

**PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT
and ENVIRONMENTAL MANAGEMENT PLAN
Gibb River Road Upgrade SLK 119.9 – 128
Formation Improvement and Gravel Resheeting**



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Date: November 2008

Table of Contents

1. INTRODUCTION	3
2. BACKGROUND	3
3. DESCRIPTION OF THE PROJECT	4
3.1 METHODOLOGY	9
3.1.1 Preliminary Desktop Study	9
3.1.2 Site Investigation.....	10
4. EXISTING ENVIRONMENT	10
5. CLEARING OF NATIVE VEGETATION	11
6. ASSESSMENT OF ASPECTS AND IMPACTS	15
7. DECISION TO REFER	16
8. ENVIRONMENTAL MANAGEMENT PLAN	17
9. REFERENCES	23
APPENDIX A LOW IMPACT SCREENING CHECKLIST	24
APPENDIX B WETLANDS AND WATERCOURSES WITHIN THE PROJECT AREA	26
APPENDIX C DEPARTMENT OF ENVIRONMENT AND CONSERVATION THREATENED FLORA AND FAUNA DATABASE SEARCHES	29
APPENDIX D AUSTRALIAN HERITAGE PLACES INVENTORY, HERITAGE COUNCIL OF WESTERN AUSTRALIA AND THE MUNICIPAL HERITAGE INVENTORY DATABASE SEARCHES	33
APPENDIX E DEPARTMENT OF INDIGENOUS AFFAIRS DATABASE SEARCH	36
APPENDIX F DEPARTMENT OF WATER SENSITIVE WATER RESOURCES DATABASE SEARCH	39
APPENDIX G WAPC'S ACID SULFATE SOILS MAPPING	42
APPENDIX H DEPARTMENT OF AGRICULTURE AND FOOD ADVICE ON DECLARED WEEDS	45
APPENDIX I DEPARTMENT OF ENVIRONMENT, WATER, HERITAGE AND THE ARTS RESOURCES	47

GIBB RIVER ROAD UPGRADE SLK 119.9 – 128 FORMATION IMPROVEMENT & GRAVEL RESHEETING

PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT

1. INTRODUCTION

Main Roads Kimberley proposes to improve the road formation and drainage of 8.1 km of pavement along the Gibb River Road (SLK 119.9 – 128). The proposed work will improve the road condition, provide increased serviceability, reduce maintenance and freight costs and improve the level of serviceability to the local community.

Clearing of remnant native vegetation will occur for the removal of borrow and gravel material for embankment fill and gravel resheeting of the existing gravel road. Minor road widening, establishment of a temporary sidetrack for traffic diversion and the establishment of offshoot drains will also result in clearing of vegetation.

The proposed works are located within the Shire of Derby-West 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.

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 (PEIA). This report fulfils this requirement.

3. DESCRIPTION OF THE PROJECT

The PEIA will cover:

- A 400 metre wide environmental clearance corridor on the LHS and 400 metre wide clearance corridor on the RHS of the Gibb River Road from SLK 119.9 - 123. This corridor includes requirements for sourcing embankment borrow materials, establishment of offshoot drains and a temporary sidetrack;
- A 200 metre wide environmental clearance corridor on the LHS and a 200 metre wide clearance corridor on the RHS of the Gibb River Rd from SLK 123 – 128. This corridor includes requirements for the establishment of offshoot drains and a temporary sidetrack;
- It is proposed to source gravel material from five different areas (SLK 113.5, SLK 116, SLK 132.4 and SLK 136.1) (refer to Table 1). The gravel areas delineated on Figure 1 and outlined on Table 1 will be investigated to locate naturally occurring gravel material suitable for resheeting of the Gibb River Road project. Not all of the areas detailed will be required to be cleared and excavated but the best available materials will be sourced from within the areas.

Figure 1 on the following page provides a broad locality map of the proposed works.

All of the material extraction areas will remain open for access for future Gibb River Road rehabilitation works. Approximately 43 hectares of land will be permanently cleared for gravel and borrow extraction, minor road widening and the establishment of offshoot drains. Approximately 10 hectares of land will be temporarily cleared for the establishment of the sidetrack – this area will be rehabilitated once roadworks are complete.

Permanent Clearing = 43 ha approx.

Temporary Clearing = 10 ha approx.

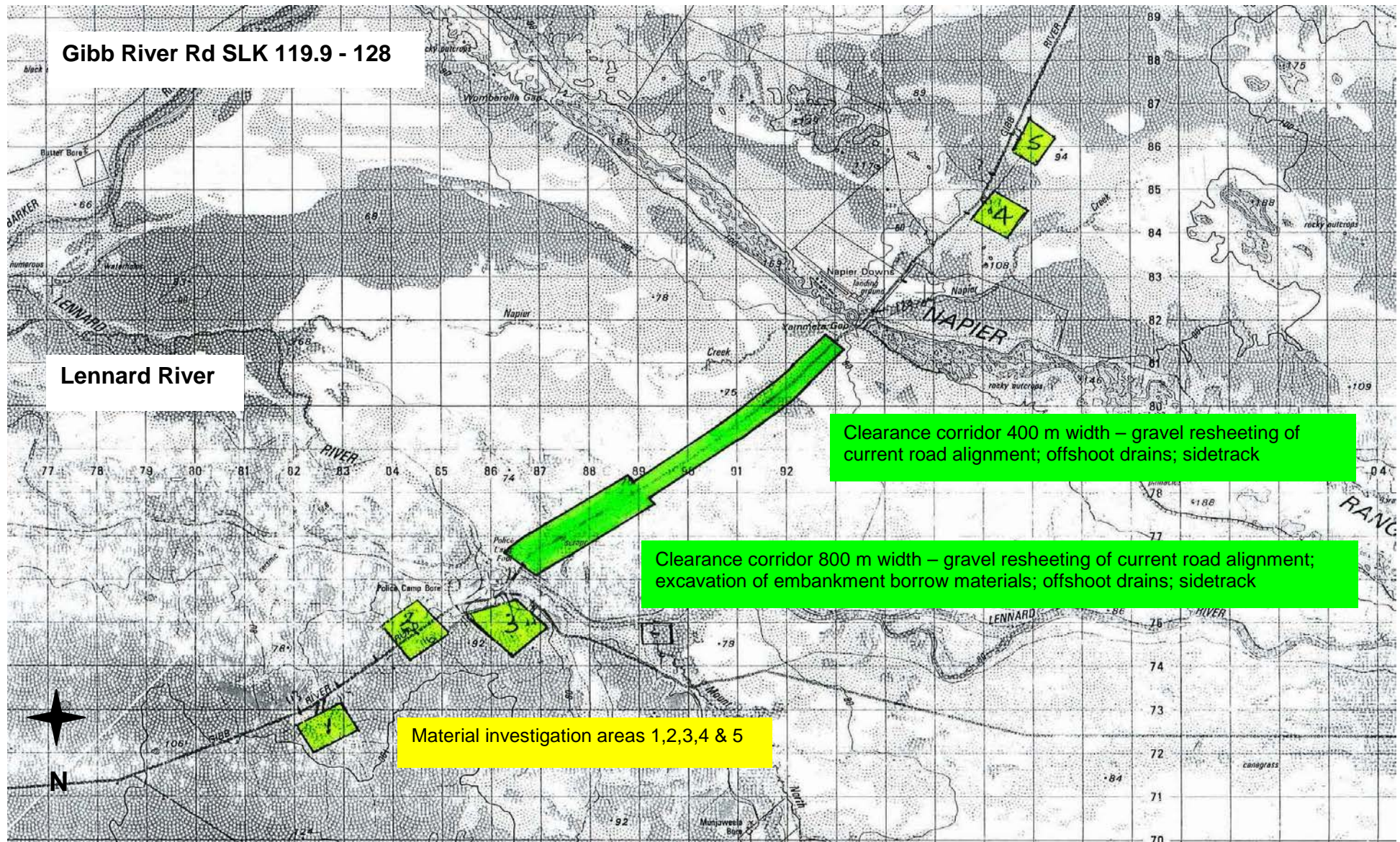


Figure 1...Environmental clearance corridor and materials investigation areas, Gibb River Rd SLK 119.9 - 128

AREA #	General location	NW	NE	SW	SE	Area (ha)	Access Point on GRR Road	Approx SLK
1	Old pits located approx 600 m RHS of road.	0682050	0682903	0682400	0683280	71.5	0682500	113.5
		8072600	8073150	8072000	8072540		8073220	
2	Old pits to LHS of road plus new area on RHS	0683075	0684520	0684350	0685120	100.0	Area straddles road	
		8074900	8075500	8074100	8074710			116.0
3	New area south of GRR and west of Fairfield-Leopold Rd	0685400	0686500	0686450	0687100	117.5	0686850	
		8075220	8075500	8074250	8074850		8075420	
4	Old pit 300 m RHS of road	0695800	0696250	0696500	0696950	65.0	0696000	132.4
		8084300	8084950	8083900	8084500		8084750	
5	Old pit area 100 m RHS of road	0696650	0697000	0697110	0697450	46.0	0696630	136.1
		8085900	8086650	8085600	8086220		8088350	
WATER		0689488	Entry off Fairfield – Leopold Rd @					
		8074759		0688960				
				8074382				

Note 1 - Area 3 access off Fairfield – Leopold Road

Note 2 – Areas include access corridor of 50 m width from designated point on road to mid point of designated area.

Table 1...Investigation areas for sheeting material



Image 1...Gibb River Road...Looking West



Image 2...Gibb River Road...Looking East



Image 3... Borrow Pit Vegetation



Image 4... Borrow Pit Vegetation

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), 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 Ware Resources (DEW) 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 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 Lawrence Chang, Materials Manger Steve Willis and Environment Officer Marni Baetge on 15/10/08 to examine the general features of the area. The broad vegetation types in the vicinity of the project area 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 within the Dampierland Botanical District, which is broadly characterised by pindan formation on sandplains (Beard, 1979).

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

- Vegetation Association 726 – Grasslands, tall bunch grass savanna low tree; baobabs, bauhinia & beefwood over mitchell & ribbon/blue grass on black soil. This vegetation association is well represented throughout the region with 100% remaining;
- Vegetation Association 736 – Mosaic: Grasslands, curly spinifex, low tree savanna; snappy gum & Eucalyptus perfoliata over Triodia pungens / Grasslands; sparse low tree savanna; Adansonia gregorii over Triodia bynoei. This vegetation association is well represented throughout the region with 100% remaining;
- Vegetation Association 745 – Shrublands, pindan; acacia shrubland with scattered low trees over spinifex. This vegetation association is well represented throughout the region with 100% remaining;

No declared weeds or serious environmental weeds were detected in either of the project areas.

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 818/3.

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

Area Under Assessment Details

Proponent details

Proponent's name:
Contacts

MRWA
Name: Marni Baetge
Phone: 08 9158 4318
Fax:
Email: marni.baetge@mainroads.wa.gov.au

Property details

Property:

Napier Downs

Colloquial name:

Napier Downs

Area under assessment

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

Avoidance/Minimise clearing

How have the clearing impacts been minimised?

Materials investigation areas have been chosen on the basis of least impact to environmental integrity

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 Yes

Fauna / Flora Survey Undertaken No

Site Report Attached Yes

Fauna / Flora Survey Report Attached No

Site Photos Attached Yes

Other Relevant References Attached Yes

Vegetation Complex
726, 736 & 745

Clearing Description
Mechanical

Vegetation Condition
Fair

Comment

ASSESSMENT OF APPLICATION AGAINST CLEARING PRINCIPLES

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

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

Methodology Site visit (15/10//08)
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 **Proposal is not at variance to this Principle**
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 material extraction is proposed. A habitat assessment was carried out in October 2008 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 most a short term effect on any fauna species utilising this habitat. This proposal is therefore not at variance to this Principle.

Methodology Site visit (15/10//08)
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 **Proposal is not at variance to this Principle**
DEC Threatened Flora Database search indicated that no Declared Rare or Priority Flora species are within close proximity to the project area. This proposal is therefore not at variance with this Principle.

Methodology 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 **Proposal is not likely to be at variance to this Principle**
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 (15/10//08)
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 **Proposal is not at variance to this Principle**
The vegetation types under application are representative of Beard Vegetation Associations 726, 736 and 745 (Hopkins et al. 2001) of which there is 100% extent remaining (Shepherd et al. 2001). In addition the application falls within the Dampierland IBRA Bioregion which has 99.8% of the pre-European extent remaining (Shepherd et al. 2001). Beard Vegetation Associations and the Dampierland IBRA Bioregion are both 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 – 15/10//08
- 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 **Proposal is not at variance to this Principle**
The area under application does not impact a watercourse or wetland. This proposal is therefore not at variance with this Principle.

Methodology Site visit (15/10//08)
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 **Proposal is not likely to be at variance to this Principle**
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 (15/10//08)

(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 **Proposal is not likely to be at variance to this Principle**
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 (15/10//08)
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 **Proposal is not at variance to this Principle**
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 (15/10//08)
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 **Proposal is not at variance to this Principle**
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 (15/10//08)

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
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Assessor's recommendations

List of Principles seriously at variance, at variance or maybe at variance A revegetation plan will be developed

OFFICER PREPARING REPORT

Marni Baetge (Graduate Environment Officer)
Kimberley Regional Office MRWA
Phone 08 9158 4318
Date 15/10//08

All clearing associated with sourcing raw materials, access tracks and plant lay-down areas shall be kept to an absolute minimum and 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. Clearing for the truck breakdown area shall be carried out only in the areas shown on the drawings, or as otherwise directed by the Superintendent. 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 Upgrade SLK 119.9 – 128

Aspect	Evaluation of Potential Impacts
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"> the predicted traffic flow is less than 15,000 vehicles per day; residential and other sensitive receptors are not within 200 meters of the road centre
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 project area (Appendix I). However, subsequent consultation with DEC confirmed that the orange leaf-nose bat (schedule 1), ghost bat (priority 4) and bush stonecurlew (priority 4) potentially inhabit the project area. Site investigations 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 53 hectares of vegetation is expected to be cleared using the purpose permit. The vegetation types expected to be impacted by the proposed works are 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 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 numerous sites of Aboriginal heritage significance in the project areas. However, since some of the project area may not have been surveyed, the 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 area is 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 Upgrade SLK 119.9 – 128

Aspect	Evaluation of Potential Impacts
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 Water Resources.

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
Induction	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
Vegetation Clearing - Record-keeping	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"> • a copy of the PEIA & EMP (Minor projects) for small projects; • a map showing the location where the clearing occurred, recorded in an ESRI Shapefile; • the size of the area cleared (in hectares); • the dates on which the clearing was done. 	Environment Officer	DEC
Vegetation - Clearing	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"> • 301: Clearing 	Project Manager	Main Roads

ENVIRONMENTAL MANAGEMENT PLAN

Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
Weeds	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"> • 204: Environment • 301: Clearing 	Project Manager	Main Roads
Water Courses and Surface Drainage	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
			Ensure Main Roads design is followed. Main Roads Specifications applicable: • 402: Surface Drains • 405: Drainage Structures		
Visual Amenity	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
Noise, Vibration and Dust	Construction	Ensure that the construction of the proposal does not become a nuisance to the public	Access to private property and appropriate traffic management measures should be planned and implemented prior to the construction of works 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 Any complaints regarding dust will be attended to as soon as possible 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 Watering shall be used as a mitigation measure to protect loose surfaces	Project Manager	Main Roads

ENVIRONMENTAL MANAGEMENT PLAN

Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
Pollution and Litter	Construction	Ensure that the construction of the proposal is managed to a standard that minimises any adverse impacts on the environment	<p>Bulk fuels and oil stores will be bunded and managed in accordance with Australian Standards</p> <p>If vehicle or machinery servicing is to occur on site it will occur in designated servicing areas which are supplied with adequate spill trays and spill response equipment.</p> <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. Spillages of substances will be reported and identified immediately.</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

ENVIRONMENTAL MANAGEMENT PLAN

Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
Fire	Construction	Ensure that the fire risk associated with the construction of the proposal is minimised	A water tanker will be on site at all times No fires shall be lit within the project area	Project Manager	Main Roads
Aboriginal Heritage	Construction	Ensure that there is no unauthorised disturbance to Aboriginal heritage sites during construction	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 The DIA will be notified in the event of any significant Aboriginal Heritage discovery If skeletal material is uncovered during works the WA Police Service will also be advised immediately	Project Manager	DIA
Rehabilitation	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

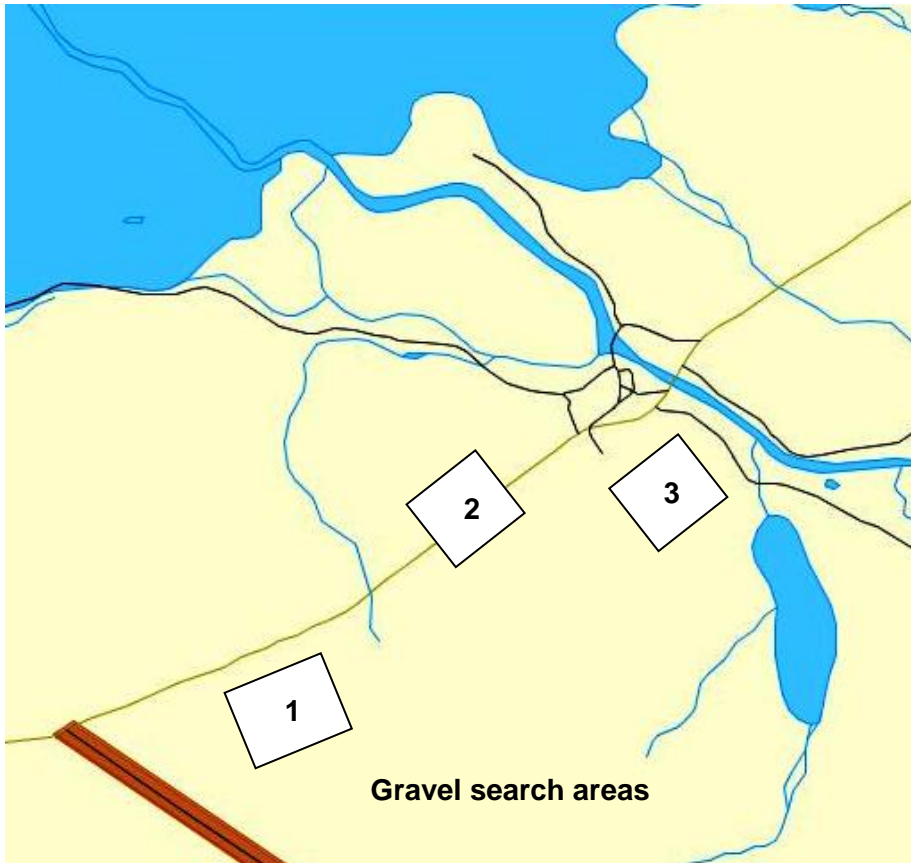
Beard, J.S. (1979). Vegetation Survey of Western Australia: Kimberley. University of Western Australia Press, Perth.

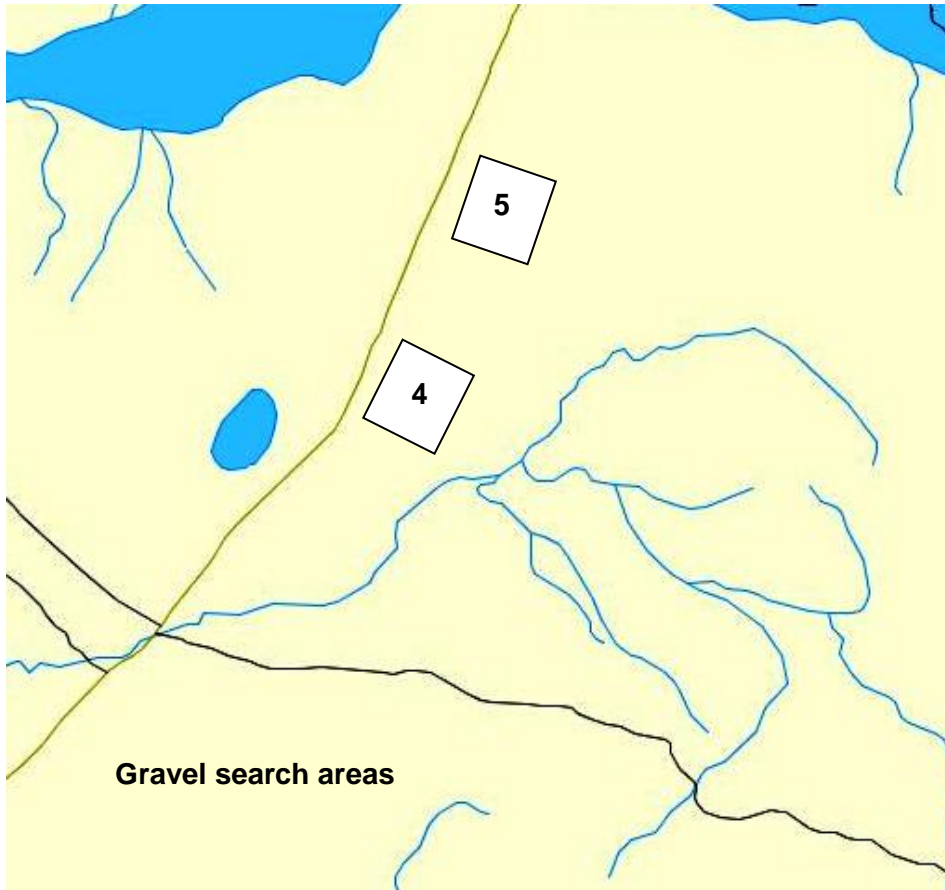
Appendix A

Low Impact Screening Checklist

Appendix B

Wetlands and Watercourses within the Project Area

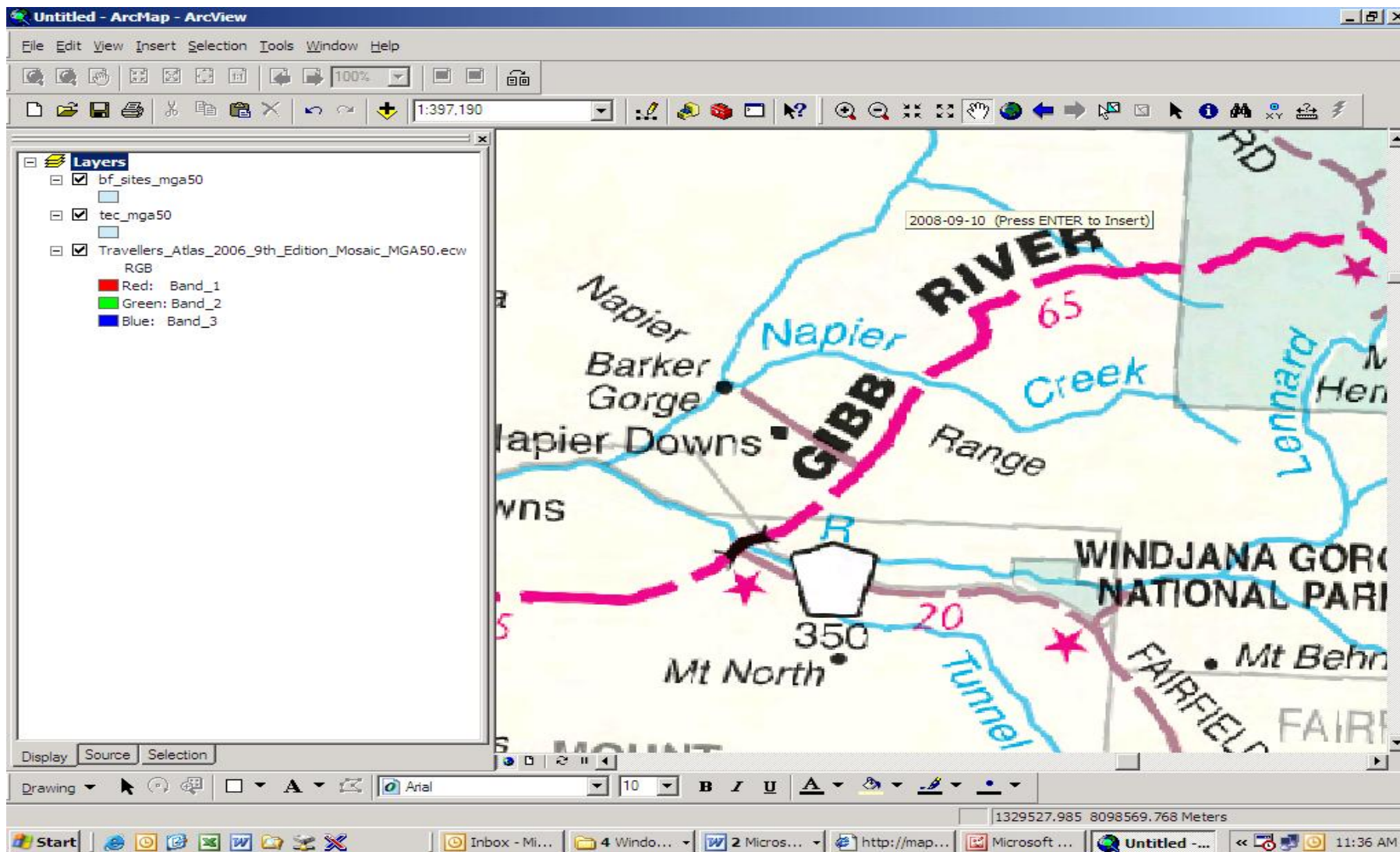




Results from DEC's Native Vegetation Map Viewer, September 2008

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, September 2008

CORRESPONDENCE WITH DEC REGARDING THREATENED FLORA IN PROJECT AREA

From: Mutton, Amy [Amy.Mutton@dec.wa.gov.au] Sent: Thu 11/09/2008 2:48 PM
To: BAETGE Marni (GEnv)
Cc:
Subject: RE: Threatened Fauna - Gibb River Rd upgrade works SLK 119.9 - 128
Attachments:  raref_MainRoads_Baetge9.pdf;  raref_mainroads_baetge.doc

Hi Marni

Please find attached the results for the Threatened and Priority Fauna Database search for the vicinity of the proposed Gibb River Road improvements and gravel pits. Please note that I performed one search for the area containing all your coordinates. If you require a larger search area with buffer included please let me know.

Please refer to the attached letter for the conditions relating to the supplied data.

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

Regards,
Amy

Amy Mutton
Species and Communities Branch
Department of Environment and Conservation
Phone (08) 9219 8636
Fax (08) 9334 0278

From: BAETGE Marni (GEnv) Sent: Wed 10/09/2008 12:31 PM
To: 'Mutton, Amy'
Cc:
Subject: FW: Threatened Fauna - Gibb River Rd upgrade works SLK 119.9 - 128
Attachments:  Gibb River Rd SLK 119.9 - 128.pdf

Hi Amy,

Main Roads Kimberley is proposing to improve the road formation and drainage of 8.1 km of pavement along the Gibb River Road (SLK 119.9 – 128). The proposed work will improve the road condition, provide increased serviceability, reduce maintenance and freight costs and improve the level of serviceability to the local community.

Clearing of remnant native vegetation will occur for the removal of borrow and gravel material for embankment fill and gravel resheeting of the existing gravel road. Minor road widening, establishment of a temporary sidetrack for traffic diversion and the establishment of offshoot drains will also result in clearing of vegetation.

Please find attached an aerial map of proposed gravel search areas (in yellow), and the environmental search corridor (in green). The environmental search corridor will allow investigation of borrow material, establishment of a temporary sidetrack (which will be rehabilitated upon completion of roadworks) and establishment of offshoot drains. Coordinates have also been attached of the proposed gravel investigation areas. Please keep in mind that not all of the areas detailed will be required to be cleared and excavated but the best available materials will be sourced from within the areas.

Could you please determine if any threatened fauna exist within the proposed gravel search areas and the environmental clearance corridor?

Thank you for your assistance.

Marni Baetge
Environment Officer
MAIN ROADS Western Australia
Kimberley Region
Ph: (08) 9158 4318
Fax: (08) 9158 4334
Mobile: 0427 474 965
marni.baetge@mainroads.wa.gov.au

17.4276 °S 124.7108 °E / 17.2975 °S 124.8560 °E

Gibb River Road improvement area

* *Date* *Certainty* *Seen* *Location Name**Method***Schedule 1 - Fauna that is rare or is likely to become extinct***Rhinionictoris aurantius***Orange Leaf-nosed Bat***1 records*

This species of bat occurs in a few scattered locations in the Pilbara, as well as the Kimberley. It roosts in caves and is sensitive to human disturbance.

1988	1	1	Napier Range	
------	---	---	--------------	--

*Wesraltrachia inopinata**1 records*

1986	1		Napier Ranges	
------	---	--	---------------	--

Caught or trapped

*Wesraltrachia turbinata**2 records*

1984	1		Napier Ranges	
------	---	--	---------------	--

Caught or trapped

1987	1		Napier Ranges	
------	---	--	---------------	--

Caught or trapped

Priority Four: Taxa in need of monitoring*Macroderma gigas***Ghost Bat***1 records*

This species is Australia's only carnivorous bat and has a patchy distribution across northern Australia. It shelters in caves, mine shafts and deep rock fissures and is sensitive to disturbance.

1960	1	1	Napier Range	
------	---	---	--------------	--

Caught or trapped

*Burhinus grallarius***Bush Stonecurlew***1 records*

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

2000	1		KING LEOPOLD RANGES	
------	---	--	---------------------	--

* 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

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

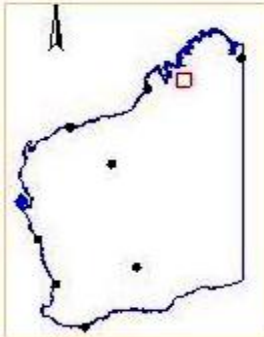
Department of Indigenous Affairs Database Search

What do you want to do?

[Search](#) | [Metadata](#) | [Feedback](#) | [DIA Home](#)

Zoom to an area... : ...

show legend



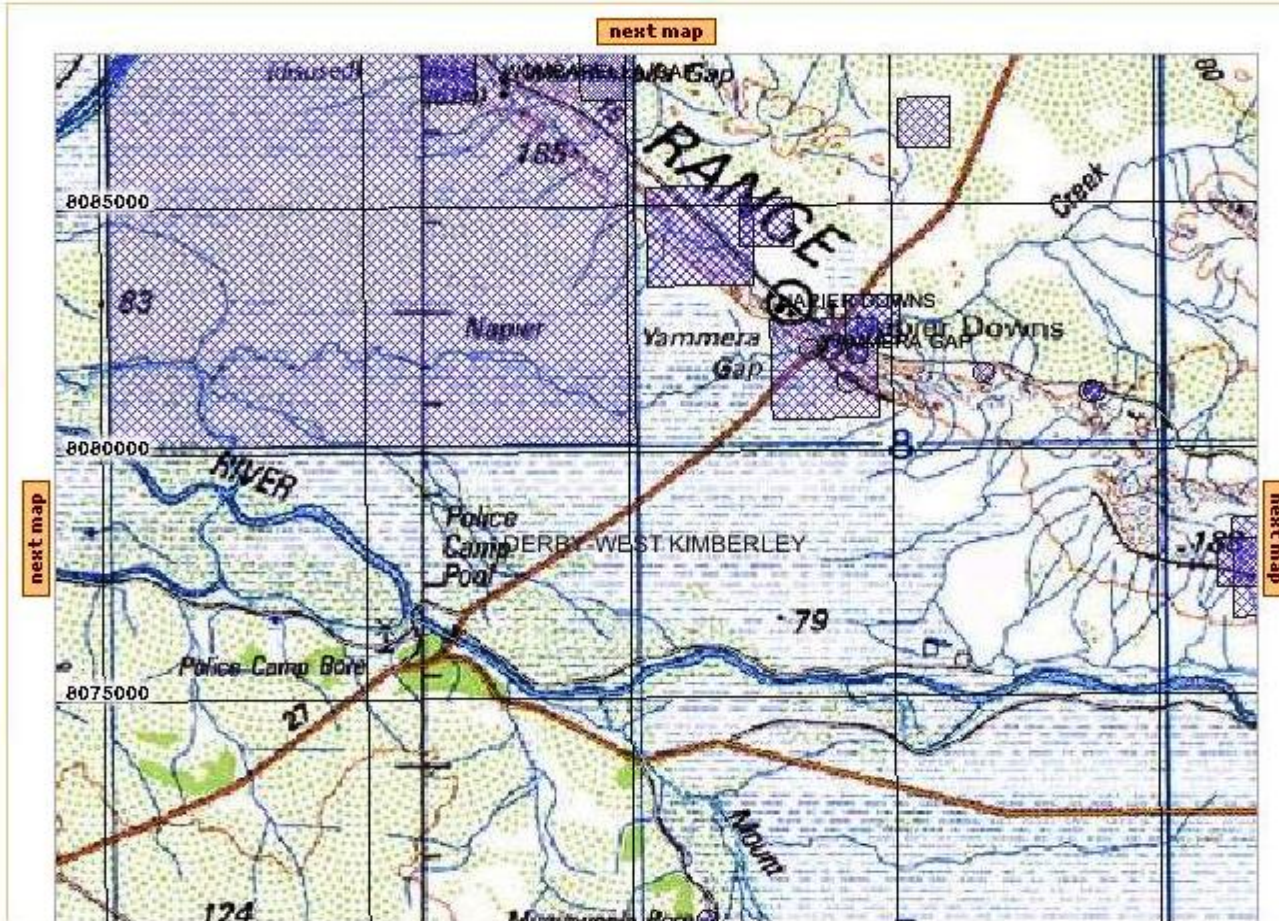
Show on map

- 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

What do you want to do?

[Search](#) | [Metadata](#) | [Feedback](#) | [DIA Home](#)

Zoom to an area... : ...

show legend



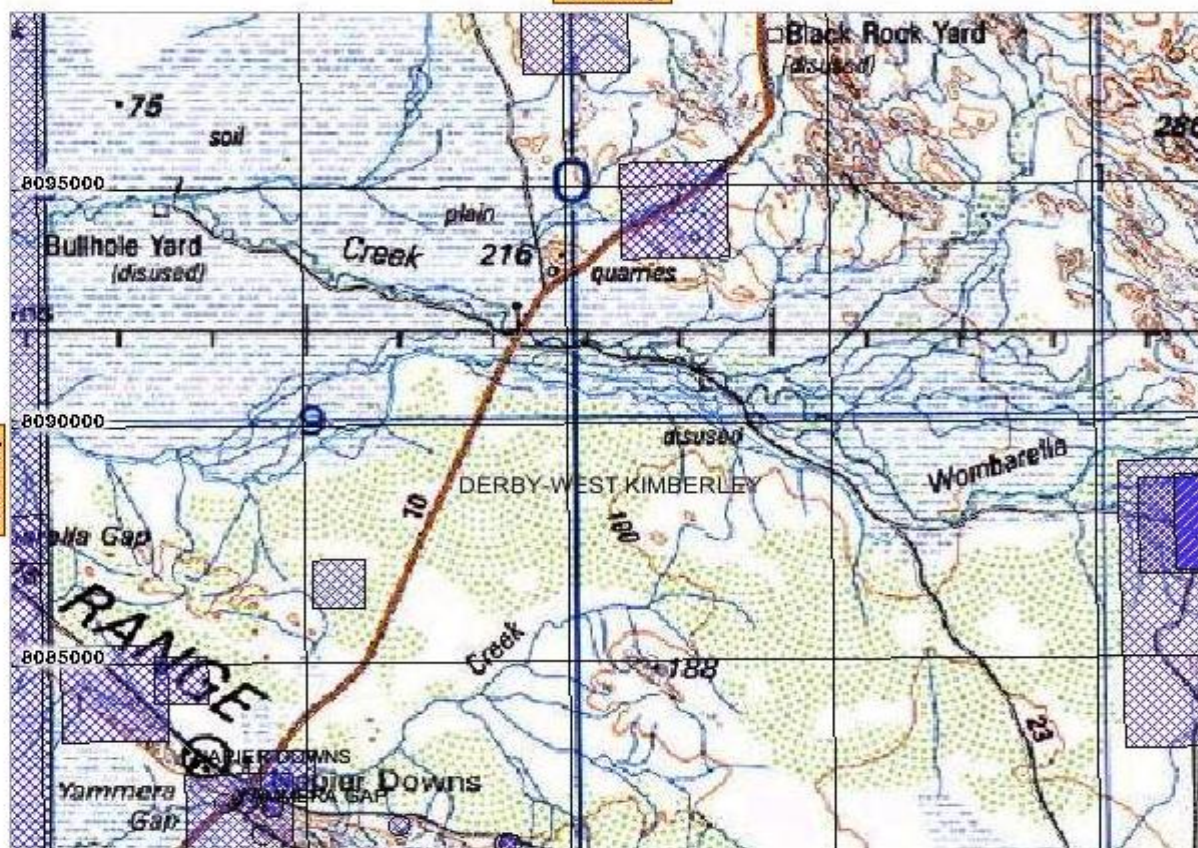
Show on map

- 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

DIA Aboriginal Heritage Inquiry System September 2008

Appendix F

Department of Water Sensitive Water Resources Database Search

Enquiries: Marni Baetge on 9158 4318
Our Ref: 08/4882
Your Ref:

10 September 2008

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

Dear Dave,

SENSITIVE WATER RESOURCES – GIBB RIVER ROAD

Main Roads Kimberley region is proposing to improve the road formation and drainage of 8.1 km of pavement along the Gibb River Road (SLK 119.9 – 128). The proposed work will improve the road condition, provide increased serviceability, reduce maintenance and freight costs and improve the level of serviceability to the local community.

Please find attached a locality map of where road upgrade works are proposed to occur. The locality map depicts five (5) gravel search areas (coloured in yellow) and the environmental search corridor (coloured in green). The environmental search corridor will allow investigation of borrow material, establishment of a temporary sidetrack (which will be rehabilitated upon completion of roadworks) and establishment of offshoot drains. Coordinates have also been attached of the proposed gravel investigation areas. Please keep in mind that not all of the areas detailed will be required to be cleared and excavated but the best available materials will be sourced from within the areas.

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 feel free to contact me on 9158 4318 or email me at marni.baetge@mainroads.wa.gov.au

Thank you for your assistance.

Yours sincerely,

Marni Baetge
ENVIRONMENT OFFICER

Enc.



Department of Water
Government of Western Australia

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



Your ref: 08/4882
Our ref: KN1937
Enquiries: Kellie Loge, Ph: 9166 4113

CORRESPONDENCE	
<input type="checkbox"/>	Doc No <u>08/4882</u>
<input type="checkbox"/>	File <u>0614385</u>
<input type="checkbox"/>	Action _____
<input type="checkbox"/>	Action <u>ENV OFFICER</u>
<input type="checkbox"/>	Distribute to _____
<input type="checkbox"/>	RO Action Complete _____

Dear Ms Baetge

Sensitive Water Resources – Gibb River Road

Thank you for requesting advice regarding the Sensitive Water Resources in proximity to the proposed gravel search areas on the Gibb River Road and the proposed road alignment. The Department of Water offers the following advice:

- The proposal is not within a Public Drinking Water Source Area
- The proposal is within close proximity to the Lennard River therefore best practice management of site specific erosion and sediment control should be adopted. Information and guidelines for construction can be found in the *Water Quality Protection Note, Roads Near Sensitive Water Resources* on the Department of Water website at: www.water.wa.gov.au > *Water Management* > *Drinking Water* > *Water Quality Protection Notes*
- The proposal is within the Canning-Kimberley groundwater area as 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
- There is a Private Bore used to supply water to livestock within close proximity to Material Investigation Area 3. This Bore should not be disturbed during any proposed works.

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

Yours sincerely

Dave Munday
Regional Manager - Kimberley

9 October 2008

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

EDWAL011

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 2: ARE ANY OF THE FOLLOWING WORKS PROPOSED, OR LIKELY TO BE CARRIED OUT, ON THE LAND?

Question 3:

Are any dewatering works proposed to be undertaken?

TICK BOX AS APPROPRIATE: YES NO

Question 4:

Is the surface elevation \leq 5m AHD and is excavation of \geq 100m³ of soil (i.e. 10 standard dump truck loads) proposed?

TICK BOX AS APPROPRIATE: YES NO

Question 5:

Is the surface elevation > 5m AHD and is excavation of \geq 100m³ of soil (i.e. 10 standard dump truck loads) with an excavation depth of \geq 2m proposed?

TICK BOX AS APPROPRIATE: YES NO

If YES to any of these three questions go to Step 3.

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

STEP 3:

CARRY OUT PRELIMINARY SITE ASSESSMENT IN ACCORDANCE WITH DEPARTMENT OF ENVIRONMENT GUIDELINES.

Note: Copies of documents in the Acid Sulfate Soils Guidelines Series and further technical advice and information can be obtained from the Contaminated Sites page on the Department of Environment's website at <http://www.environ.wa.gov.au/contaminatedsites>.

Question 6:

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

TICK BOX AS APPROPRIATE: YES NO

If YES to this question go to Step 4.

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 Site Assessment.

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:

▶ MARIE BAETTE
Full Name
▶ M Baette
Signature
▶ 10.9.2008
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

From: Everett, Mick [mailto:meverett@agric.wa.gov.au]
Sent: Thursday, 11 September 2008 2:43 PM
To: BAETGE Marni (GEnv)
Subject: RE: Declared/Environmental Weeds - Gibb River Road Improvement Works SLK 119.9 - 128

Hi Marni

Hope you are well.

No declared plants or serious environmental weeds seem to be evident within the gravel investigation areas and environmental clearance corridor for the Gibb River Rd upgrade works.

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

-----Original Message-----

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

Sent: Tuesday, 7 April 2007 9:08 AM

To: Everett, Mick

Subject: Declared/Environmental Weeds - Gibb River Road Reconstruction Project

This e-mail and files transmitted with it are privileged and confidential information intended for the use of the addressee. The confidentiality and/or privilege in this e-mail is not waived, lost or destroyed if it has been transmitted to you in error. If you received this e-mail in error you must

- (a) not disseminate, copy or take any action in reliance on it;
- (b) please notify the Department of Agriculture and Food, WA immediately by return e-mail to the sender;
- (c) please delete the original e-mail.

This email has been successfully scanned by
McAfee Anti-Virus software.
Department of Agriculture and Food WA

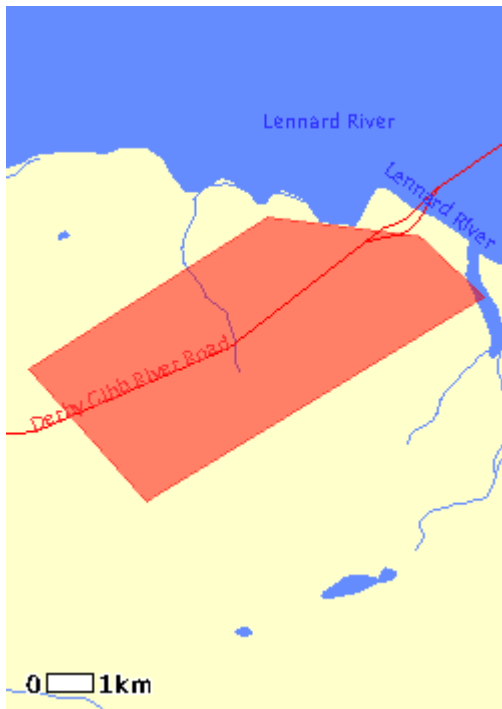
Appendix I

Department of Environment, Water, Heritage and the Arts Resources

DEWR DATABASE SEARCH –

EPBC Act Protected Matters Report

10 September 2008 15:44



This map may contain data which are
© Commonwealth of Australia
(Geoscience Australia)
© 2007 MapData Sciences Pty Ltd, PSMA

Matters of National Environmental Significance

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
<u>Threatened Species:</u>	3
<u>Migratory Species:</u>	13

Other Matters Protected by the EPBC Act

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

Extra Information

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

State and Territory Reserves:	None
Other Commonwealth Reserves:	None
Regional Forest Agreements:	None

Details

Matters of National Environmental Significance

Threatened Species [Dataset Information]	Status	Type of Presence
Birds		
Malurus coronatus coronatus Purple-crowned Fairy-wren (western)	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Sharks		
Pristis microdon Freshwater Sawfish	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]	Status	Type of Presence
Migratory Terrestrial Species		
Birds		
Haliaeetus leucogaster White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
Hirundo rustica Barn Swallow	Migratory	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
Migratory Wetland Species		

Birds

<u>Ardea alba</u> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<u>Ardea ibis</u> Cattle Egret	Migratory	Species or species habitat may occur within area
<u>Charadrius veredus</u> Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
<u>Glareola maldivarum</u> Oriental Pratincole	Migratory	Species or species habitat may occur within area
<u>Numenius minutus</u> Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area
<u>Rostratula benghalensis s. lat.</u> Painted Snipe	Migratory	Species or species habitat may occur within area

Migratory Marine Birds

<u>Apus pacificus</u> Fork-tailed Swift	Migratory	Species or species habitat may occur within area
<u>Ardea alba</u> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<u>Ardea ibis</u> Cattle Egret	Migratory	Species or species habitat may occur within area

Migratory Marine Species

Reptiles

<u>Crocodylus porosus</u> Estuarine Crocodile, Salt-water Crocodile Other Matters Protected by the EPBC Act	Migratory	Species or species habitat likely to occur within area
---	-----------	--

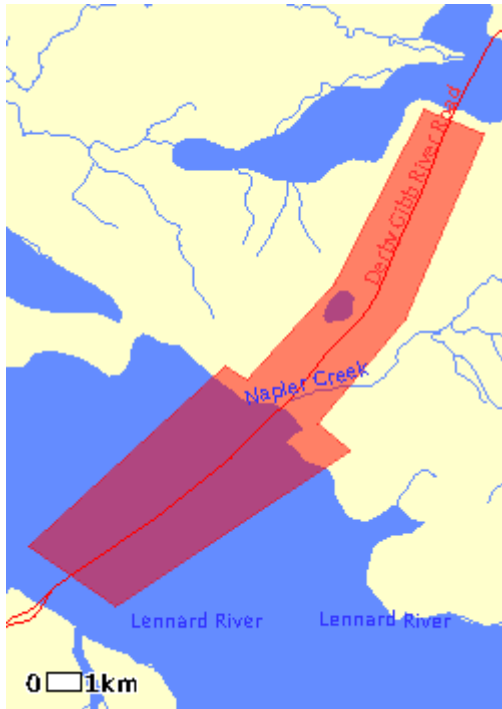
Listed Marine Species [[Dataset Information](#)]

Status Type of Presence

Birds

<u>Anseranas semipalmata</u> Magpie Goose	Listed - overfly marine area	Species or species habitat may occur within area
<u>Apus pacificus</u> Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
<u>Ardea alba</u> Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
<u>Ardea ibis</u> Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
<u>Charadrius veredus</u> Oriental Plover, Oriental Dotterel	Listed - overfly marine	Species or species habitat may occur within area

<u><i>Glareola maldivarum</i></u> Oriental Pratincole	area Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Haliaeetus leucogaster</i></u> White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
<u><i>Hirundo rustica</i></u> Barn Swallow	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Merops ornatus</i></u> Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Numenius minutus</i></u> Little Curlew, Little Whimbrel	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Rostratula benghalensis s. lat.</i></u> Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Reptiles		
<u><i>Crocodylus johnstoni</i></u> Freshwater Crocodile	Listed	Species or species habitat may occur within area
<u><i>Crocodylus porosus</i></u> Estuarine Crocodile, Salt-water Crocodile	Listed	Species or species habitat likely to occur within area



Summary

Matters of National Environmental Significance

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
<u>Threatened Species:</u>	3
<u>Migratory Species:</u>	13

Other Matters Protected by the EPBC Act

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

Details

Matters of National Environmental Significance

Threatened Species [[Dataset Information](#)]

Birds

Malurus coronatus coronatus Purple-crowned Fairy-wren (western)	Vulnerable	Species or species habitat likely to occur within area
--	------------	--

Rostratula australis Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
--	------------	--

Sharks

Pristis microdon Freshwater Sawfish	Vulnerable	Species or species habitat likely to occur within area
--	------------	--

Migratory Species [[Dataset Information](#)]

Migratory Terrestrial Species

Birds

Haliaeetus leucogaster White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
---	-----------	--

Hirundo rustica Barn Swallow	Migratory	Species or species habitat may occur within area
---	-----------	--

Merops ornatus Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
---	-----------	--

Migratory Wetland Species

Birds

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
--	-----------	--

Charadrius veredus Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
--	-----------	--

Glareola maldivarum Oriental Pratincole	Migratory	Species or species habitat may occur within area
--	-----------	--

Numenius minutus Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area
--	-----------	--

Rostratula benghalensis s. lat. Painted Snipe	Migratory	Species or species habitat may occur within area
--	-----------	--

Migratory Marine Birds

Apus pacificus 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

<u><i>Crocodylus porosus</i></u> 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		
<u><i>Anseranas semipalmata</i></u> Magpie Goose	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Apus pacificus</i></u> Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Ardea alba</i></u> Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Ardea ibis</i></u> Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Charadrius veredus</i></u> Oriental Plover, Oriental Dotterel	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Glareola maldivarum</i></u> Oriental Pratincole	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Haliaeetus leucogaster</i></u> White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
<u><i>Hirundo rustica</i></u> Barn Swallow	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Merops ornatus</i></u> Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Numenius minutus</i></u> Little Curlew, Little Whimbrel	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Rostratula benghalensis s. lat.</i></u> Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Reptiles		
<u><i>Crocodylus johnstoni</i></u>	Listed	Species or species habitat may occur

Freshwater Crocodile

[Crocodylus porosus](#)

Estuarine Crocodile, Salt-water Crocodile

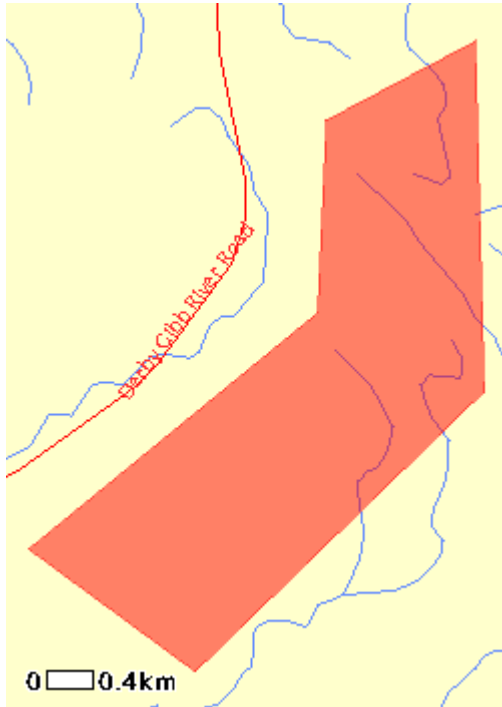
within area

Listed

Species or species habitat likely to occur within area

10 September 2008 15:47

EPBC Act Protected Matters



This map may contain data which are

Summary

Matters of National Environmental Significance

World Heritage Properties: None

National Heritage Places: None

**Wetlands of International Significance:
(Ramsar Sites)** None

Commonwealth Marine Areas: None

Threatened Ecological Communities: None

Threatened Species: 3

Migratory Species: 13

Other Matters Protected by the EPBC Act

Commonwealth Lands: None

Commonwealth Heritage Places: None

Places on the RNE: None

Listed Marine Species: 13

Whales and Other Cetaceans: None

Critical Habitats: None

Commonwealth Reserves: None

Matters of National Environmental Significance

Threatened Species [[Dataset Information](#)] Status Type of Presence

Birds

[Malurus coronatus coronatus](#)
Purple-crowned Fairy-wren (western) Vulnerable Species or species habitat likely to occur within area

[Rostratula australis](#)
Australian Painted Snipe Vulnerable Species or species habitat may occur within area

Sharks

[Pristis microdon](#)
Freshwater Sawfish Vulnerable Species or species habitat likely to occur within area

Migratory Species [[Dataset Information](#)] Status Type of Presence

Migratory Terrestrial Species

Birds

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

[Hirundo rustica](#)
Barn Swallow Migratory Species or species habitat may occur within area

[Merops ornatus](#)
Rainbow Bee-eater Migratory Species or species habitat may occur within area

Migratory Wetland Species

Birds

[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

[Charadrius veredus](#)
Oriental Plover, Oriental Dotterel Migratory Species or species habitat may occur within area

[Glareola maldivarum](#)
Oriental Pratincole Migratory Species or species habitat may occur within area

[Numenius minutus](#)
Little Curlew, Little Whimbrel Migratory Species or species habitat may occur within area

[Rostratula benghalensis s. lat.](#)
Painted Snipe Migratory Species or species habitat may occur within area

Migratory Marine Birds

[Apus pacificus](#)
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

Cattle Egret occur within area

Migratory Marine Species

Reptiles

[Crocodylus porosus](#)

Estuarine Crocodile, Salt-water Crocodile

Migratory Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

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

Birds

[Anseranas semipalmata](#)

Magpie Goose

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

[Apus pacificus](#)

Fork-tailed Swift

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

[Ardea alba](#)

Great Egret, White Egret

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

[Ardea ibis](#)

Cattle Egret

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

[Charadrius veredus](#)

Oriental Plover, Oriental Dotterel

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

[Glareola maldivarum](#)

Oriental Pratincole

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

[Haliaeetus leucogaster](#)

White-bellied Sea-Eagle

Listed Species or species habitat likely to occur within area

[Hirundo rustica](#)

Barn Swallow

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

[Merops ornatus](#)

Rainbow Bee-eater

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

[Numenius minutus](#)

Little Curlew, Little Whimbrel

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

[Rostratula benghalensis s. lat.](#)

Painted Snipe

Listed - overfly Species or species habitat may occur 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