatus</a> * Purple-crowned Fairy-wren (western)	Vulnerable	Species or species habitat likely to occur within area
<b>Sharks</b>		
<a href="#">Pristis microdon</a> * Freshwater Sawfish	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Migratory Terrestrial Species</b>		
<b>Birds</b>		
<a href="#">Coracina tenuirostris melvillensis</a> Melville Cicadabird	Migratory	Species or species habitat may occur within area
<a href="#">Erythrura gouldiae</a> Gouldian Finch	Migratory	Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
<a href="#">Hirundo rustica</a> Barn Swallow	Migratory	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> * Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail	Migratory	Species or species habitat may occur within area
<b>Migratory Wetland Species</b>		
<b>Birds</b>		
<a href="#">Ardea alba</a> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<a href="#">Ardea ibis</a> Cattle Egret	Migratory	Species or species habitat may occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
<a href="#">Glareola maldivarum</a> Oriental Pratincole	Migratory	Species or species habitat may occur within area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area



## Migratory Marine Birds

[Apus pacificus](#) Migratory Species or species habitat may occur within area  
Fork-tailed Swift

[Ardea alba](#) Migratory Species or species habitat may occur within area  
Great Egret, White Egret

[Ardea ibis](#) Migratory Species or species habitat may occur within area  
Cattle Egret

## Migratory Marine Species

### Reptiles

[Crocodylus porosus](#) Migratory Species or species habitat likely to occur within area  
Estuarine  
Crocodile,  
Salt-water  
Crocodile

Other Matters Protected by the EPBC Act

Listed Marine Species [ [Dataset Information](#) ]

### Birds

[Anseranas semipalmata](#) Listed - overfly marine area Species or species habitat may occur within area  
Magpie Goose

[Apus pacificus](#) Listed - overfly marine area Species or species habitat may occur within area  
Fork-tailed Swift

[Ardea alba](#) Listed - overfly marine area Species or species habitat may occur within area  
Great Egret, White Egret

[Ardea ibis](#) Listed - overfly marine area Species or species habitat may occur within area  
Cattle Egret

[Charadrius veredus](#) Listed - overfly marine area Species or species habitat may occur within area  
Oriental Plover, Oriental Dotterel

[Glareola maldivarum](#) Listed - overfly marine area Species or species habitat may occur within area  
Oriental Pratincole

[Haliaeetus leucogaster](#) Listed Species or species habitat likely to occur within area  
White-bellied Sea-Eagle

[Hirundo rustica](#)

Barn Swallow

Listed - Species or species habitat may occur  
overfly within area  
marine area

[Merops ornatus](#) \*

Rainbow Bee-eater

Listed - Species or species habitat may occur  
overfly within area  
marine area

[Numenius minutus](#)

Little Curlew, Little Whimbrel

Listed - Species or species habitat may occur  
overfly within area  
marine area

[Rhipidura rufifrons](#)

Rufous Fantail

Listed - Species or species habitat may occur  
overfly within area  
marine area

### Reptiles

[Crocodylus johnstoni](#)

Freshwater Crocodile

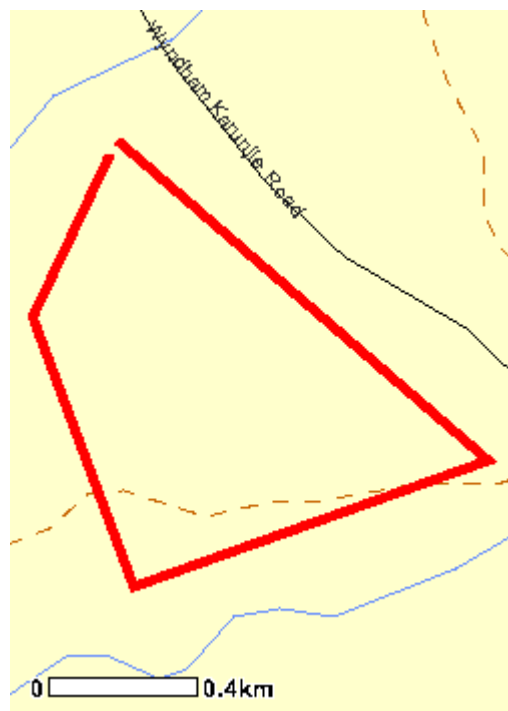
Listed Species or species habitat may occur  
within area

[Crocodylus porosus](#)

Estuarine Crocodile, Salt-water Crocodile

Listed Species or species habitat likely to  
occur within area

## PENTECOST RANGE MATERIALS INVESTIGATION AREA



This map may contain data which are  
© Commonwealth of Australia  
(Geoscience Australia)  
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**Search Type:** Line

**Buffer:** 0 km

**Coordinates:** -15.75273,127.84165, -15.76095,127.85117, -15.76419,127.84208, -

15.75727,127.83949, -15.75316,127.84144, -15.7531,127.84144



## Summary

### Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see

<http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html>.

<b>World Heritage Properties:</b>	None
<b>National Heritage Places:</b>	None
<b>Wetlands of International Significance: (Ramsar Sites)</b>	None
<b>Commonwealth Marine Areas:</b>	None
<b>Threatened Ecological Communities:</b>	None
<b><u>Threatened Species:</u></b>	4
<b><u>Migratory Species:</u></b>	15

<b>Commonwealth Lands:</b>	None
<b>Commonwealth Heritage Places:</b>	None
<b>Places on the RNE:</b>	None
<b><u>Listed Marine Species:</u></b>	13
<b>Whales and Other Cetaceans:</b>	None
<b>Critical Habitats:</b>	None
<b>Commonwealth Reserves:</b>	None

### Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

<b>State and Territory Reserves:</b>	None
<b>Other Commonwealth Reserves:</b>	None
<b>Regional Forest Agreements:</b>	None

Details  
Matters of National Environmental Significance

Threatened Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Birds</b>		
<a href="#"><i>Erythrotriorchis radiatus</i></a> * Red Goshawk	Vulnerable	Species or species habitat likely to occur within area
<a href="#"><i>Erythrura gouldiae</i></a> * Gouldian Finch	Endangered	Species or species habitat may occur within area
<a href="#"><i>Malurus coronatus coronatus</i></a> * Purple-crowned Fairy-wren (western)	Vulnerable	Species or species habitat likely to occur within area
<b>Sharks</b>		
<a href="#"><i>Pristis microdon</i></a> * Freshwater Sawfish	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Migratory Terrestrial Species</b>		
<b>Birds</b>		
<a href="#"><i>Coracina tenuirostris melvillensis</i></a> Melville Cicadabird	Migratory	Species or species habitat may occur within area
<a href="#"><i>Erythrura gouldiae</i></a> Gouldian Finch	Migratory	Species or species habitat may occur within area
<a href="#"><i>Haliaeetus leucogaster</i></a> White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
<a href="#"><i>Hirundo rustica</i></a> Barn Swallow	Migratory	Species or species habitat may occur within area
<a href="#"><i>Merops ornatus</i></a> * Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
<a href="#"><i>Rhipidura rufifrons</i></a> Rufous Fantail	Migratory	Species or species habitat may occur within area
<b>Migratory Wetland Species</b>		
<b>Birds</b>		
<a href="#"><i>Ardea alba</i></a> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<a href="#"><i>Ardea ibis</i></a> Cattle Egret	Migratory	Species or species habitat may occur within area
<a href="#"><i>Charadrius veredus</i></a> Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
<a href="#"><i>Glareola maldivarum</i></a> Oriental Pratincole	Migratory	Species or species habitat may occur within area
<a href="#"><i>Numenius minutus</i></a> Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area
<b>Migratory Marine Birds</b>		
<a href="#"><i>Apus pacificus</i></a> Fork-tailed Swift	Migratory	Species or species habitat may occur within area

[Ardea alba](#)  
Great Egret, White Egret

Migratory      Species or species habitat may occur within area

[Ardea ibis](#)  
Cattle Egret

Migratory      Species or species habitat may occur within area

**Migratory Marine Species**

**Reptiles**

[Crocodylus porosus](#)  
Estuarine Crocodile, Salt-water Crocodile  
Other Matters Protected by the EPBC Act

Migratory      Species or species habitat likely to occur within area

Listed Marine Species [ [Dataset Information](#) ]

Status      Type of Presence

**Birds**

[Anseranas semipalmata](#)  
Magpie Goose

Listed -      Species or species habitat may occur  
overfly      within area  
marine  
area

[Apus pacificus](#)  
Fork-tailed Swift

Listed -      Species or species habitat may occur  
overfly      within area  
marine  
area

[Ardea alba](#)  
Great Egret, White Egret

Listed -      Species or species habitat may occur  
overfly      within area  
marine  
area

[Ardea ibis](#)  
Cattle Egret

Listed -      Species or species habitat may occur  
overfly      within area  
marine  
area

[Charadrius veredus](#)  
Oriental Plover, Oriental Dotterel

Listed -      Species or species habitat may occur  
overfly      within area  
marine  
area

[Glareola maldivarum](#)  
Oriental Pratincole

Listed -      Species or species habitat may occur  
overfly      within area  
marine  
area

[Haliaeetus leucogaster](#)  
White-bellied Sea-Eagle

Listed      Species or species habitat likely to occur within area

[Hirundo rustica](#)  
Barn Swallow

Listed -      Species or species habitat may occur  
overfly      within area  
marine  
area

[Merops ornatus](#) \*  
Rainbow Bee-eater

Listed -      Species or species habitat may occur  
overfly      within area  
marine  
area

[Numenius minutus](#)  
Little Curlew, Little Whimbrel

Listed -      Species or species habitat may occur  
overfly      within area  
marine

[Rhipidura rufifrons](#)  
Rufous Fantail

area

Listed - Species or species habitat may occur  
overfly within area  
marine  
area

**Reptiles**

[Crocodylus johnstoni](#)  
Freshwater Crocodile

Listed Species or species habitat may occur  
within area

[Crocodylus porosus](#)  
Estuarine Crocodile, Salt-water Crocodile

Listed Species or species habitat likely to  
occur within area