ENVIRONMENTAL IMPACT ASSESSMENT
and
ENVIRONMENTAL MANAGEMENT PLAN

Brookton Highway (H052): Mundays Section widening/realignment SLK 231.30-236.30

Prepared by:

Peter Swanson
Environment Officer
Main Roads Wheat Belt South

June 2010

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SLK 231.30-236.30

1 INTRODUCTION

Brookton Highway is the main link between Perth and Esperance through the Wheatbelt. The road carries heavy vehicles transporting freight and local traffic and is also used as a tourist route by buses and cars to locations such as Wave Rock.

Brookton Highway between Corrigin and Hyden has inadequate widths and includes some sections that consist of a single lane sealed road. The narrow width combined with sharp curves and poor sight distances at crests results in poor road geometry that is not adequate to provide safe passage for the current traffic volumes and mix of road users. Mundays section is the last section between Corrigin and Hyden of single lane seal that requires widening.

This section is 5 km in length, of which 70% is sealed to one lane (less than 4m wide). and includes 2 substandard horizontal curves 2km and 4.5km from the western end. The majority of the vertical geometry of the straight sections is also substandard. The western end of the section abuts newly reconstructed road and the eastern end finishes 300m past the Koorikin Road / Kulin Rock Road intersection.

2 PROJECT DESCRIPTION

The project area is located along Corrigin Kondinin Road (Brookton Highway) approximately 10km east of Gorge Rock between SLKs 231.34 -236.30 (Figure 1) within the Shire of Kondinin, approximately 235km south-east from Perth.

The project will involve widening the road to provide a two lane sealed carriage way, the replacement/upgrading of culverts and floodway and installation of a new floodway. Widening is proposed to occur on the southern side of Brookton Highway for the first 700m from the western end to the existing floodway and transition to the northern side for the remainder of the project. Land will be acquired on the northern side for the length of the project to accommodate the minor realignment to reduce the existing curve at SLK 233.4 and also on the southern side to provide an area for revegetation. The project will involve the clearing of approximately 1.5ha of native vegetation mostly on the northern side and selectively from the southern side.

3 BACKGROUND

This section of Brookton Highway is a small part of the larger Corrigin to Hyden upgrade project. Consultation for the overall project began in 1998. Since this time, as funding became available, substandard sections of Brookton Highway have been upgraded progressively. The works have involved upgrading of 45km of road and realigning 24km. Most sections of the upgrade have already been completed and the rest are expected to be completed in the next few years. An Environmental Assessment and a vegetation

survey was conducted by GHD in 2002 & 2001respectively for the overall road project from Corrigin to Hyden. An additional Biological Survey was undertaken by Maunsell / AECOM in Dec 2008 for the Mundays section and will be referred to regularly throughout this report.
Several community consultation workshops have been undertaken in relation to the overall project with more recent focus being on the alignment options for the Mundays section (see below).

Assessments & Consultation:

December 1998	Project Scoping Report – Corrigin to Hyden East: Main Roads Western Australia
August 2001	Community Workshop Report - Corrigin to Hyden East: Yeomans Consulting
June 2002	Project Definition Report - Corrigin to Hyden East: MRWA
November 2002	Community Workshop Report - Corrigin to Hyden East: Yeomans Consulting
March 2007	Community Workshop Report - Corrigin to Hyden East: ARID Group
December 2008	Biological Survey – Brookton Highway SLK 231.34 – 236.3 (Mundays Section): Maunsell Australia Pty Ltd
June 2009	Flora of Corrigin – Kondinin Road (Brookton Highway): Shire of Kondinin (Environmental Assessment – Mundays Section): EnviroWorks Consulting
July 2009	Community Workshop Report – Nicholl's Curves, Karlgarin Hills & Mundays section: ARID Group

An assessment of community opinion was considered together with information provided by the Maunsell Biological Survey Report, which identified that the vegetation on the southern side of the road was of better condition than that on the north. The preferred alignment option, as depicted in Appendix A, was nominated based on the extent of clearing and financial constraints. With this option the widening will transition to the northern side, retaining the majority of the trees on the south. The benefit of this is that it involves less clearing in comparison to one of the other options, is financially viable in comparison to the other and will be more aesthetically pleasing overall.

Clearing in the western part of the project is contentious to the community as it requires the removal of mature trees, mostly salmon gums; whereas only a narrow 2-3m strip of degraded heath vegetation is affected on the eastern portion. All of the available alignment options follow the same path in the western section and therefore require the same clearing. The estimated extent of clearing required is 1.5ha.

In consideration of the future loss of native vegetation for this project, Main Roads acquired over 6ha of land on the southern side of the highway between SLK 233.4 & 236 and since 1992 has been establishing good quality vegetation. Additionally, Main Roads will also acquire a further 10m wide strip on both sides of Brookton Highway along the remainder of the project site. A small section between SLK 233 & 234 will be utilised to realign the road to the north to reduce the existing curvature of the road while the remainder will be vegetated with locally occurring species ensuring that the vegetation resembles the composition and structure of the vegetation associations of the area.

An additional 17ha of vegetation is already being established along nearly 12 kilometers of Brookton Highway to the east to Narembeen Road intersection as an offset for the clearing of 1.4ha for improvement works in 2009. Similar to the intention for Mundays section, land has been acquired by Main Roads specifically for the purpose of establishing road side vegetation along the length of this project. This increase in the width of the road reserve and additional vegetated area will ultimately create a more sustainable vegetated road corridor than what currently exists throughout the Wheatbelt region.

As per Main Roads' Environmental Assessment and Approval process, the Low Impact Environmental Screening Checklist has been completed for the proposal (Appendix B). As the proposed works involves the acquisition of land and clearing of native vegetation outside the maintenance zone as well as some older than ten year specimens inside the maintenance zone; the preparation of a project specific Preliminary Environmental

Assessment and Environmental Management Plan (EMP) are required. This report fulfils this requirement.

4 PROJECT LOCATION

The project is located in the Shire of Kondinin between SLK 231.30-236.30 on the Corrigin – Kondinin Road section of Brookton Highway.
The location of the study area is shown on Figure 1.

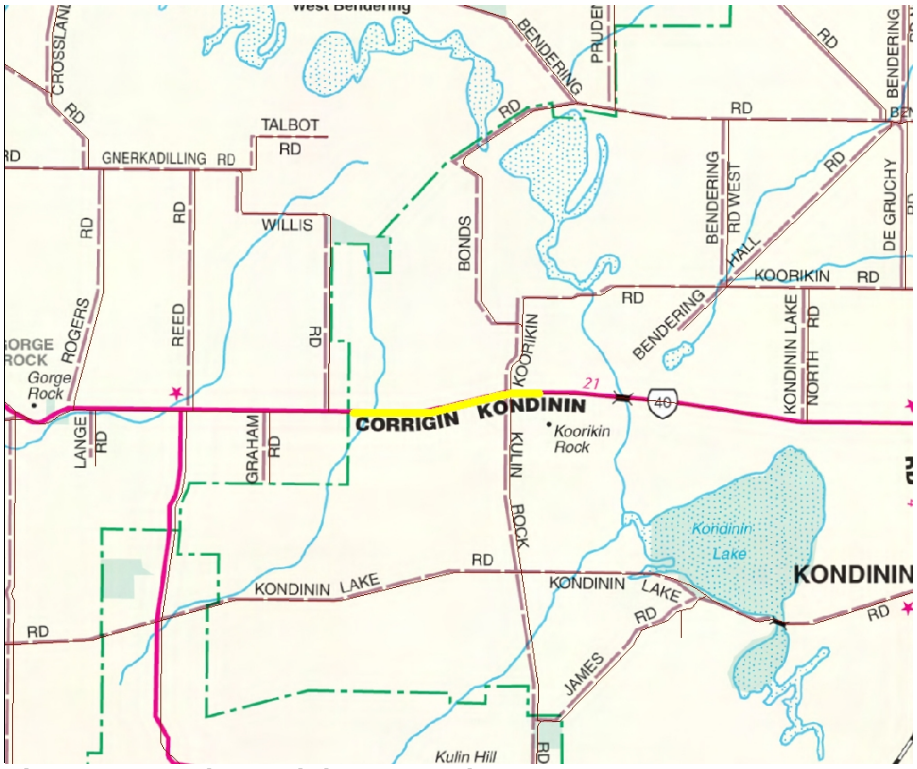


Figure 1: Brookton Highway Section 231.30-236.30

METHODOLOGY

4.1 Preliminary Desktop Study

A preliminary assessment of the project area and its potential constraints was undertaken using Main Roads internal GIS database comprising various environmental aspects within the south west corner of Western Australia and by reviewing a number of government agency managed databases and consulting where necessary, as listed below. Refer to Table 1: Aspects and Impacts and appendices as indicted for results of these investigations.

4.1.1 Wetlands & Sensitive Water Resources

Department of Water's Geographic Data Atlas mapping tool
http://www.water.wa.gov.au/idelve/dowdataext/index.jsp
Australian Natural Resources Atlas
http://www.anra.gov.au/mapmaker/mapservlet?app=anra
Appendix D

4.1.2 Threatened Flora and Communities, Conservation Reserves and ESAs

Department of Environment and Conservation (DEC) Native Vegetation Map Viewer.
http://maps.dec.wa.gov.au/idelve/nv/index.jsp
DEC was also contacted directly to confirm any known populations of threatened flora, Threatened Ecological Communities (TECs) and conservation reserves.
Appendix F

4.1.3 Threatened Fauna

DEC's correspondence and Database Searches

4.1.4 Vegetation Associations, Extent and Status

Department of Agriculture and Food SLIP NRM database
http://spatial.agric.wa.gov.au/slip/products_view.asp
Main Roads file "*Native Vegetation in Western Australia - Extent, Type and Status*" (*car_reserve_analysis_2006.xls*) located on the Main Roads Environment Intranet site.
Appendix G

4.1.5 Air Quality

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

4.1.6 Non-indigenous Heritage

Australian Heritage Places Inventory *http://www.heritage.gov.au*
Heritage Council of Western Australia *http://register.heritage.wa.gov.au/*
Shire of Kondinin Municipal Heritage Inventory
Appendix H

4.1.7 Aboriginal Heritage

Department of Indigenous Affairs' (DIA's) *http://dia.wa.gov.au/Heritage--Culture/Heritage-management/Register-of-Aboriginal-sites/Aboriginal-Heritage-Inquiry-System/*
Appendix I

4.1.8 Acid Sulfate Soils

DEC's acid sulfate soils maps http://maps.dec.wa.gov.au/idelve/doedataext/
WAPC self assessment
http://www.wapc.wa.gov.au/Applications/Subdivision+and+application/default.aspx
Appendix J

4.1.9 Contaminated Sites

The need for a contaminated site assessment was determined using the criteria outlined in the MRWA environmental guideline, Contaminated Sites and discussion with Main Roads' Land and Property personnel.

4.1.10 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.
Appendix K

4.1.11 Dieback

The project site receives <400 mm of rain so determined not to be an issue.

4.2 State & Commonwealth Referral

The decision to refer the project to the State's Environmental Protection Authority (EPA) is based on whether significant environmental impact, amendment to TPS or the project is of significant size and/or public interest under section 38 of the Environmental Protection Act 1986.
The decision to refer the project to the Commonwealth's Department of Environment, Water, Heritage and the Arts (DEWHA) is based upon whether the project would significantly impact upon matters of national environmental significance, e.g. World Heritage properties, protected wetlands and migratory species, Commonwealth marine areas, threatened species or communities or nuclear actions.
Appendix L

4.3 Site Investigation

A site visit was carried out by SPM Henryk Marek, TOE Peter Denton and GEnv Elizabeth Chandler on 5 March 2008 to examine the general features of the area. An additional inspection was undertaken by SPM Marek and EO Peter Swanson on 28 May 2010. 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.

Site photos were taken and are included in Appendix M.

5 EXISTING ENVIRONMENT

5.1 Description

The vegetation throughout the project area is described in the Maunsell report as ranging from good (20% of the project area) to completely degraded (34%) in accordance with the Keighery condition rating scale (Appendix G).
The adjacent land is highly disturbed with predominantly agricultural and pastoral activities causing the road side vegetation to be vulnerable to edge effects and other disturbances. The project site crosses two potential flood plain areas (ephemeral); the existing floodway at SLK 232.00 which has a minor constructed drainage channel and the location of the proposed floodway at SLK 233.4 where there is a dry swale-like depression. There are common weeds in the project area; however no declared weeds were identified during Main Roads' site visits or by the Biological Survey.

Beard's (1972) 1:250,000 scale mapping of the Hyden Region identified two broad

terrestrial vegetation associations occurring within the project area. Both of these are not well represented with less than 10% of their pre-European extent remaining in the state and region. Vegetation association 1023 is described as Medium woodland, York Gum, Wandoo and Salmon Gum (*Eucalyptus salmonophloia*) and has 6.4% remaining state wide. Vegetation association 955 is described as Mosaic: Shrublands, scrub heath (South East Avon) Shrublands, *Allocasuarina campestris* thicket and has 7.7% remaining. The dominant species are listed in Appendix G.

The Maunsell report observed a large range of flora species endemic to the area and identified 14 different Vegetation Communities within the project area. The communities however 'lack the floristic structure that would normally occur within remnant native vegetation' and many displayed high proportions of bare ground. This additionally 'provides a much less valuable habitat for native fauna than do native vegetation remnants with substantial understorey coverage'.

5.2 Site Investigation

Site Investigation	**Description/Comment**
Total area (ha) of native vegetation to be cleared	1.5ha
Total area (ha) of other vegetation, including regrowth, landscape areas, to be cleared	N/A
Weeds present	Common weeds
Drainage areas or wetlands present	two minor ephemeral watercourses
Adjacent land uses	Agricultural/pastoral

6 CLEARING OF NATIVE VEGETATION

Native vegetation describes all indigenous aquatic and terrestrial vegetation (living or dead). The term does not include vegetation that was intentionally sown, planted or propagated unless it was required under a statutory condition.

6.1 Assessment against Clearing Principles

The clearing has been assessed against the *Environmental Protection Act's* Clearing Principles Appendix N and is considered to be at variance to Principle E (remnant vegetation in an extensively cleared area) and may be at variance with Principles A (high level of biological diversity)and B (significant habitat for fauna indigenous to Western Australia).

6.2 Environmentally Sensitive Area (ESA)

Clearing within an Environmentally Sensitive Area (ESA)	**Yes/ No**	**Comments**
Does the area to be cleared occur within an ESA where the vegetation is in good or better condition?	No	There is no ESA within the project area.

7 ASSESSMENT OF ASPECTS AND IMPACTS

Table 1: Aspects and Impacts – Brookton Highway upgrade/realignment SLK 231.34-235.6

Aspect	Evaluation of Potential Impacts
Air quality	Not relevant to the proposed works. Local air quality assessment is not required for the project since: • the predicted traffic flow is less than 15,000 vehicles per day in rural areas; • residential and other sensitive receptors are not within 200 meters of the road centre.
Dust	Likely to be a minor issue during earthworks. Activities will need to be subject to dust suppression to control short-term dust generation. Likely to be easily managed by standard construction dust management techniques.
Fauna	Based on the currency of the records of the DEC and the preferred habitats of the species listed; it is unlikely that any of the Threatened or Priority Fauna identified in the database search occur in the project area. However it is considered that the "vegetation within the road (reserve) represents an important passage for fauna movement". Only four common bird species and a rabbit where recorded during the opportunistic fauna survey undertaken in 2008. The degraded nature of the vegetation condition in the project area was noted by Maunsell as not being supportive as a fauna habitat. No significant impacts would be expected on native fauna generally as a result of the minimal nature of the proposed works. Recommendations to minimise clearing will also serve to reduce impacts to fauna and remnant fauna habitat at the sites. No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted.
Vegetation – clearing	• The project will involve clearing of 1.5ha of vegetation • The project will not involve temporary clearing. • The condition of the native vegetation to be cleared is good to completely degraded. • The native vegetation will be cleared is not well represented regionally. It possesses less than 10% of its pre-European extent. • The native vegetation to be cleared does not occur within an ESA. • The native vegetation to be cleared will be done so using the purpose permit. • A minor drainage line which supports riparian woodland traverses the road approximately 700m from the western end of the project area.
Vegetation – TECs/DRF	The Biological Survey conducted in August 2008 by botanists from Maunsell did not identify any threatened or priority flora within the project area. No Matters of National Environmental Significance as protected under the EPBC Act (1999) will be impacted.
Vegetation – weeds	Twenty three introduced species were recorded during the Biological Survey, none of which are listed as Declared Plants by the *Department of Agriculture and Food Western Australia.*
Vegetation – dieback	Not an issue given the project area receives less than 400 mm of average annual rainfall. No dieback affected road building materials, mulches or fill should be brought into project area.
Reserves / Conservation areas	There are no reserves or conservation areas in the vicinity of the project area. The eastern most point of the project area is approximately 3.2km from an Environmentally Sensitive Area (ESA) which encompasses Lake Kondinin and its tributaries. It is not anticipated that the proposed project will directly impact upon the Lake Kondinin ESA.
Heritage (non-indigenous)	Although not listed on the Shire of Kondinin heritage Inventory, Main Roads is aware of the heritage significant "Mundays Tree" situated in the northern road reserve at SLK 231.6. The tree is sufficient distance from the carriage way and will not to be impacted by the project. No Matters of National Environmental Significance will be impacted.
Aboriginal heritage	There are no known registered sites of Aboriginal heritage significance within the vicinity of the project area. An ethnographic survey conducted by consulting Anthropologist Brad Goode in 2001 did not identify any aboriginal heritage sites within the project area.
Surface water/drainage	The project site crosses two potential flood plain areas (ephemeral). The existing floodway will be replaced and an additional floodway installed which will facilitate surface water movement across the road. No Public Drinking Water Source Areas (PDWSA) are located within the project area. The closest PDWSA is located approximately 9km north-west.
Wetlands	There are no rivers or wetlands within the immediate vicinity of the proposed project area. During the field assessment however, it was noted that one minor drainage line traverses the road approximately 700m from the western end of the project area where there is an existing floodway that is to be replaced. Only minor temporary disturbance will occur and will not significantly impact the drain.

Table 1: Aspects and Impacts – Brookton Highway upgrade/realignment SLK 231.34-235.6

Aspect	Evaluation of Potential Impacts
Groundwater	The project area lies within the Kondinin-Ravensthorpe Groundwater Area, however no dewatering or drainage modifications are required, hence there will be no change to groundwater level or quality.
Noise and vibration	There are no major sensitive local receivers in the vicinity of the project area. Construction works are not 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 Kondinin 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. Extensive planting has been undertaken during the last 18 years.
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 local road and pedestrian conditions.
Hazardous substances	Not relevant to the proposed works as none will be on site.
Contamination	The works are within and adjacent to the road reserve in a agricultural environment and no known previous land use activities have had the potential to create contamination, e.g. petrol station. Given the relatively superficial nature of the required earthworks, there appears to be a low risk of any significant contamination issues.
Salinity	The project area runs adjacent to salt pans however, given the nature and scale of the project and the minimal amount of clearing and excavation proposed; it is unlikely to affect salinity in the area.
Acid Sulfate Soils	The WAPC's self-assessment (Planning Bulletin 64) indicates that no further soil investigation is required for the project. There is no planned dewatering or excavation below the water table that may impact acid sulphate soils.
Statutory Land Use Planning	As the proposed works are likely to take place outside the existing road reserve, development approval from the Western Australian Planning Commission should be sought prior to construction.

8 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, Water, Heritage and the Arts.

9 STAKEHOLDER CONSULTATION

Name	Agency	Date	Comments
Kellie Mantle	DEC	15/02/08	Threatened fauna information
Bridgitte Long	DEC	15/02/08	Threatened flora information
Jarred Desmond	DAF Biosecurity Officer Lake Grace	21/05/10	No known Declared (weed) Plants

10 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 aim 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 PEIA. The project specific management measures identified within this EMP are in addition to the standard specifications used for projects. The environmental management measures/conditions in Main Road's Specifications 203, 204, 301, 302 and 304 are still to be followed where applicable.

It is critical that all clearing works are carried out in accordance with the management measures prescribed in Specifications 301 (Clearing) and 302 (Earthworks). Also note that all revegetation works should be carried out in accordance with the Main Roads Environmental Guideline Revegetation Planning and Techniques.

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

- the timing of the various management actions;
- the topic (e.g. vegetation);
- the objectives for each area;
- the actions that are necessary to minimise the impact;
- the responsible party for implementing the action; and
- whether the action arose from external advice or is a Main Roads requirement.

10.1 Communication Plan

Environmental issues specific to the project will be communicated as follows

Method	Frequency	Participants	Reference	Record
Project Site				
Induction	Prior to Work	All personnel and subcontractors	EMP and Contractor Environmental Policy	Induction Meeting
Toolbox Meetings	Weekly	Project Personnel	Contractor Safety Plan	Minutes of Meeting
Contract Meetings	As required	Main Roads' Project Manager and Contractor Project Manager	EMP	Minutes of Meeting
Authority Consultation				
Department of Environment and Conservation	As required	Main Roads' Project Manager and Contractor Project Manager	-	Minutes of meeting

10.1.1 External Communication and Complaints

A complaints register shall be maintained by the contractor. All complaints received shall be forwarded to the Main Roads' Project Manager for action. Serious complaints shall be investigated within 24 hours of the complaint being received.

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	**Topic**	**Objective**	**Action**	**Responsible Party**	**Advice**
All phases of the Project	Environmental Management	Inclusion of environmental management measures	Environmental management measures detailed in this EMP will be included in the technical specifications, contractual documents and site induction materials prepared for the project for all site personnel and service providers.	Project Manager	Main Roads
		Operational Management	Nominate a person responsible for monitoring and reviewing all operations in order to minimise any nuisance to the public.	Contractor	Main Roads
	Vegetation Clearing - Record-keeping	All projects should maintain the required records relating to clearing native vegetation under the purpose permit.	A copy of the PEIA & EMP	Project Manager	DEC
			A map showing the location where the clearing occurred, recorded as a shape file (>0.5ha)		
			The size of the actual area cleared (in hectares)		
			The dates on which the clearing was done		
Pre-Construction	Vegetation	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; and Ensure the retention of as many habitat trees, shrubs and vegetated corridors for fauna as possible, particularly where associated with riparian zones.	Selection of designs/locations that minimise adverse impacts on the biological environment.	Project Manager	Main Roads
			Selection of individual tree specimens that might be retained and protected with barriers or similar alternative treatments.		
			Construction works to be undertaken in summer to reduce the potential for soil erosion and drainage line siltation due to vegetation removal and heavy rains.		
			Control/spray known weed species within the project area **prior to construction disturbance** to limit the amount of propagative material that may be spread during disturbance. Refer to Roadside Conservation Committee, WA, 2005: *Handbook of Environmental Practice for Road Construction and Maintenance Works*		
			The clearing line (or individual specimens) will be clearly marked and checked prior to clearing.	Project Manager / Contractor	
			Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be chipped and used for future rehabilitation.		
	Public Relations		Inform Main Roads, local shire and local land-holders of the nature and timing of works and provide contact details for complaints.	Project Manager / Contractor	Main Roads
Construction	Noise, Vibration and Dust and Public Access	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 works.	Project Manager / Contractor	Main Roads

			Works associated with the construction should not prevent public access along adjacent land. Public access should be maintained along the reserve at all times.	Contractor	Main Roads
			Any damage due to vibration, dust or noise is the responsibility of the contractor to rectify.		
			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, the use of hydromulch or other forms of mulching to protect loose surfaces shall be used as mitigation measures as necessary.		
	Vegetation	Avoid damage to adjacent vegetation	Trees to be removed are to be felled in a manner that they fall within the approved clearing line.	Contractor	Main Roads
			Vehicles and equipment will not be parked or driven over tree roots or undisturbed vegetation.		
		Recycle timber and avoid fire risk	Any stockpiled vegetation from clearing works shall be chipped and used as mulch for rehabilitation works.		
	Weeds & Pathogens (Dieback)	Minimise the risk of introducing weeds or pathogens to the site	Standard weed and hygiene measures should be applied for all earthworks in the area, including ensuring that plant and equipment brought on to (and leaving) the site are clean of potentially contaminated soil.	Contractor	Main Roads
			All imported material must be certified as being weed and pathogen free.		
			Topsoil will be stored and respread within the same section to minimise the potential introduction/spread of weeds or pathogens, or will be disposed of in an appropriate manner.		
	Pollution and Litter	Ensure that the construction of the proposal is managed to a standard that minimises any adverse impacts on the environment.	The designated servicing area will be bunded to contain any spills or leaks and shall not be located in an area adjacent to any drainage areas or watercourses or where it may drain into a temporary sump.	Contractor	Main Roads
			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. The contractor shall ensure appropriate equipment is available at all times and shall notify the Superintendent's Representative of a spill.		
			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.		

			Dumping or temporary storage of bitumen, asphalt, concrete or aggregate should only occur at designated depots or controlled hardstands.		
			The project areas, including hardstand areas, will be kept in a tidy manner at all times.		
	Fuel & Chemical Storage	Avoid chemical storage and spill impacts	No storage of fuels or hazardous chemicals on site.	Contractor	Main Roads
			Maintain materials for the clean-up of spills.		
	Fire	Ensure that the fire risk associated with the construction of the proposal is minimised.	No fires shall be lit within the project area.	Contractor	Main Roads
			Machinery will be fitted with approved spark arresting mufflers.		
			A water tanker will be on site at all times.		
	Aboriginal Heritage	Appropriately manage any Aboriginal heritage material identified during works.	Works should immediately cease within 20m of uncovered heritage material of interest.	Contractor	Main Roads DIA
	Site Management	Ensure that the site is managed to ensure that construction of the proposal will have minimal impact upon the surrounding environment.	Site office and materials storage areas will be located on previously disturbed/ designated area.	Contractor	Main Roads
Post-Construction	Reinstatement of project site	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.	Contractor	Main Roads
			Final clean-up shall be to the satisfaction of the Project Manager and the Site Superintendent.		

11 MONITORING

After project completion, revegetated areas will be inspected in accordance with the regions declared and other feral weeds annual herbicide control program. Monitoring will be conducted on revegetation sites for revegetation success and weeds.

12 CONTINGENCY MEASURES

Given the scale and nature of the project, no contingency measures are identified as the inherent environmental risks are small.

13 AUDITING

The project will be audited in accordance with Main Roads State wide Purpose Clearing permit 818/4.

Appendix A

Preferred Alignment Option


WILLIS ROAD
BROOKTON
PREVIOUS CONSTRUCTION
PUNDAY'S TIES
HIGHWAY
CORRIDOR
JOINS BELOW LEFT
JOINS ABOVE RIGHT
BROOKTON
233000
234000
HIGHWAY
JOINS BELOW LEFT
JOINS ABOVE RIGHT
BROOKTON
235000
KOONDINN RD
236000
HIGHWAY
KOONDINN
PROPOSED ALIGNMENT - PREFERRED OPTION
1:5000
0 50m 100 150 200 250 300 350 400 450 500 5050 600 650 700 750

Appendix B

Low Impact Screening Checklist

Form No. 6707/001/01

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 .....Brookton Highway (Mundays section) SLK 231.34-236.30 (widening and realignment)

ITEM NO.	ITEM	Y	N
1	New road or road reserve to be created or expansion of existing road reserve.	X	
2	Works require clearing of native vegetation outside the maintenance zone.	X	
3	Works require clearing of native vegetation that is older than 10 years old within the maintenance zone.	X	
4	Works to occur outside normal working hours.		X
5	Passes over, adjoins or drains directly into a wetland or sensitive watercourse.		X
6	Local natural drainage regime / hydrology will be changed.		X
7	Dewatering, or a new water bore required.		X
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)		X
9	Buildings will require demolition.		X

Completed By: *Signature* [signature] *Date* 31/05/10
Name HENRYK MAREK *Title* SPM

To be reviewed by a Main Roads Environment Officer: *Signature* [signature] *Date* 01/06/10
Name Peter Swanson *Title* EO.

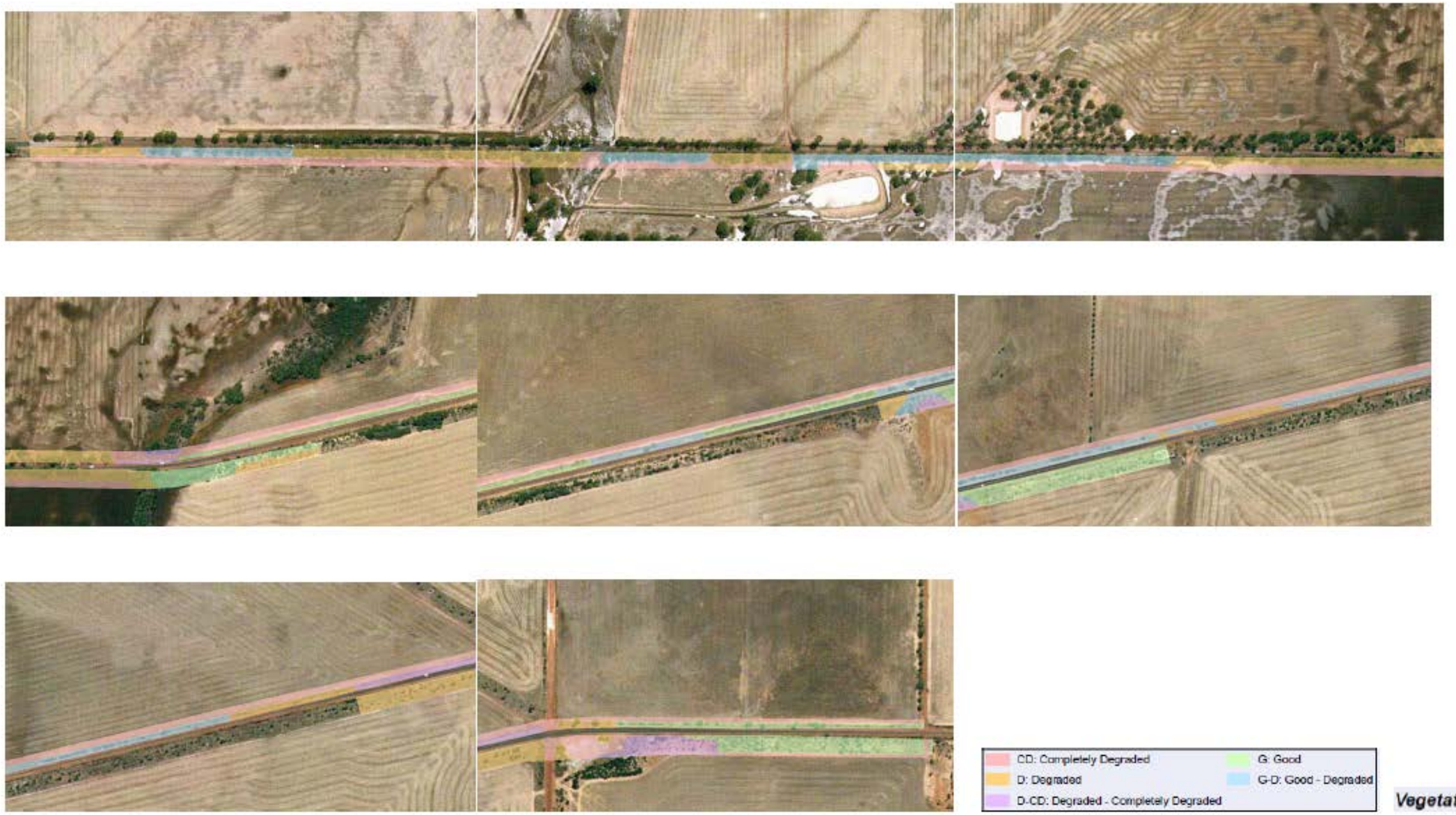
Comments: ____

Checking boxes on Items 1, 2 & 3 require that a PEIA be undertaken.

MAIN ROADS Western Australia
Form 670700101 Screening Checklist Rev 3.doc 30/05/07

Appendix C

Vegetation Condition

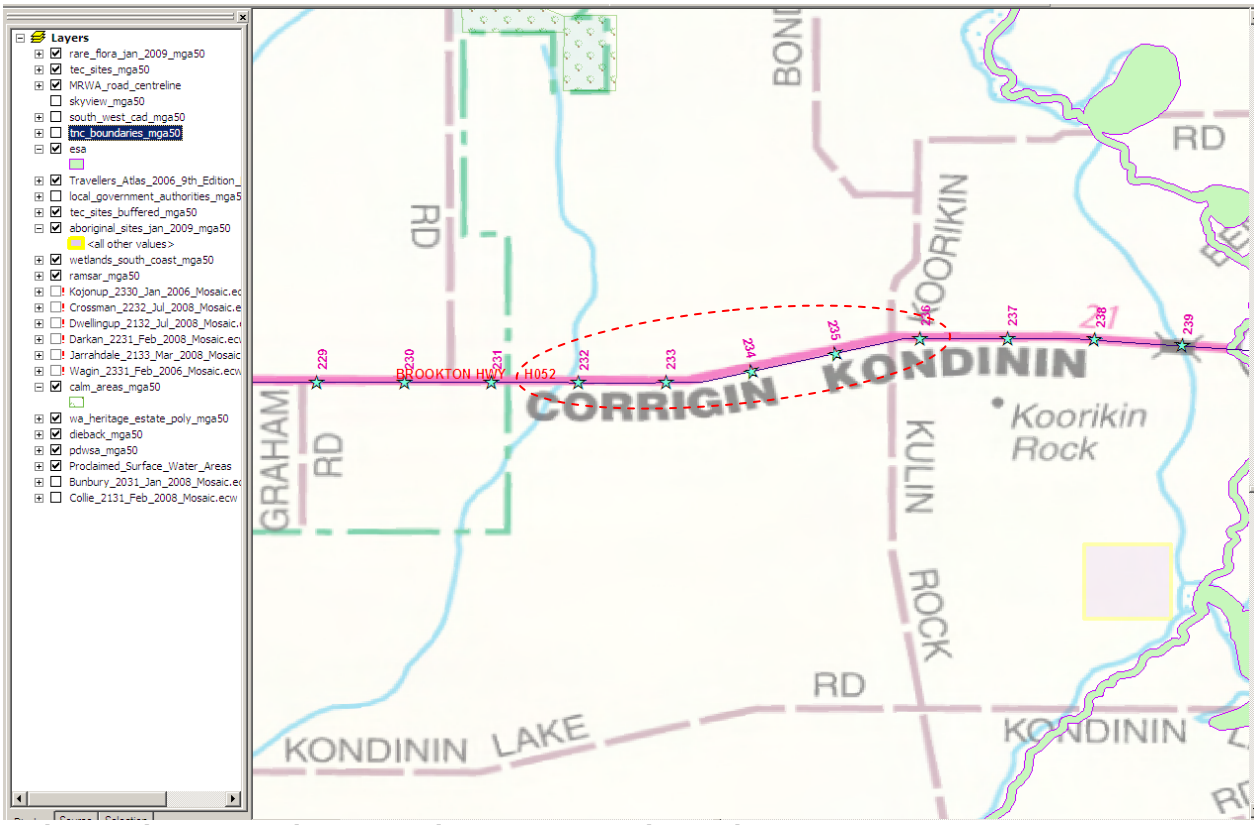


Vegetation condition assessment: Biological Survey Report: Maunsell 2008

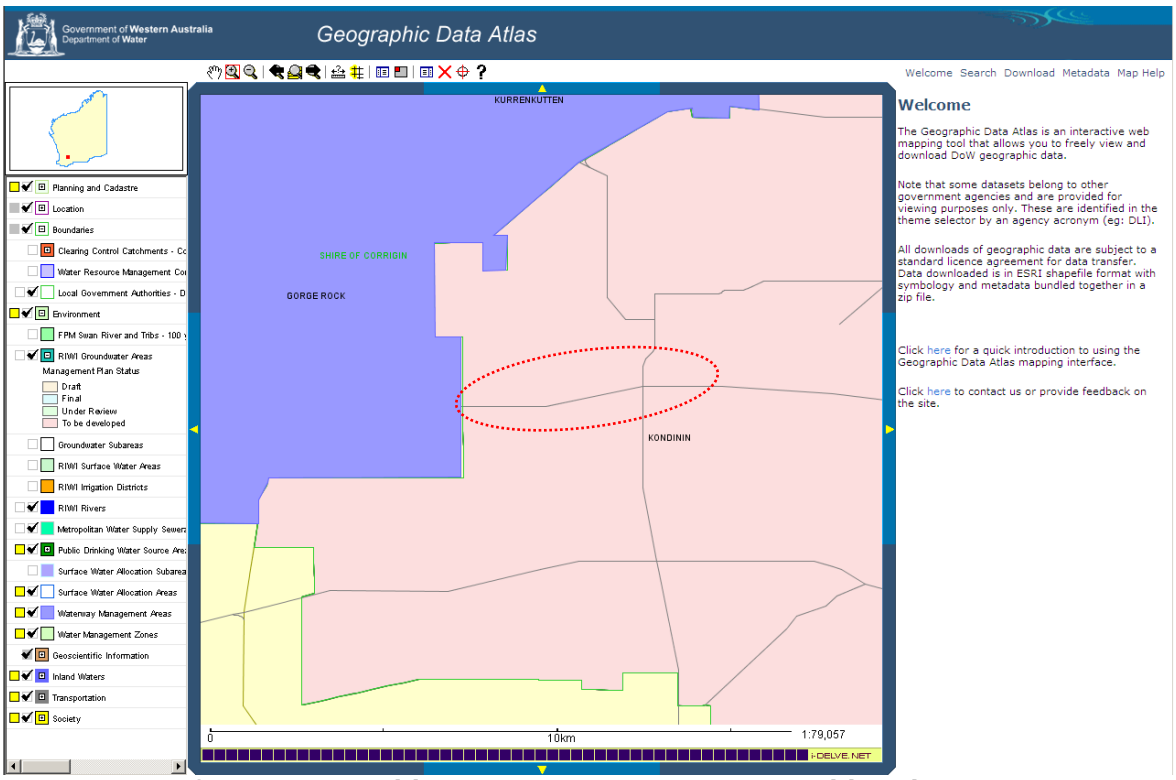
Appendix D

Wetlands & Sensitive Water Courses

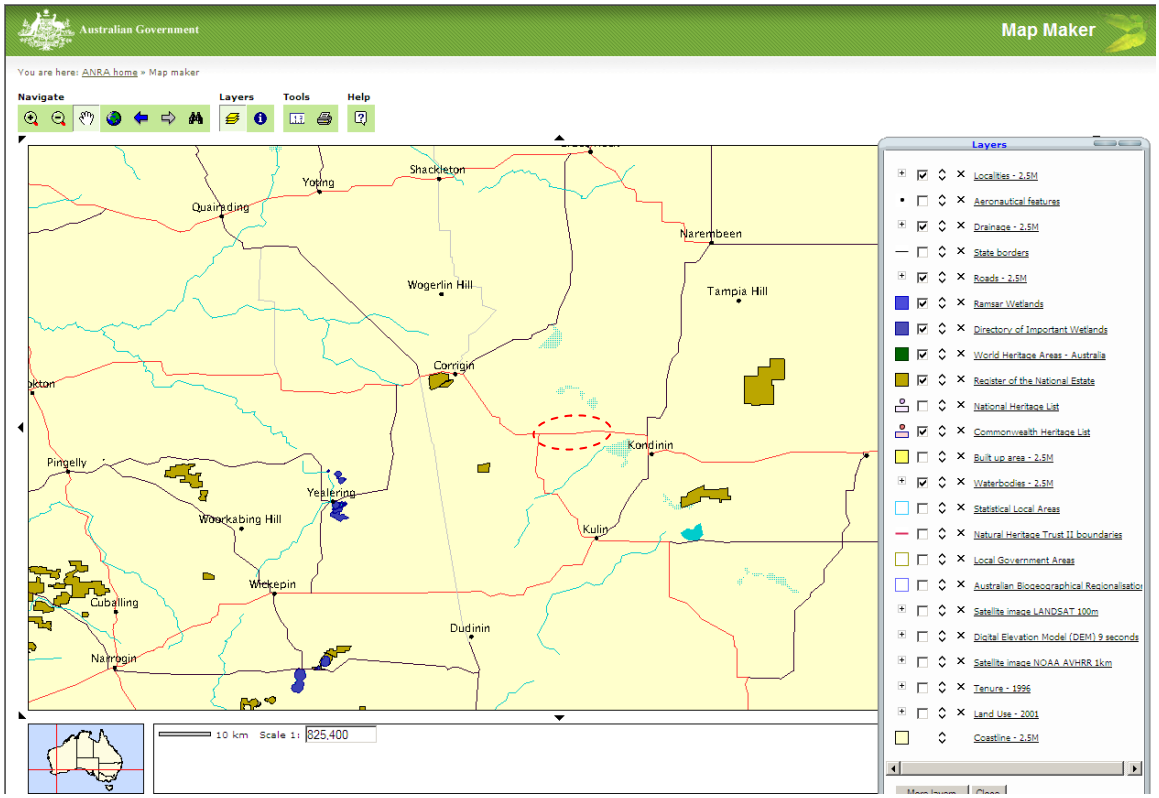
Main Roads' GIS Environmental Aspects
Department of Water's Sensitive Water Resources Geographic Atlas
Australian Natural Resources Atlas search results



Main Roads' GIS environmental aspects search results



Department of Water's Sensitive Water Resources Geographic Atlas



Australian Natural Resources Atlas

Appendix E

Threatened Flora and Communities, Conservation Reserves and ESAs

DEC correspondence
Threatened Flora Database & WA Herbarium Database GIS shape file data
Declared Rare and Priority Flora List
Native Vegetation Map Viewer

Department of Environment and Conservation

Your reference:
Our reference: 2007/000332
Enquiries: Bridgitte Long

Phone: 9334 0123
Fax: 9334 0278
Email: bridgitte.long@dec.wa.gov.au

Main Roads WA

Attention: Elizabeth Chandler

Dear Ms Chandler

REQUEST FOR RARE FLORA INFORMATION

I refer to your request of 15th February 2008 for information on rare flora in the Brookton Highway area. The search co-ordinates used were 32^0 21' - 32^0 32' S and 118^0 03' - 118^0 17' E (GDA94).

A search was undertaken for this area of **(1)** the Department's *Threatened (Declared Rare) Flora* database (for results, *if any*, see "Threatened Flora Data" – coordinates are GDA94), **(2)** the *Western Australian Herbarium Specimen* database for priority species opportunistically collected in the area of interest (for results, *if any*, see "WAHERB"- coordinates are GDA94 – see condition number 9 in the attached 'Conditions in Respect of Supply' and **(3)**, the Department's *Declared Rare and Priority Flora List* [this list is searched using 'place names'. This list which may also be used as a species target list, contains species that are declared rare (Conservation Code R or X for those presumed to be extinct), poorly known (Conservation Codes 1, 2 or 3), or require monitoring (Conservation Code 4) – for results, *if any*, see "Declared Rare and Priority Flora List"]. The results are attached electronically to this email.

Attached also are the conditions under which this information has been supplied. Your attention is specifically drawn to the seventh point, which refers to the requirement to undertake field investigations for the accurate determination of rare flora occurrence at a site. *The information supplied should be regarded as an indication only of the rare flora that may be present and may be used as a target list in any surveys undertaken.*

The information provided does not preclude you from obtaining and complying with, where necessary, land clearing approvals from other agencies.

It would be appreciated if any populations of rare flora encountered by you in the area could be reported to this Department to ensure their ongoing management.

If you require any further details, or wish to discuss rare flora management, please contact Dr Ken Atkins, Manager, Species and Communities Branch, on (08) 9334 0455.

Yours faithfully

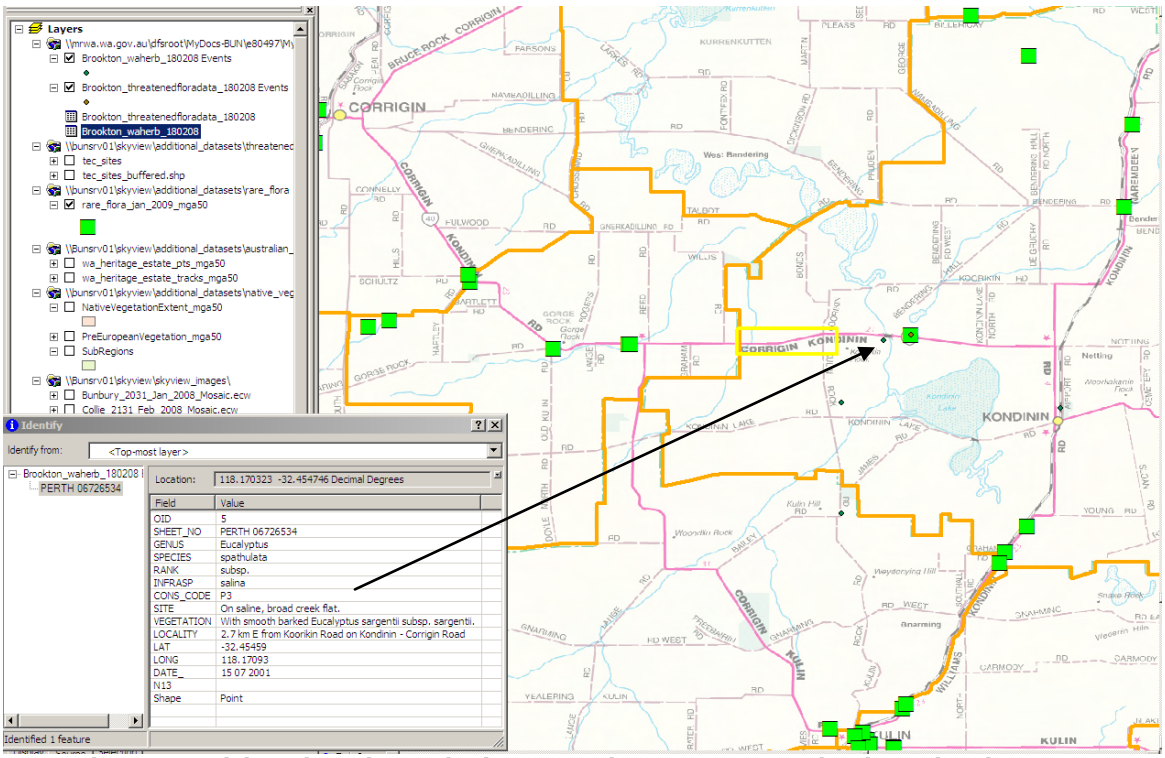
[redacted]
.....
for Keiran McNamara
DIRECTOR GENERAL
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

18th February, 2008

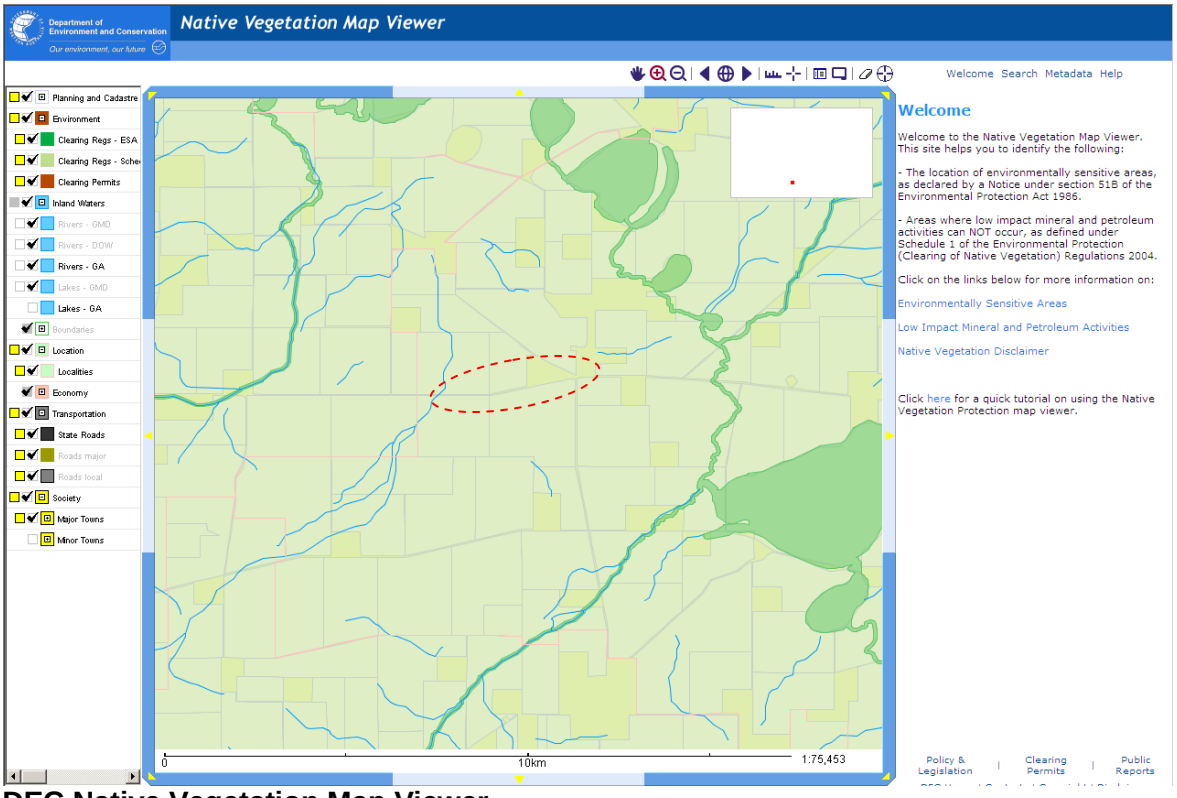
Please note: Co-ordinates supplied for all data search requests must be provided in latitude/longitude format, 'eastings and northings' are no longer suitable. Thank you.

SPECIES & COMMUNITIES BRANCH: 17 Dick Perry Ave, Technology Park, Kensington
Postal Address: Locked Bag 104, Bentley Delivery Centre, Bentley, Western Australia 6983
Phone: (08) 9334 0455 Fax: (08) 9334 0278 Website: www.naturebase.net

DEC correspondence



DEC Threatened (Declared Rare) Flora Database & WA Herbarium database GIS shape files search results. Inset indicates species in the site closest to the project area.



DEC Native Vegetation Map Viewer

DECLARED RARE AND PRIORITY FLORA LIST

21 December 2006

SPECIES / TAXON	CONS CODE	CALM REGION	DISTRIBUTION	FLOWER PERIOD
Acacia arcuatilis Pallarup River	2	WB,SC	Camel Peaks, Kulin, Jitarning, Bendering,	Jul-Sep
Acacia deflexa Hills, Corrigin	3	WB	Toolibin, Bendering, Wickepin, Wongan	Aug
Acacia inophloia Mt Bebb, Kulin	3	WB,MW	Pederah, Bendering, Muntadgin, Moora,	
Acacia sclerophylla var. teretiuscula Merredin, Kondinin	1	WB	Bendering, Bruce Rock, Lake Grace,	Aug-Sep
Baeckea sp. Hyden (JM Brown 141) Pingaring, Bendering, Dragon Rocks	3	WB	Hyden, Dongolocking, Tarin Rock,	May,Aug-Oct
Brachyloma mogin Tree Pool, Gorge Rock, Kulin, Mt Kokeby, Dalyup, Gibson	3	WB	Katanning, Corrigin, Brookton, Cherry	May-Jun
Calytrix nematoclada Bendering	3	WB	Lake King, Lake Lockhart, Cairlocup,	Nov-Jan
Darwinia divisa	1	WB	Bendering	Jul
Daviesia purpurascens Bendering, Dragon Rocks	4	WB,GLD	Great Victoria Desert, Kondinin, Hyden,	Aug-Sep
Dryandra ferruginea subsp. obliquiloba NR	3	WB	Corrigin, Dudinin, Bendering, Boolanelling	Sep-Oct
Dryandra xylothemelia South Buniche NR, Kondinin, Lake Magenta	3	WB	Dragon Rocks, Lake King, Newdegate,	Sep-Oct
Eremophila veneta Ongerup, Pingrup, Bendering	4	WB	NW of Newdegate, Kulin, Lake Lockhart,	Oct-Dec
Eucalyptus spathulata subsp. salina Pingaring, Kondinin	3	WB	Tammin, Quairading, Corrigin, Beverley,	
Grevillea asteriscosa Grace, Bullaring, Kondinin	4	WB	Narembeen, Bendering, Kulin, Lake Nov	May,Aug-

Lasiopetalum fitzgibbonii Boxwood Hill, Bendering	3	WB,SC	Jilbadji, Jilakin, Nyabing, Jerramungup,	Sep-Nov
Microcorys cephalantha Wickepin, Bendering	3	WB	Kulin, Jitarning, Dudinin, Wedin,	Oct-Jan
Millotia steetziana	2	WB	Lake King, Kondinin, Lake Chinocup	Sep
Plantago sp. Kondinin hairy (M.N. Lyons 2917)	2	WB	Kondinin	
Ptilotus fasciculatus Marchagee, Koonbabbie, Yenyenning Lakes NR, Seagroatt NR	R	WB,MW	Cunderdin, Gunyidi, Coorow, Kondinin,	Oct,Nov
Roycea pycnophylloides	R	WB	Meckering, Cunderdin, Pingrup, Kondinin	Nov
Synaphea constricta Minnivale, Wongan Hills, Manmanning, Duracoppin NR	3	WB	Bendering, Kellerberrin, Dowerin,	Jun-Sep
Thomasia tenuivestita York, Dingo Rock, Konongorring, Champion Bay, Boothendarra	3	WB,MW,SW	Wongan Hills, Winchester, Bendering,	Jul,Sep-Oct

Appendix F
Threatened Fauna

DEC correspondence
Threatened Fauna Database Search Results

2007/000430
Kellie Mantle

9334 0579
9334 0278
kellie.mantle@dec.wa.gov.au

Elizabeth Chandler
Main Roads Western Australia
Wheatbelt South

Dear Elizabeth

REQUEST FOR THREATENED FAUNA INFORMATION

I refer to your request of 15th February for information on threatened fauna occurring in the vicinity of Kondinin (plus~10km buffer).

A search was undertaken for this area of the Department's Threatened Fauna database, which includes species which are declared as '*Rare or likely to become extinct* (Schedule 1)', '*Birds protected under an international agreement* (Schedule 3)', and '*Other specially protected fauna* (Schedule 4)'.

Attached also are the conditions under which this information has been supplied. Your attention is specifically drawn to the sixth point that refers to the requirement to undertake field investigations for the accurate determination of threatened fauna occurrence at a site. The information supplied should be regarded as an indication only of the threatened fauna that may be present.

It would be appreciated if any populations of threatened fauna encountered by you in the area could be reported to this Department to ensure their ongoing management.

If you require any further details, or wish to discuss threatened fauna management, please contact my Principal Zoologist, Dr Peter Mawson on 08 93340421.

Yours sincerely

.....
for Keiran McNamara
DIRECTOR GENERAL
Department of Environment and Conservation

19th February, 2008

DEC correspondence

Threatened and Priority Fauna Database

32.313 °S 117.947 °E / 32.59 °S 118.38 °E Kondinin (plus~10km buffer)

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

***Macrotis lagotis* Bilby, Dalgyte, Ninu** *1 records*

This species shelters in burrows and occupies a range of habitats from grassland on clayey and stony soils or sandplains to mulga scrub and woodlands on red earths. It has suffered a large decline and contraction in distribution.

1967 2 1 Kondinin

***Phascogale calura* Red-tailed Phascogale, Kenngoor** *1 records*

This arboreal marsupial seems to prefer dense woodland or tall shrubland with a continuous canopy and is most often associated with dense stands of rock sheoak (Allocasuarina huegeliana) and wandoo (Eucalyptus wandoo).

BENDERING NATURE RESERVE

***Leipoa ocellata* Malleefowl** *1 records*

This species was once widely distributed across southern Australia. It prefers woodland or shrubland with an abundant litter layer that provides essential material for the construction of its nest mound.

1969 2 Morton Nature Reserve

Priority One: Taxa with few, poorly known populations on threatened lands

Branchinella simplex *1 records*

1997 1 Kurrenkutten

Priority Four: Taxa in need of monitoring

***Macropus irma* Western Brush Wallaby** *1 records*

This species occurs in areas of forest and woodland supporting a dense shrub layer.

1977 1 BENDERING NATURE RESERVE

***Pseudomys occidentalis* Western Mouse** *1 records*

This species occurs most frequently in areas of long-unburnt vegetation on sandy clay or loam with a matrix of gravel. It is known to feed

on the seeds of quandong (Santalum acuminatum) and various sedge species.

1975 1 BENDERING NATURE RESERVE

***Ardeotis australis* Australian Bustard** *1 records*

This species is uncommon and may occur in open or lightly wooded grasslands.

1941 2 1 Paperbark Nature Reserve Day sighting

***Pomatostomus superciliosus ashbyi* White-browed Babbler (western wheatb** *3 records*

This species of bird lives in eucalypt forests and woodlands, and forages on or near the ground for insects and seeds.

1981 1 Paperbark Nature Reserve Day sighting

1986 1 5 Paperbark Nature Reserve Day sighting

1988 1 4 Gorge Rock Nature Reserve Day sighting

Tuesday, 19 February 2008

**** Date Certainty Seen Location Name Method***

Threatened and Priority Fauna Database

32.313 °S 117.947 °E / 32.59 °S 118.38 °E Kondinin (plus~10km buffer)

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.

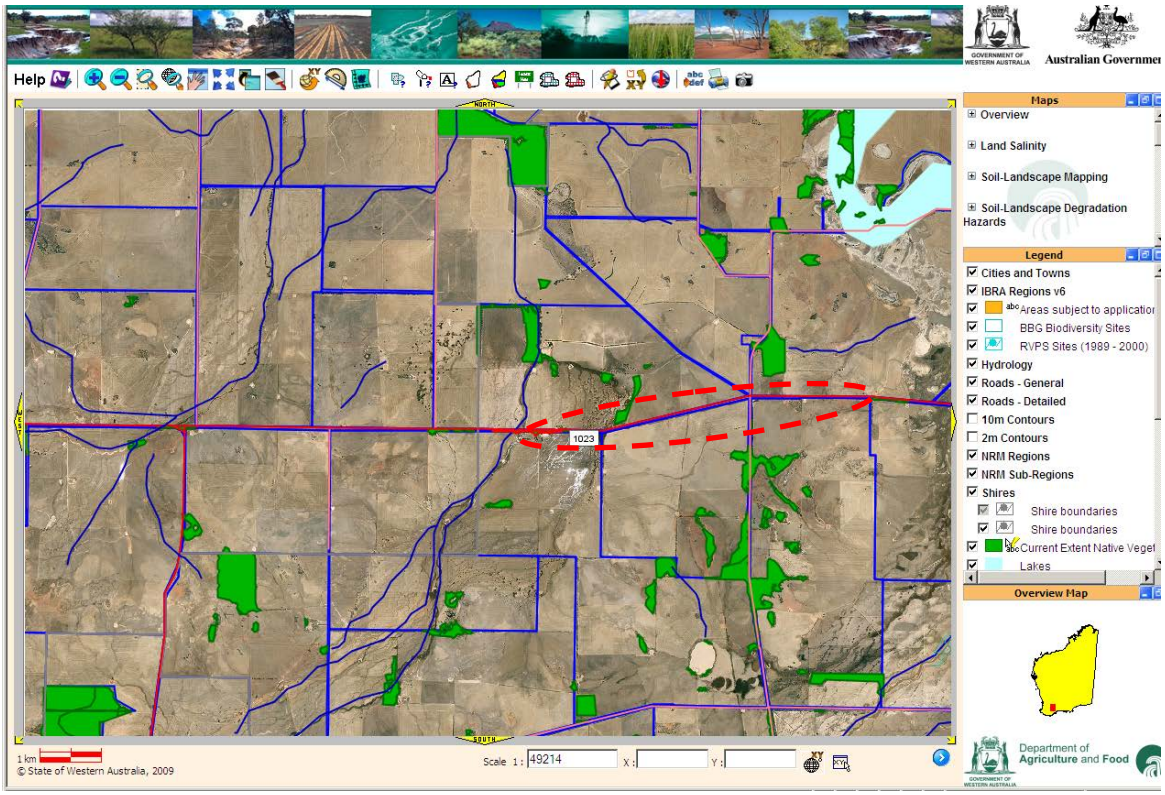
Location Name: Name of reserve or nearest locality where observation was made

Method: Method or type of observation

Appendix G

Vegetation Association, Extent & Status

Department of Agriculture and Food SLIP NRM database
Vegetation extents
Dominant Species Lists



SLIP NRM Database results

Vegetation Association	Pre-European Extent	Current Extent	% Remaining state wide
1023	1,601,601.59	102,605.59	6.41
955	139,324.01	10,683.48	7.67

State wide extent remaining Vegetation Associations 1023 & 955

IBRA Region Code	IBRA Region Name	IBRA Region Extent	Vegetation Association	Pre-European Extent	Current Extent	% Remaining
MAL	Mallee	7,397,571.08	**1023**	63,990.72	2,541.74	3.97
IBRA Sub Region Code	IBRA Sub Region Name	IBRA Sub Region Extent	Vegetation Association	Pre-European Extent	Current Extent	% Remaining
MAL2	Western Mallee	3,981,720.65	**1023**	63,990.82	2,541.85	3.97
Local Govt. Authority Name		Local Govt Authority Extent	Vegetation Association	Pre-European Extent	Current Extent	% Remaining
KONDININ, SHIRE OF		741,927.00	**1023**	25,891.02	891.11	3.44

IBRA Region, Sub-region & LGA extent remaining Vegetation Association 1023

IBRA Region Code	IBRA Region Name	IBRA Region Extent	Vegetation Association	Pre-European Extent	Current Extent	% Remaining
MAL	Mallee	7,397,571.08	**955**	18,759.10	1,835.05	9.78
IBRA Sub Region Code	IBRA Sub Region Name	IBRA Sub Region Extent	Vegetation Association	Pre-European Extent	Current Extent	% Remaining
MAL2	Western Mallee	3,981,720.65	**955**	18,759.26	1,835.20	9.78
Local Govt. Authority Name		Local Govt Authority Extent	Vegetation Association	Pre-European Extent	Current Extent	% Remaining
KONDININ, SHIRE OF		741,927.00	**955**	2,930.36	118.21	4.03

IBRA Region, Sub-region & LGA extent remaining Vegetation Association 955

Vegetation Map Unit - Dominant Species Information

Species List

Stratum	Minimum % Crown Cover	Maximum % Crown Cover	Maximum Height (m)	Species	Dominance	Growth Form
Upper 1	**10**	**30**	**30**	**Eucalyptus capillosa**	**co-dominant**	**Tree**
Upper 1	**10**	**30**	**30**	**Eucalyptus salmonophloia**	**co-dominant**	**Tree**
Upper 1	**10**	**30**	**30**	**Eucalyptus loxophleba**	**co-dominant**	**Tree**

Dominant Species List Vegetation Association 1023

Vegetation Map Unit - Dominant Species Information

Species List

Stratum	Minimum % Crown Cover	Maximum % Crown Cover	Maximum Height (m)	Species	Dominance	Growth Form
Mid 1	70	100	2.5	Allocasuarina campestris	dominant	Shrub
Mid 1	70	100	2.5	Acacia sp.	sub-dominant	Shrub
Mid 1	70	100	2.5	Melaleuca sp.	sub-dominant	Shrub

Dominant Species List Vegetation Association 955

Appendix H

Non-Indigenous Heritage

Australian Heritage Places Inventory
Australian Heritage Database
Heritage Council of Western Australia
Municipal Heritage Inventory

AUSTRALIAN HERITAGE PLACES INVENTORY

[New Search]

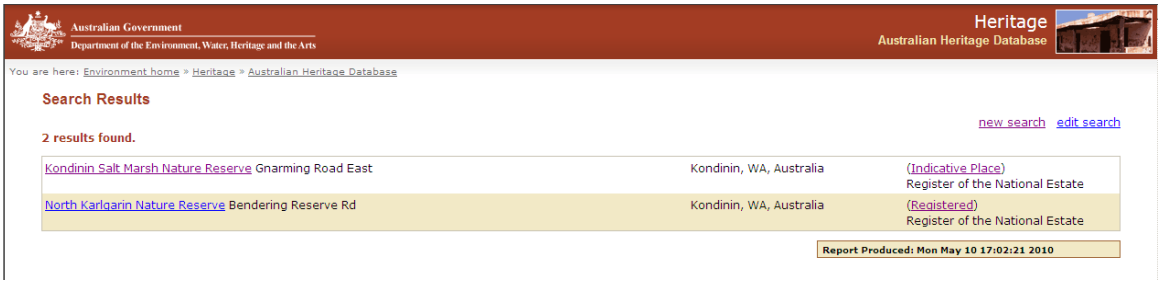
1. **Indigenous Place**
   Hyden, WA
   LGA: Kondinin Shire
   Source: Register of the National Estate

2. **Lake Cronin Area**
   Forrestania Southern Cross Rd, Hyden, WA
   LGA: Kondinin Shire
   Source: Register of the National Estate

3. **North Karlgarin Nature Reserve**
   Bendering Reserve Rd, Kondinin, WA
   LGA: Kondinin Shire
   Source: Register of the National Estate

Query matched 3 records.

Australian Heritage Places Inventory search results



Australian Government
Department of the Environment, Water, Heritage and the Arts

Heritage
Australian Heritage Database

You are here: Environment home » Heritage » Australian Heritage Database

Search Results

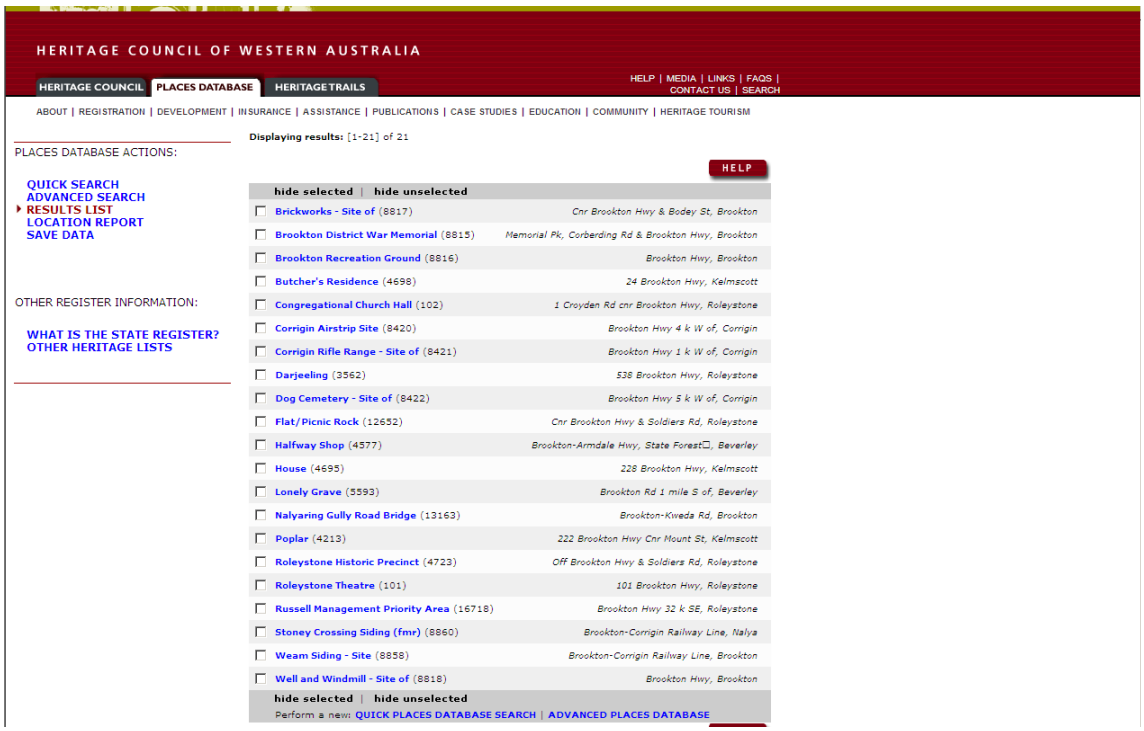
new search edit search

2 results found.

Kondinin Salt Marsh Nature Reserve Gnarming Road East	Kondinin, WA, Australia	(Indicative Place) Register of the National Estate
North Karlgarin Nature Reserve Bendering Reserve Rd	Kondinin, WA, Australia	(Registered) Register of the National Estate

Report Produced: Mon May 10 17:02:21 2010

Australian Heritage Database search results



Heritage Council of Western Australia search results

Mon 31/05/2010 4:24 PM
Hello Peter

Sorry to have taken so long to reply to your email but I needed to talk to the CEO before replying.
We only have the concrete silo that is in the paddock on the south side of the road that is listed on our heritage list. There are no other Heritage listings for the area.

Regards

Heather Lockyer
Administration/Finance Officer
Shire of Kondinin

From: SWANSON Peter (PEO) [mailto:peter.swanson@mainroads.wa.gov.au]
Sent: Thursday, 27 May 2010 12:06 PM
To: Heather Lockyer
Subject: RE: Request for Heritage information

Heather
Any information regarding this request??
Peter

From: SWANSON Peter (PEO)
Sent: Friday, 21 May 2010 2:55 PM
To: 'heather@kondinin.wa.gov.au'
Subject: Request for Heritage information

Heather
Main Roads Wheat Belt South Region is proposing to undertake road widening along Brookton Hwy (Corrigin – Kondinin section) between SLK 231.30 & 236.30 in the Shire of Kondinin.
As part of the environmental assessment of the project I request information of any heritage aspect the Shire may have identified in the vicinity of the site.

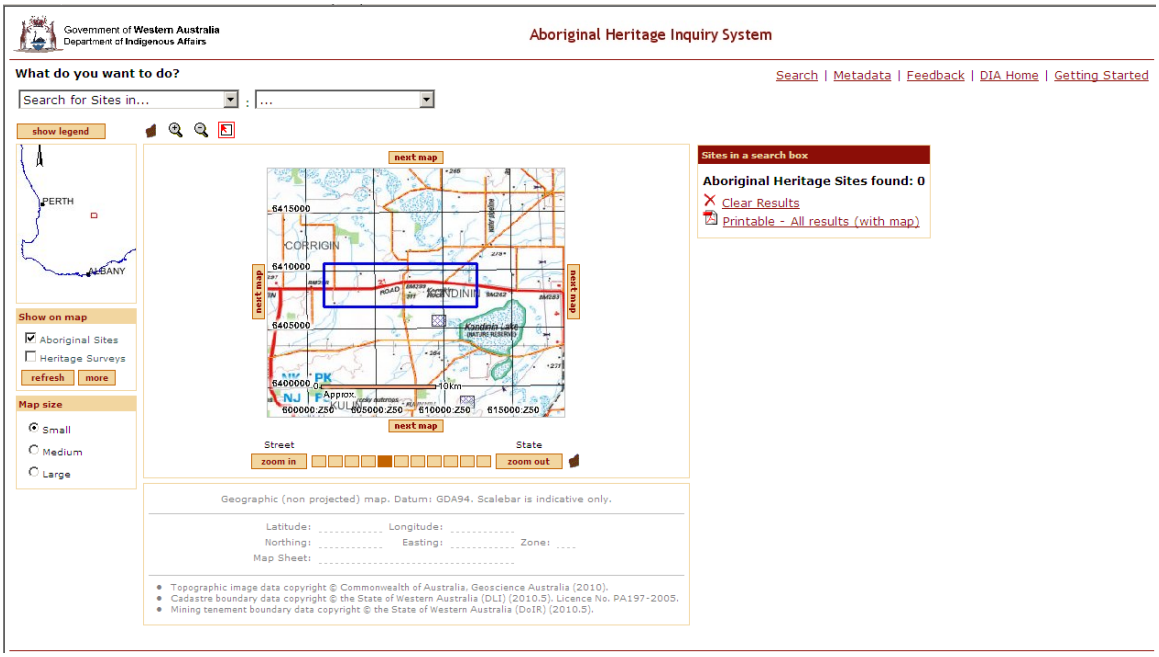
Please let me know if you require additional information.

Shire of Kondinin Heritage Inventory

Appendix I

Aboriginal Heritage

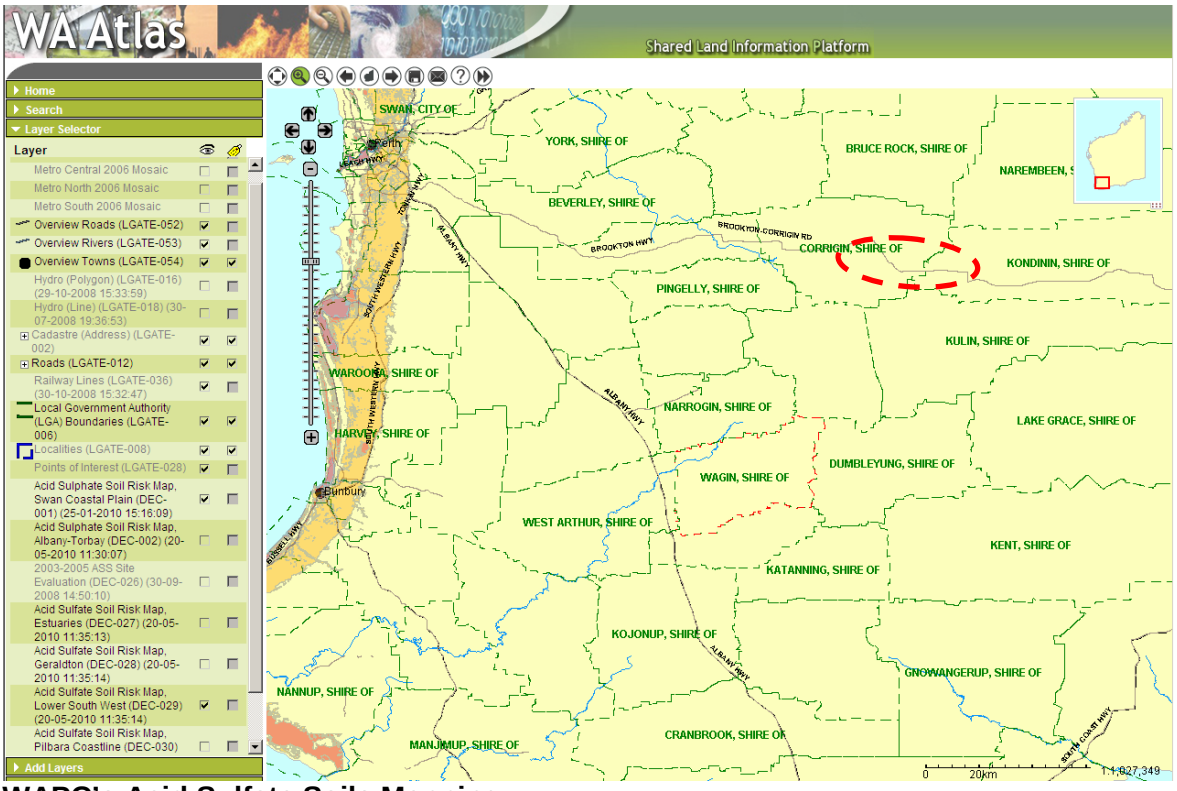
Department of Indigenous Affairs Database



Department of Indigenous Affairs Database search results

Appendix J

Acid Sulfate Soils



WAPC's Acid Sulfate Soils Mapping

Acid Sulfate Soils
Applicant Self-Assessment Form

Western Australian Planning Commission

Important information for applicants

This form need only be completed if there is evidence of significant risk of disturbing acid sulfate soils at this location or having completed Form 1A - Application for approval of freehold subdivision or survey strata you have indicated yes to either question 1 or 2, Acid sulfate soils assessment, section 7.

Applicant

The applicant is the person with whom the WAPC will correspond and, if the application is approved, the person to whom the approval will be sent.

Full name: Elizabeth Chandler

Applicant signature: E.Chandler Date: 06/03/08

Application property details: Brookton Highway Shire of Kondinin

Step 1

If you have previously indicated yes to question 1 or 2 on form 1A go to Step 2.

Is there evidence of a significant risk of disturbing acid sulfate soils at this location?

The WAPC has published maps showing the levels of risk of acid sulfate soils. The maps are shown on figures 1-29 of planning bulletin no. 64 can be downloaded at www.wapc.wa.gov.au/bulletins

Question 1: Do figures 1-29 of the WAPC's Planning Bulletin No 64 Acid Sulfate Soils show the land as having a high to moderate risk of acid sulfate soil occuring within 3 m of natural soil serface? ☐ yes ☑ no

Question 2: Is the land located in an area, whether depicted in figures 1-29 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? ☐ yes ☑ no

If yes to either of these questions go to step 2.

If no to both of these questions 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 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? ☐ yes ☐ no

Question 4: Is the surface elevation ≤ 5m AHD and is excavation of ≥ 100m³ of soil proposed? (ie 10 standard dump truck loads) ☐ yes ☐ no

Question 5: Is the surface elevation > 5m AHD and is excavation of ≥ 100m³ of soil (ie 10 standard dump truck loads) with an excavation depth of ≥ 2m proposed? ☐ yes ☐ no

If yes to any of these 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 and Conservation guidelines.

Note: Copies of documents in the acid sulfate soils guidelines series and further technical advice and information can be obtained from contaminated sites page on the Department of Environment and Conservation's website at http://www.dec.wa.gov.au

Question 6: Did the preliminary site assessment reveal the presence of acid sulfate soils? ☐ yes ☐ no

If yes to this questions go to step 4.

If no to this questions 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.

PTO for information on submissions
Version: 5.1 (February 2008)

1

Appendix K

Weeds

Correspondence with Department of Agriculture and Food

Fri 21/05/2010 12:08 PM
Hi Peter

There is some Patersons Curse from Corrigin to Gorge rock on that road but where u are working there isn't any declared weeds as far as im aware of.

cheers

Jarred Desmond
Biosecurity Officer
Lake Grace
jarred.desmond@agric.wa.gov.au
Ph: 98651205
Mob: 0439880551

From: SWANSON Peter (PEO) [mailto:peter.swanson@mainroads.wa.gov.au]
Sent: Friday, 21 May 2010 11:52 AM
To: Desmond, Jarred
Subject: Request for Declared Plant information along Brookton Hwy

Good morning Jarred

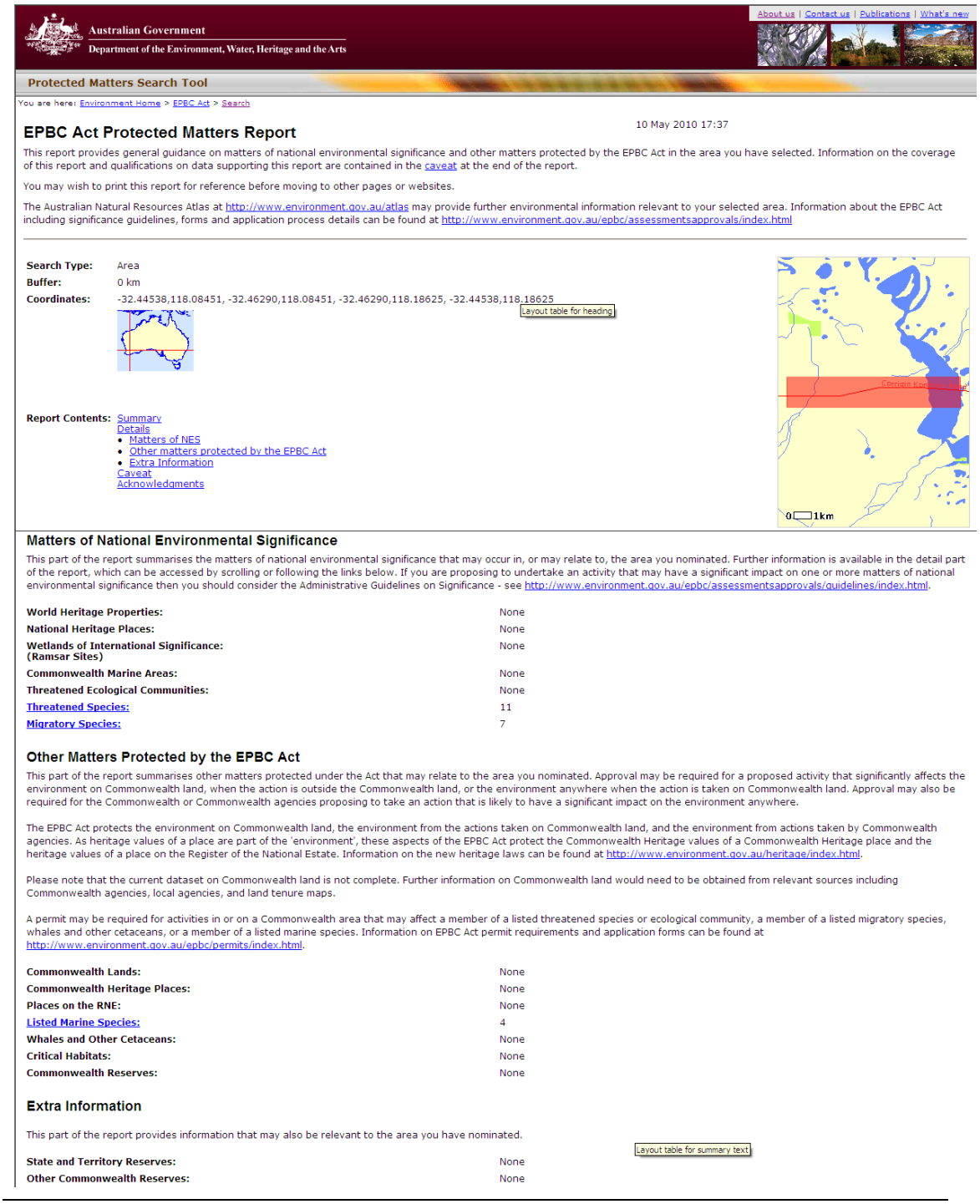
Main Roads Wheat Belt South Region is proposing to undertake road widening along Brookton Hwy (Corrigin – Kondinin section) between SLK 231.30 & 236.30 in the Shire of Kondinin.
As part of the environmental assessment of the project I request information from DAF in regard the occurrence of Declared Plants in the vicinity.

Please let me know if you require additional information.
Thanks very much.

Peter Swanson
Environment Officer
Wheat Belt South / South West Region
mainroads WESTERN AUSTRALIA
Telephone: (08) 9725 5692 Fax: (08) 9725 5666
Mobile: 0437 318 721
Email: peter.swanson@mainroads.wa.gov.au
www.mainroads.wa.gov.au

Appendix L

Environmental Protection and Biodiversity Conservation Act



Australian Government
Department of the Environment, Water, Heritage and the Arts

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Protected Matters Search Tool

You are here: Environment Home > EPBC Act > Search

10 May 2010 17:37

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

Search Type: Area
Buffer: 0 km
Coordinates: -32.44538,118.08451, -32.46290,118.08451, -32.46290,118.18625, -32.44538,118.18625

Layout table for heading

Report Contents:
Summary
Details
- Matters of NES
- Other matters protected by the EPBC Act
- Extra Information

Caveat
Acknowledgments

0 1km

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.

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:	11
Migratory Species:	7

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Places on the RNE:	None
Listed Marine Species:	4
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.

Layout table for summary text

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		
Leipoa ocellata Malleefowl	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll	Vulnerable	Species or species habitat likely to occur within area
Phascogale calura Red-tailed Phascogale	Endangered	Species or species habitat may occur within area
Plants		
Acacia lanuginophylla Woolly Wattle	Endangered	Species or species habitat likely to occur within area
Eremophila viscida Varnish Bush	Endangered	Species or species habitat may occur within area
Grevillea dryandroides subsp. hirsuta Hairy Phalanx Grevillea	Endangered	Species or species habitat likely to occur within area
Grevillea involucrata Lake Varley Grevillea	Endangered	Species or species habitat likely to occur within area
Grevillea scapigera Corrigin Grevillea	Endangered	Species or species habitat likely to occur within area
Guichenotia secrsiflora	Critically Endangered	Species or species habitat may occur within area
Roycea pycnophylloides Saltmat	Endangered	Species or species habitat likely to occur within area
Stylidium merrallii Merrall's Triggerplant	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]	Status	Type of Presence
Migratory Terrestrial Species		
Birds		
Leipoa ocellata Malleefowl	Migratory	Species or species habitat likely to 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
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

Other Matters Protected by the EPBC Act

Listed Marine Species [Dataset Information]	Status	Type of Presence
Birds		
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
Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area

Department of the Environment, Water, Heritage and the Arts Database Search

Appendix M

Site Photos

View east SLK 231.3: western end of project (Note the transition from two to single sealed lanes)

View west SLK 231.9 (Note floodway and surrounding vegetation)

View east SLK 231.9

View east SLK 232.4

View west SLK 232.4 (Note ‘banded’ tree on the left is the extent of clearing width)

View east SLK 232.8 (Note vegetation in paddock outside of proposed clearing area)

View west SLK 232.8 (Note vegetation in paddock outside of proposed clearing area)

View east SLK 233.4

View west SLK 233.4

View east SLK 233.6 (Note established revegetation on the right)

View east SLK 234.2 (Note established revegetation on the right)

View east SLK 235.1 (Note established revegetation on the right)

View east SLK 235.8 (Note established revegetation on the right)

Appendix N

Vegetation Clearing Assessment Report

MRWA Vegetation Clearing Assessment Report

This report 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: **MRWA**

Contacts:

Name:	Peter Swanson
Phone:	97255692
Fax:	97255666
Email:	peterswanson@mainroads.wa.gov.au

Property details

Property: Brookton Highway Road Reserve

Colloquial name: SLK 231.3 - 236.3

Area under assessment

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:	Site Plan Attached
1.5ha		Mechanical	Road improvements	X Yes ☐ No

Avoidance/Minimise clearing

How have the clearing impacts been minimised?

Several design options have been created and considered in order to attempt to minimise the clearing.
Extensive community consultation has been undertaken to facilitate the clearing for the project.
The condition of the vegetation in the project area has been assesssed and the clearing is proposed mainly on the northern side of the road where the vegetation is in a more degraded condition.

BACKGROUND

Existing environment and information

The vegetation condition in the project area has been assessed by Maunsell botanists in the Biological Survey report. The condition of much of the vegetation is Completely Degraded (34.2% of the total area).
Large areas are completely cleared or mainly support introduced species and are considered to be Degraded to Completely Degraded. The best quality vegetation within the project area was considered to be in Good condition (20.5% of the total area).
Two vegetation associations were identified:

- Vegetation association 1023 Medium woodland, 102,605ha (6.4%) remaining, York Gum, Wandoo and Salmon Gum (Eucalyptus salmonophloia) and
- Vegetation association 955 Shrublands, 10,683ha (7.7%) remaining, Mosaic: Shrublands, scrub heath (South East Avon)/Shrublands, Allocasuarina campestris thicket.

Site Visit Undertaken	Yes	**Fauna / Flora Survey Undertaken**	Yes
Site Report Attached	Yes	**Fauna / Flora Survey Report Attached**	Yes
Site Photos Attached	Yes	**Other Relevant References Attached**	Yes

ASSESSMENT OF APPLICATION AGAINST CLEARING PRINCIPLES

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

Comments

Proposal may be at variance to this Principle

The vegetation structure of the project area has been significantly altered by very obvious signs of multiple disturbances. The majority of it has been assessed as being in a degraded condition as it does not retain a basic vegetation structure or the ability to regenerate it.

The total of 127 vascular species from 85 genera and 36 families that were recorded within the project area indicates high species diversity within such a small area. However the majority of the vegetation that originally occurred through the immediate area has been cleared as a result of past and present land uses and there are high proportions of bare ground visible.

Fauna habitat is minimal due to the degraded condition and relative sparseness of the majority of

the vegetation. None of the vegetation communities in the project area are considered to be of conservation significance or are listed as TECs of either State or Commonwealth conservation significance.

The vegetation proposed to be cleared is a marginal narrow strip on the edge of the road way and in many instances only specific individual specimens will need to be removed, so will not extensively reduce the existing fauna habitat. No significant flora or priority ecological communities have been identified as being in the project area however vegetation communities of the project area may be considered significant in a regional sense due to under-representation. However the clearing of such a small area (1.5ha) as proposed may not be considered to constitute a significant impact to the biodiversity.

Methodology Site inspection
SLIP NRM database & Main Roads file "*Native Vegetation in Western Australia - Extent, Type and Status*" (*car_reserve_analysis_2006.xls*)
Biological Survey: Maunsell 2008
Main Roads GIS data base search (DEC shape file)

(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 may be at variance to this Principle**

Due to the highly degraded condition of the vegetation in the road reserve it is unlikely to be a habitat for a large range of fauna. The vegetation proposed to be cleared is a marginal narrow strip on the edge of the road and in many instances only specific individual specimens will need to be removed, so it would be considered that it will not significantly reduce fauna habitat.

It is however potentially part of a linear vegetative corridor for fauna species in a local area that has been extensively cleared for agriculture. Therefore there may be an impact to native fauna habitat values if severance of the corridor is proposed. In some sections of the project this may occur but only on (mostly) the northern side, part of which has existing trees and vegetation in the paddock that will remain and be included in the 10m of land to be acquired. Additionally revegetation works along the whole of the southern side and selectively on the north will increase the overall habitat availability in the long term.

Hollows observed in some tree specimens were not considered large enough for cockatoos to nest and additionally there are insufficient food sources in the immediate area to sustain a breeding pair.
No sightings or activities of Threatened or Priority fauna were made during the Biological Survey.

Methodology Site inspection
Biological Survey: Maunsell 2008

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

Comments **Proposal is not likely to be at variance to this Principle**

No rare or threatened flora are registered or were identified during the field survey in the project area.
The closest Priority Flora site is over 4 kilometers to the east of the project area.

Methodology Department of Environment and Conservation (DEC) Native Vegetation Map Viewer.
DEC consultation
Biological Survey: Maunsell 2008
Main Roads GIS data base search (DEC shape file)

(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**

No known occurrences of threatened ecological communities have been recorded or were identified during the field survey in the project area and surrounds. Given the highly disturbed condition of the application area, and its distance between known populations of rare flora, it is unlikely that the proposal would be at variance to this principle.

Methodology Main Roads GIS data base search (DEC shape file)
Site Visit
Biological Survey: Maunsell 2008

(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 may be at variance to this Principle

The project area consists of two vegetation associations 955 and 1023 represented state wide with 7.7% and 6.4% respectively.

Vegetation association 1023 has 102,605ha remaining and is described as Medium woodland, York Gum, Wandoo and Salmon Gum (*Eucalyptus salmonophloia*). Vegetation association 955 has 10,683ha remaining and is described as Mosaic: Shrublands, scrub heath (South East Avon)/Shrublands, *Allocasuarina campestris* thicket.

The condition of the vegetation throughout the project area has been assessed in the Biological Survey using the Keighery scale, identifying that nearly 35% is in a 'Completely Degraded' condition. The best quality vegetation was considered to be 'Good' and consisted of 20% of the total area. Large areas of the project area that are completely cleared or mainly support introduced species were considered to be 'Degraded - Completely Degraded'.

By designing the project to clear on the southern side of Brookton Highway for the first 700m from the western end to the existing floodway and transition to the northern side for the remainder of the project; the majority of the clearing will be of vegetation that is in less than Good condition. Only a small narrow strip of Good vegetation approximately 750 meters long on the north side just east of the bend at SLK 233.4 will need to be cleared. Vegetation along Brookton Highway to the east of Koorikin/Kulin Rock Roads intersection will not be impacted.

The proposed clearing may be considered to reduce the integrity of the remaining vegetation through fragmentation, however given the current condition and sparseness of the existing vegetation; it is likely that the revegetation works proposed will in fact enhance and improve the survival of remaining specimens.

Nevertheless, as the project area contains vegetation which is underrepresented and some in good condition; the clearing may be considered at variance with this clearing principle.

Methodology

SLIP database
Site visit
Biological Survey: Maunsell 2008

(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 likely to be at variance to this Principle

The Department of Water Geographic Atlas indicated that there are no rivers or wetlands in the immediate vicinity of the project.

The Biological Survey however, states that there is a minor drainage line at SLK 231.9 where there is an existing floodway and mentions that it supports riparian woodland. The only vegetation community identified at this location is MEW and it has been assessed as being in Degraded to Completely Degraded condition. Refer to the photo of the floodway in Appendix M.

The Survey indicates that this vegetation community also extends for some distance (nearly a kilometre) further west of the location of the drain, which would imply that it is not exclusively a riparian vegetation community.

The description of the vegetation community is as below.

MEW
Open Forest of *Eucalyptus salmonophloia* and *Eucalyptus loxophleba* subsp. *lissophloia* over a Low Shrubland dominated by *Acacia sericocarpa, Acacia lasiocalyx, Maireana brevifolia* and *Atriplex ?vesicaria* over a Very Open Grassland of *Austrostipa elegantissima* and **Ehrharta longiflora* on orange sandy loam.

Given that this is not riparian vegetation it would also imply that the drain is not indicative of a wetland. Furthermore, given the relatively low impact of the works overall it would be considered that only minor temporary disturbance will occur and will not significantly impact the vegetation surrounding the drain.

Methodology

Department of Water Geographic Atlas
Biological Survey: Maunsell 2008
Site Visit

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

Comments **Proposal is unlikely to be at variance to this Principle**

The proposed clearing is in a linear form along the highway and would not be considered of an extent that might cause land degradation.

Methodology Site visit

(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 unlikely to be at variance to this Principle**

The project area adjoins farmland and there are no conservation areas within the vicinity of the project.
The eastern most point of the project area is approximately 3.2km from the closest Environmentally Sensitive Area (ESA) which encompasses Lake Kondinin. It is highly unlikely there will be any impact on this ESA.

Methodology Main Roads GIS data base search (DEC shape file)
Department of Environment and Conservation (DEC) Native Vegetation Map Viewer.

(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 unlikely to be at variance to this Principle**

The proposed clearing may cause some short term water quality issues in terms of localised surface water sedimentation during works. However, these issues should be minimised in the future as the road works will include roadside infrastructure (table drains, culverts, etc) to alleviate water quality concerns.

The project will not require any dewatering or groundwater usage and existing surface water drainage patterns will be maintained and improved by the extension of culverts and the installation of an additional floodway.

Methodology Site visit

(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 unlikely to be at variance to this Principle**

The proposed clearing would not be considered of an extent that might cause the incidence of flooding.
The existing surface water drainage patterns will be maintained and improved by the extension of culverts and the installation of an additional floodway.

Methodology Site Visit

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

Comments

Methodology

SUBMISSIONS

Submission Requested from	Request Sent (Date)	Submission Received (Date)	Issues Raised / Comments Made
Manager Native Vegetation Conservation Branch Department of Environment and Conservation			
Regional Manager Department of Water			
Director Conservation Council WA			

Office of the Commissioner of Soil and Land Conservation
Department of Agriculture and Food

ASSESSOR'S RECOMMENDATIONS

The project is at variance to Principle E and may be at variance with Principles A and B.

Recommendation :
Under CPS 818/4:

The above stakeholders are to be requested to submit comments.

An Offset Proposal should be compiled and approved by DEC prior to clearing commencing.

References

Beard, J.S. (1972) *Vegetation Survey of Western Australia, Vegetation Series Sheet SI 50-4 Hyden* 1:250, 000 series, Western Australia. Map and Explanatory Notes to Sheet SI 50-4. Vegmap Publications, Sydney.

Maunsell/AECOM, December 2008: *Biological Survey - Brookton Highway: Mundays section SLK 231.34 - 236.30*

OFFICER PREPARING REPORT

Peter Swanson
Environment Officer
MRWA Wheatbelt South Regional Office
0437 318 721
June 2010