ENVIRONMENTAL IMPACT ASSESSMENT
AND
ENVIRONMENTAL MANAGEMENT PLAN

Pinjarra – Williams Road widening
(81.7 – 91.64 SLK)
Quindanning in the Shire of Boddington

SOUTH WEST REGION

Prepared by:
Environment Officer Peter Swanson
DECEMBER 2010

CONTENTS

Revision	Date	Section
Version 2	20/08/10	Assessment against Clearing Principle (a)
		Aspects and Impacts table (pg 10) land acquisition
		EMP management strategies for the Priority Flora (p13)
Version 3	06/12/10	Amended Summary with results from stakeholders letter
		Inclusion of Appendix L: Stakeholder Letter and Responses
		Inclusion to Appendix C: Communication with DEC Threatened Species and Communities Branch re impact to P3 flora
Version 4	27/10/11	Inclusion of may be at variance to Principle (f) Amended Summary Inclusion of Dr. Ken Atkins to Consultation List (Section 7) Amendment of Clearing of Native Vegetation (Section 8) to include may be at variance to Principle (f). Inclusion of wetland area in 'Wetlands' Aspects and Impacts table (Section 9) Inclusion of Item 5 on Low Impact Screening Checklist Inclusion of 'Locations of Goodenia Katabudjar' map (P28) Removal of Dept of Agriculture and Food 'Land

		Degradation Assessment' (SLK 71.62-81.7

1. SUMMARY

- The clearing for the project will not require referral to the WA Environmental Protection Authority or the Commonwealth Department of the Environment, Water, Heritage and the Arts.

- The clearing was initially considered in the PEIA to be 'may be at variance to Clearing Principles (a & c). In accordance with Part 2: Section 8(a) of Main Roads Clearing Permit (818/4) submissions were invited from the following stakeholders.
  - Native Vegetation Conservation Branch of the Department of Environment and Conservation
  - Department of Water
  - Conservation Council WA
  - Office of the Commissioner of Soil and Land Conservation of the Department of Agriculture and Food
  - Shire of Boddington

Responses were received from the Department of Water (DoW) and Department of Environment and Conservation (DEC) (Appendix L).
Further details are included in Section 8.

Version 4 of the EIA considers the project may also be at variance to Principle (f).

- Identified Declared weeds (Cotton Bush & Cape Tulip) and general roadside weeds (where practical) need to be treated prior to (and during) construction as per the EMP.

- Dieback hygiene measures need to be implemented in accordance with the EMP and the Dieback Management Plan.

- Observe EMP regarding Fauna issues and Threatened Flora Management.

- Comply with the recommendations of the Aboriginal Heritage Survey.

- Land will need to be acquired to deliver the realignment of the curve between SLK 82.8 and 83.5.

2. PROJECT DESCRIPTION

Main Roads Western Australia proposes to widen the Pinjarra – Williams Road for approximately 9 km between SLK 81.70 and 91.64 in the Shire of Boddington. It is also proposed to realign the curve between SLK 82.8 and 83.5.

The existing road currently has a seal width that varies between 3.8 – 5.7m and lateral clearances of only 3 to 4m. The proposal is to have a final carriageway width of 7m with 0.5m sealed shoulders. It is hoped to achieve lateral clearances of 6m from the new edge line. Therefore it is proposed that between 2 and 4m of vegetation will need to be cleared mostly on both sides but in some sections only on one side and in some instances, none at all will be required as it is currently sufficiently cleared.

The clearing extent required for the widening work has been estimated as 3.3 ha. This has been calculated by considering that 80% of a three metre strip on both sides of the road between SLK 81.7 and 87.42 will be cleared. Between SLK 87.42 and 91.64 the extent of vegetation is distinctively different as there are extensive sections that are sparsely covered or currently cleared. The percentage of the strip used for this section is 30%.

It is also proposed to acquire land (approximately 0.9ha) between SLK 82.8 and 83.5 to allow improved realignment of the curve. The clearing required for this stage of the project is estimated as 0.3ha. Therefore the overall clearing extent for the project is 3.6ha.

3. BACKGROUND

Pinjarra – Williams Road is the only remaining single lane sealed main road in the South West Region. Based on safety standards and traffic volumes, its size and condition are generally considered sub-standard and requiring improvement. Works have been scheduled and are progressing in stages between Marradong and Quindanning with this being one of the final stages.

With the opening of the New Perth Bunbury Highway in 2009, Pinjarra – Williams Road, in conjunction with the proposed Pinjarra bypass and Greenlands Road, is predicted to provide access to the Port of Fremantle, which will increase the likelihood of it being used to transport freight.

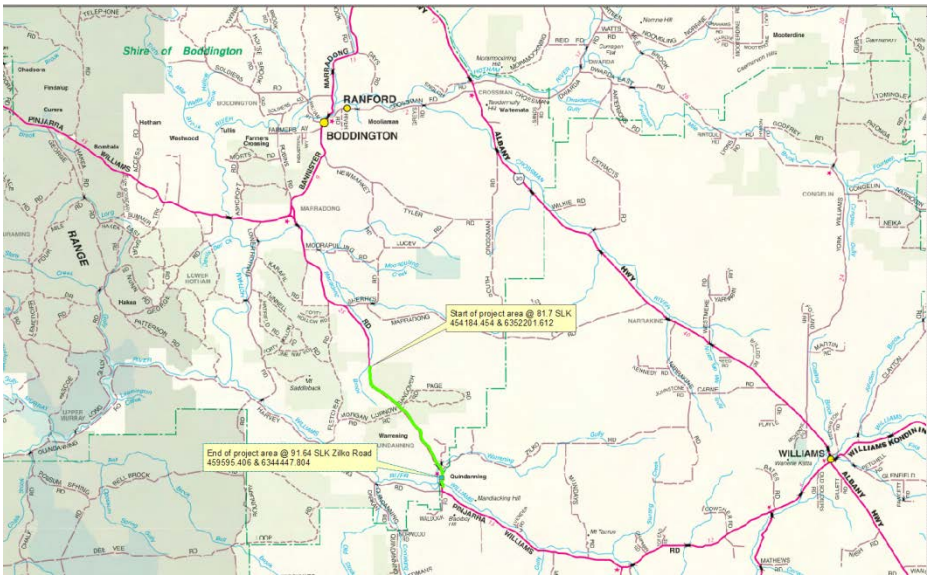
The current seal width along this section varies from 3.8 – 5.7m which is insufficient for opposing vehicles to pass each other without either or both leaving the sealed surface. Many drivers are unaware of the usual convention of passing on single lane sealed roads by moving the left wheels onto the gravel shoulder and this could lead to confusion. Even for those who are aware of the conventions, leaving the sealed surface introduces an additional driving hazard that is not appropriate on a modern road.

Flora and Fauna Surveys have been recently undertaken. Based on the information provided and in order to reduce the amount of vegetation cleared, the design of the widening has been adjusted to avoid some potential habitat trees and threatened flora populations.

As per Main Roads' Environmental Assessment and Approval process, the Low Impact Environmental Screening Checklist has been completed for the proposal (Appendix A). As the proposed works involve the clearing of native vegetation and the expansion of the existing road reserve, the preparation of a project specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) are required. This report fulfils this requirement.

4. DESCRIPTION OF THE PROJECT

The project locality and study area are shown in the figures below:



Locality map

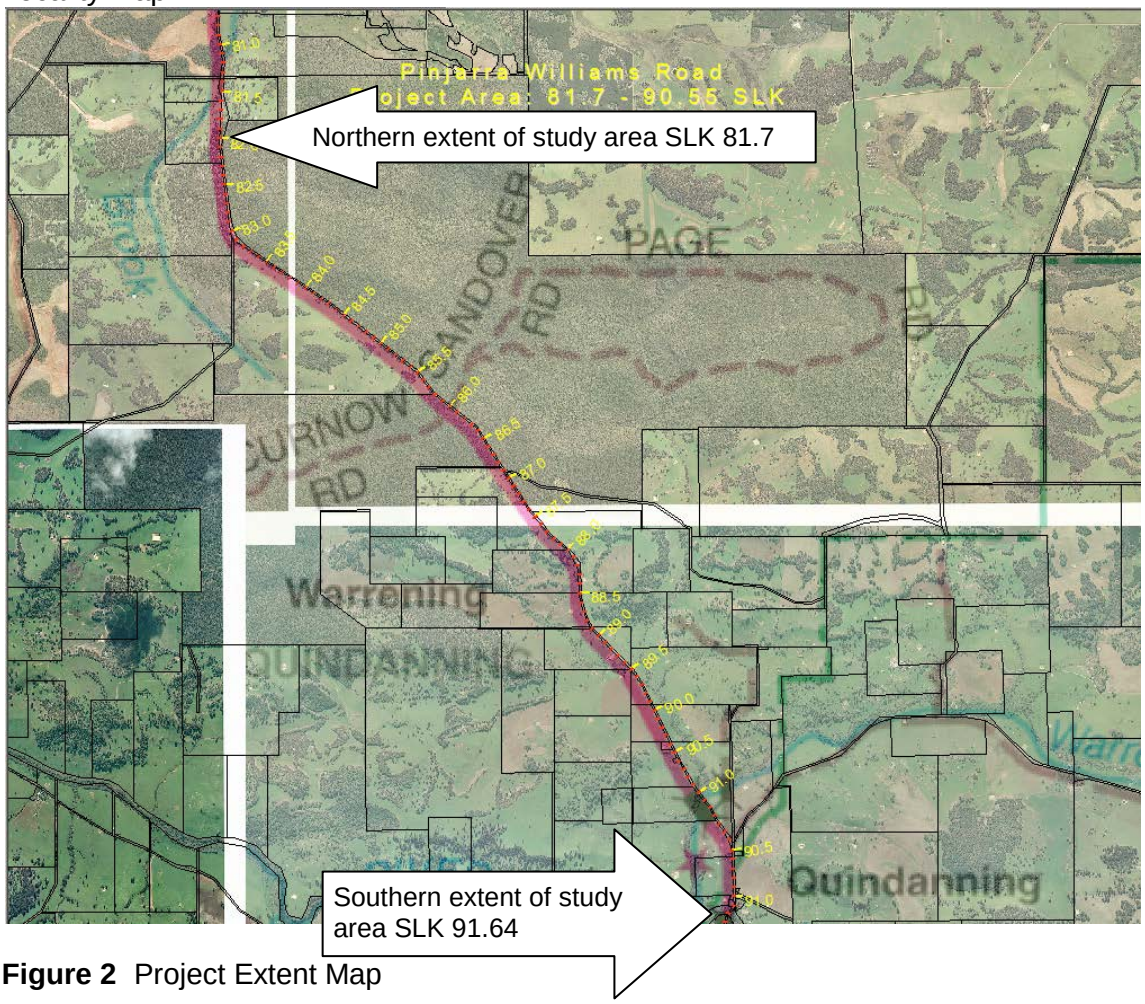


Figure 2 Project Extent Map

5. METHODOLOGY OF THE STUDY

Low Impact Environmental Screening Checklist

A Low Impact Environmental Screening Checklist was completed by the Project Manager and reviewed by the Environment Officer (Appendix A).

Preliminary Desktop Study

A preliminary assessment of the project area and its potential constraints was undertaken by reviewing a number of government agency managed databases and consulting with the relevant government organisations where necessary. Additional surveys have also been undertaken to further investigate aspects that were identified as being potentially impacted.

Environmental Constraints

Main Roads GIS database
Appendix B

Flora

Department of Environment and Conservation assessment for Threatened Flora, Threatened Ecological Communities and Environmentally Sensitive Areas
DEC advice regarding Threatened Flora survey
Floral Survey undertaken by Onshore Environmental Consultants (May 2010) (B10#8627)
Correspondence with DEC Threatened Communities Branch re Priority species
Weed advice from Peel District officer
Appendix C

Fauna

Cockatoo and Opportunistic Fauna survey: Greg Harewood (April 2010) (B10#8163)
Appendix D

Land

SLIP database WA Atlas: Salinity & Acid Sulphate Soils
https://www2.landgate.wa.gov.au/slip/portal/services/wa-atlas.html
Department of Agriculture and Food: Land Degradation Assessment
Department of Environment & Conservation: Contaminated Sites Register
http://www.dec.wa.gov.au/content/view/5627/2295/
Appendix E

Dieback

Department of Environment and Conservation Dieback Assessment
Appendix F

Water

Department of Water:

- Public Drinking Water Source Area
- Bed & Banks Permit
- Country Water Supply Area
- Geographic Atlas

http://www.water.wa.gov.au/idelve/dowdataext/index.jsp
Landgate: Shared Land Information Platform (SLIP)
*https://www2.landgate.**wa**.gov.au/slip/portal/services/**wa-atlas**.html*
Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA) mapping tool *http://www.anra.gov.au/mapmaker/mapservlet?app=anra*
Appendix G

Heritage

Australian Heritage Places Inventory *http://www.heritage.gov.au/ahpi/index.html*
Western Australian Heritage Council Register *http://register.heritage.wa.gov.au/*

Department of Indigenous Affairs Heritage Enquiry System
http://www.dia.wa.gov.au/AHIS/Default.aspx
Ethnographic and Archaeological Survey: Brad Goode June 2010 (B10#11883)
Appendix H

Matters of National Significance
EPBC Act Protected Matters Search Tool
http://www.environment.gov.au/erin/ert/epbc/index.html
Appendix I

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

Commonwealth and State 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. 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.

6. SITE INVESTIGATION

A site visit was carried out by the Environment Officer, Project and Asset Managers 6th November 2009 to examine the general features of the area. The broad vegetation types in the vicinity of the project area were identified. Other issues were considered including topography, the impacts on any creek lines, property access and the potential for noise and vibration impacts.

Photos showing the typical road side vegetation were taken (Appendix J) and the following was noted from site investigations:

- The vegetation to be cleared consists of marri, jarrah and wandoo woodland;
- The road reserve is quite narrow: approx 20m with only 4-5m of vegetated verge on each side of the road
- Other than shrub and sapling material, trees generally range from between 100-400 mm in diameter with the occasional tree up to 600 mm diameter.
- Using the Keighery Vegetation Condition Rating; the condition of the native vegetation to be cleared ranges from Rating 4 - 6: Good to Completely Degraded.
- The project area adjoins farmland, BHP (Crown land) and a timber reserve.
- The soils are mainly gravel / lateritic.

Site Investigation	**Description/Comment**
Total area (ha) of native vegetation to be cleared	3.6
Total area (ha) of other vegetation, including regrowth, landscape areas, to be cleared	n/a
Weeds present	Some grasses present from adjoining farmland
Drainage areas or wetlands present	3 minor ephemeral (non-perennial) watercourses cross the road
Adjacent land uses	Farmland, timber reserve and BHP (leased Crown land)

7. CONSULTATION LIST

Contact	Date	Organisation	Comment
Stefan De Haan District Manager	2/03/10	DEC Perth Hills District	Threatened Flora
Marnie Swinburn Conservation Officer (flora)	10/03/10	DEC Perth Hills District	Threatened Flora survey
Marnie Swinburn	June 2010	DEC Perth Hills District	Threatened Flora impact
Paul Tholen Nature Conservation Officer Fauna and Land Planning	01/06/10	DEC Perth Hills District	Threatened Fauna
Lindsay Strange, Peel Bio-security Officer	23/02/10	Department of Agriculture and Food	Declared Weed advice
Brett Dunn Program Manager – Urban Water	25/02/10	Department of Water	Public Drinking Water Source Area Country Water Supply Area Bed & Banks Permit
Dayne Ivandich Disease Hygiene Officer	08/02/10	Department of Environment and Conservation	Dieback Assessment
Greg Harewood	April 2010	Consultant zoologist	Cockatoo and Opportunistic Fauna survey
Brad Goode	June 2010	Brad Goode & Associates – Consulting Anthropologists & Archaeologists	Ethnographic and Archaeological Survey
Dr. Paul Bull & F. Obbens	May 2010	Onshore Environmental Consultants	Floral Survey
Dr. Ken Atkins	24/10/10	Manager, Species and Communities Branch, DEC	Taking of Priority Flora

8. CLEARING OF NATIVE VEGETATION

As noted in the Low Impact Environment Assessment, native vegetation will be required to be cleared outside of the maintenance zone and the existing road reserve will be expanded for the construction footprint.

In assessing whether the project is likely to have a significant impact on the environment, the clearing was assessed against the Clearing Principles and was initially considered to be 'may be at variance' to Clearing Principles (a & c). In accordance with Part 2: Section 8(a) of Main Roads Clearing Permit (818/4), submissions were invited from stakeholders. Responses were received from the Department of Water (DoW) and Department of Environment and Conservation (DEC) (Appendix L).

DoW had no concerns but advised that a Beds & Banks Permit would be required if any water courses were to be impacted.

The DEC had requested the Flora and Fauna Surveys for review prior to making a submission. The Fauna Survey covered two project locations on Pinjarra Williams Road and DEC considered the impact of both these areas in their submission thereby concluding the project may be at variance to Principle (a) and is at variance to Principle (b). Main Roads responded to these concerns of variance by adjusting the road widening design and clarifying the actual extent and scope of the project (Appendix L). There was no further response from DEC for twelve months.

Version 4 of the EIA considers that the project may also be at variance to Principle (f).

Further details are included in the Vegetation Clearing Assessment Report in Appendix K.

9. ASPECTS AND IMPACTS

Table 1: Aspects and Impacts – Pinjarra Williams Road widening (81.7 – 91.64 SLK)

Aspect	Evaluation of Potential Impacts
Air quality	Not relevant to the proposed works
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	The project area occurs in potential foraging and nesting sites of the following birds that are listed under the EPBC Act: - Forest Red-tailed Black Cockatoo : Vulnerable - Baudins Black Cockatoo (long billed): Vulnerable - Carnabys Black Cockatoo (short billed): Endangered - Mallee Fowl: Vulnerable A cockatoo and opportunistic fauna survey was completed by Greg Harewood (April 2010) and a report and map of significant remnant vegetation, potential cockatoo breeding hollows and habitat trees (i.e. small hollows) was compiled (Appendix D). According to the report the entire area is considered to be potential foraging and feeding habitat. There are 15 potential cockatoo habitat trees in this section (Area B of the report) that are required to be cleared. The assessment of the fauna consultant of the significance of the impact of the clearing is that it would not impact on matters of National Environmental Significance as protected under EPBC Act (1999). *"An assessment of the likelihood of significant impact on EPBC Act listed species present suggests that it is highly unlikely that the impact caused by the proposed road works would trigger any of the significant impact criteria. This is primary because of the relatively small area of clearing required, the fact that it is spread over a wide area and the existence of substantial areas of habitat areas nearby." (p iv Harewood)* The road reserve for the entire length of the project is quite narrow (approx 20m) with only 4-5m of vegetation on the verges. The condition of this vegetation is from Good to Degraded, so would limit potential habitat for other ground dwelling fauna species.
Vegetation – clearing	The vegetation under application is 3.6 Ha of native vegetation with a condition rating ranging from Good to Completely Degraded (*Keighery, 1994*) spread over 8.85 kilometres of road reserve. The Vegetation Systems associated with these proposed works include Bannister 3 which retains 57% of its pre-European extent, of which 67% is retained within DEC managed lands; Bannister 4 retaining 35% of which 44% is retained within DEC managed lands and West Darling 3 retaining 87% of the pre-European extent of which 88% is retained within DEC managed lands. Threatened flora and fauna issues are dealt with in separate sections of this table.
Vegetation – TECs/DRF	No Threatened Ecological Communities or ESAs have been identified within the project area. (Appendix C) Correspondence from DEC (Perth Hills District, 2/03/10) indicated that from their search of the DEC's Threatened Flora Database and the WA Herbarium's Flora Base that although no Declared Rare Flora species were recorded alongside or within 200m of the project area, 5 priority species occur within close proximity to the project area and in the same vegetation complexes through which the road widening is to occur. These are: • *Calytrix simplex* subsp. *simplex* (P1) • *Stylidium marradongese (P3)* • *Tetratheca pilifera (P3)* • *Templetonia drummondii (P4)* • *Senecio leucoglossus (P4)* DEC recommended that Main Roads further investigate the possible occurrence of threatened flora along the section of Pinjarra-Williams Road prior to road works taking place. A targeted flora survey was undertaken by Onshore Environmental Consultants in April 2010 and the above species were not found. However, two populations of *Goodenia katabudjar* (P3) were found adjacent to the timber reserve. The design for the project was

Table 1: Aspects and Impacts – Pinjarra Williams Road widening (81.7 – 91.64 SLK)

Aspect	Evaluation of Potential Impacts
	adjusted to avoid the majority of the plants by widening on the opposite side of the road but approximately twenty plants (of 820 in total) will be impacted. Further correspondence with DEC Perth Hills District indicated that this would be an acceptable level of impact but may be at variance to the Clearing Principles (Appendix C). Additional correspondence with DEC Species and Communities Branch (Dr Ken Atkins) (Appendix C) confirmed that the resultant outcome was "*not considered to be a significant impact to the conservation of this species, either at this site, or overall*".
Vegetation – weeds	Department of Agriculture and Food (*Lindsay Strange, Peel Bio-security Officer – 23/02/10)* noted that there may be the odd occurrence of Cotton Bush in the project area, and these plants must be removed ie if they had no seeds, pulled and left along the roadside (not in the adjoining paddock) or if with seeds, they need to be legally destroyed. (Appendix C) It was also noted that Cape Tulip might occur in the project area but would not be seen at this time of the year and standard weed hygiene measures should be applied for all earthworks in the area to minimise the spread of all weed species.
Vegetation – dieback	A dieback survey of the project area was undertaken by DEC in February 2010. Along the length of the proposed works there are both uninfested / protectable and uninterpretable / protectable areas (Appendix F). Overall though *"There was no disease expression apparent, and no evidence of the disease was found along the area of interpretation".* (DEC Feb 2010)
Reserves / Conservation areas	Timber Reserve (O171/25) vested with the Conservation Commission is adjacent to Pinjarra-Williams Road on the north side between SLK 81.8 & 85.4 and on both sides between SLK 85.4 & 87.6. Land will need to be acquired from this reserve to undertake the realignment stage of the project. There will be no other impact on the reserve as all proposed works will be within the (current & future) road reserve. There is also a 631ha conservation reserve Mooradung Nature Reserve (R 32448) located approximately 7.8 kilometres north east of the project area.
Heritage (non-indigenous)	No places of heritage significance were found to be present within the proposed works area.
Aboriginal heritage	An Aboriginal Heritage Survey (archaeological and ethnographic) was completed in March 2010 and there was found to be no sites of Aboriginal heritage significance within the project area. In regard the four sites identified in a search of the DIA Aboriginal Sites Register, the survey report states that: "*Main Roads have no further legal obligations with regards to these areas and no further action is required by Main Roads with regards to these formerly reported sites."*
Surface water/drainage	The proposed works will not disturb or interrupt any natural drainage and surface run-off patterns as existing culverts will be replaced and extended. Works are programmed to occur during dry summer months.
Wetlands	Advice from DoW indicated that there were no significant wetlands or waterways located along the alignment. However there is a wetland area for approx 400m north of the Warrening Gully (which is not ephemeral) between SLK 90.5 and 91.0 at the southern extent of the project.
Groundwater	No dewatering nor drainage modifications are required, hence no change to groundwater level or quality.
Noise and vibration	There are 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. Vibration impacts to be dealt with through the construction process.
Visual amenity	The proposed works will result in moderate visual impacts during and after construction, mainly because most of the project area occurs adjacent to vegetated timber reserve.
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.
Hazardous	Not relevant to the proposed works.

Table 1: Aspects and Impacts – Pinjarra Williams Road widening (81.7 – 91.64 SLK)

Aspect	Evaluation of Potential Impacts
substances	
Contamination	Given the relatively superficial nature of the required earthworks, there appears to be a low risk of any significant contamination issues. The proposed works occur adjacent to farmland and timber reserves and there are no other known previous land use activities on or adjacent to the project area that have had the potential to create contamination, eg petrol station. Also the DEC Contaminated Sites Register was checked and it did not indicate the presence of any contaminated sites (Appendix E).
Salinity	There is a low risk of increasing salinity on and off site given the ironstone gravel soils are associated with a low risk of salinity and the linear nature of the road widening (Appendix E)
Acid Sulphate Soils	The proposal will have nil to low risk of acid sulphate soils due to the ironstone gravel soils that predominate. Also there will be no excavating or dewatering of the site (Appendix E).
Statutory Land Use Planning	The proposed works are mostly within the existing road reserve. Additional land will be acquired in accordance with the Land Administration Act.

10. DECISION TO REFER

Given the small scale of the project, the low significance of its impacts to the surrounding environment both at a local and national level and the environmental management measures proposed, it is concluded that the project does not require referral to the WA Environmental Protection Authority or the Commonwealth Department of the Environment, Water, Heritage and the Arts.

The clearing of native vegetation and its impact to fauna, in particular to endangered cockatoos, is considered to be the main issue for this proposal under both legislations. However 5.34km of the project area occurs adjacent to and/or transects the Conservation Commission Timber Reserve (O 171 25) which is 2428.1 Ha in size. The proposed clearing of 3.6 Ha of native vegetation over a linear distance of 8.85km is therefore not regarded as a significant impact to fauna due to the large adjoining area of native vegetation.
The removal of 15 potential (not actual) habitat trees is not considered to be of significance, as according to the fauna survey it was reported that:

"Based on the assessment results and despite the fact that the area is or is possibly being utilised by some species of conservation significance...the area requiring clearing is very unlikely to have what would be considered a high level of biological diversity or constitute the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.
This opinion is based on the fact that fauna habitats present within the proposed clearing footprint are generally degraded, are common and widespread within the general area and the faunal assemblage potentially present is unlikely to be of high diversity or different to that found in similar habitats located elsewhere in the region. It can therefore be concluded that the area to be cleared does not contain habitats of high ecological significance from a faunal perspective or contain faunal assemblages that are ecologically significant. Existing fauna populations (including those of conservation significant species) are very unlikely to be affected by the loss of small areas of habitat spread out over such a distance." (Harewood, G., April 2010, *Black cockatoo habitat assessment Pinjarra-Williams Road (part) Quindanning*, piii).

11. 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 EIA. The project specific management measures identified within this EMP are in addition to the standard specifications used for Category 3 projects. The environmental management measures/conditions in Main Road's Specifications 203, 204, 301, 302 and 304 are still to 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					
Timing	**Area of management**	**Management objective**	**Management Strategy**	**Responsibility**	**Whose advice**
Pre-construction	Vegetation Clearing - Record-keeping	The project should maintain the required records related to clearing native vegetation under the purpose permit	Clearing: • a copy of the EIA & 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.	Project Manager	DEC
	Vegetation - Clearing	Maintain and, where possible, enhance the biological integrity of the surrounding environment. Minimise vegetation loss and degradation. Ensure the retention of as many habitat trees, shrubs and vegetated corridors for fauna as possible particularly those identified from the cockatoo survey.	Selection of designs/locations that minimise adverse impacts on the biological environment.	Project Manager	Main Roads
			Construction works are to be undertaken in the drier months to reduce the potential for soil erosion due to vegetation removal and heavy rains.	Project Manager	Main Roads
	Weed & pathogen Management	Ensure weeds and pathogens are not spread as a result of clearing and construction operations	• Remove any Cotton Bush in the alignment prior to clearing. If no seeds: pull and leave along the roadside (not in the adjoining paddock). If with seeds: legally destroy. • Apply standard weed hygiene measures for all earthworks in the area. • Construction works to be undertaken in the drier months to reduce the potential for pathogen spread. • Establish 'Clean on Entry' (COE) points at each end of the project; to reduce introduction of weeds and pathogens onto the site (see Appendix F). • Ensure that plant and equipment brought on to the site is clean of soil. All machinery is to be	Project Manager	DAF

			high pressure cleaned before arrival to the site to reduce the introduction of dieback and prior to departure to remove any dirt fragments that might contain Cape Tulip bulbs (or other bulb weeds) to reduce the risk of spreading bulbs.		
	Threatened flora management	Prevent impacting threatened flora	• Install temporary bunting fencing around the identified populations during construction phase • Install permanent SEA yellow markers to prevent future maintenance works from impacting Priority plants (*Goodenia katabudjar)*		
Construction	Impact to native fauna	Reduce likelihood of injury to fauna	• Program clearing for the months of April, May or June so as to avoid the peak breeding times for all cockatoo species. • All staff working on site should be made aware that native fauna is protected. • Employ a "fauna spotter" to inspect logs trees and hollows where possible before clearing. • Trees observed to contain hollows should be felled in an appropriate manner. • Hollows within fallen trees should be inspected for fauna prior to removal from the site. • If feasible any fauna encountered should be relocated to suitable retained habitat nearby.	Project Manager	Main Roads (from fauna survey report)
		Improve fauna habitat	• No dead, standing or fallen timber should be removed unnecessarily. • Logs (hollows or not) and other debris resulting from land clearing should be retained where possible by pushing the logs into the surrounding forest, when significant disturbance to the forest can be avoided; or used to enhance fauna habitat in adjacent rehabilitated areas. • Logs should be cut so that the length of the log outside the clearing area remains insitu.	Project Manager	Main Roads (from fauna survey report)

	Public disturbance	Ensure construction works do not become a nuisance to the public	Access to private property, appropriate traffic management measures and pedestrian access should be planned and implemented prior to the construction of works.	Contractor	Main Roads
	Noise, Vibration and Dust	Reduce noise, dust and vibration impacts	Any complaints regarding dust will be attended to as soon as possible.	Contractor/Project Manager	Main Roads
			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.	Contractor	Main Roads
			Watering, the use of hydro-mulch or other forms of mulching to protect loose surfaces shall be used as mitigation measures	Contractor	Main Roads
	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.	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.	Contractor	Main Roads
			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.	Contractor	Main Roads
			Dumping or temporary storage of bitumen, asphalt,	Contractor	Main Roads

			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.	Contractor	Main Roads
	Aboriginal Heritage	Ensure that there is no unauthorised disturbance to Aboriginal heritage sites during construction.	• All staff working on site should be made aware of their obligation to report any archaeological material, should it be encountered during earthmoving. • 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.	Contractor/Project Manager	DIA
			The Department of Indigenous Affairs will be notified in the event of any significant Aboriginal Heritage discovery.		
			If skeletal material is uncovered during works then the WA Police Service will also be advised immediately.		
	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 or fire extinguishing equipment will be on site at all times.		
Post - Construction	Rehabilitation	Leave the project area free from debris and where possible rehabilitate using local species.	• 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.	Contractor	Main Roads

12. REFERENCES

Department of Environment and Conservation, February 2010, *Phytophthora Disease Interpretation Report "Main Roads Western Australia – Pinjarra Williams Road Roadworks*"

Goode, B. for GHD Pty Ltd upon behalf of Main Roads July 2010: *An Aboriginal Heritage Survey of a Section of the Pinjarra Williams Road, between Marradong and Quindanning – 67.5 to 91.68 SLK, in Western Australia.*

Harewood, G., April 2010, *Black cockatoo habitat assessment Pinjarra-Williams Road (part) Quindanning).*

Keighery BJ 1994, *Bushland Plant Survey.* "*A Guide to Plant Community Survey for the Community*" Wildflower Society of WA (Inc.), Nedlands.

Onshore Environmental Consultants, May 2010, *Targeted Flora Survey – Pinjarra Williams Road (Marradong and Quindanning section).*

Appendix A

LOW IMPACT ENVIRONMENTAL SCREENING CHECKLIST

Form No. 6707/001/01

Checklist - Low Impact Environmental Screening

The Low Impact Environmental Screening Checklist is part of the environmental assessment and approval process, and in the procedures. 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, ie that will have a low impact on the environment and that can be adequately managed through standard contract clauses.

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. Circle the relevant part of the item.

Project Name Pinjarra Williams Road widening and realignment 81.7 SLK – 90.5 SLK

ITEM NO.	ITEM	Y	N
1	New road or road reserve to be created or expansion of existing road reserve.	✓	
2	Works require ground disturbance or clearing of native vegetation.	✓	
3	New, or expansion of existing, pits or quarries. (non-commercial sources)		✓
4	Adjoining sensitive land use. eg residential or hospital or education centre		✓
5	Passes over, adjoins or drains directly into a wetland or sensitive watercourse.	X	
6	Local natural drainage regime / hydrology will be changed.		✓
7	Within/immediately adjacent to surface/underground Public Drinking Water Source Area.		
8	Dewatering, or a new water bore.		✓
9	Known potential source of hazardous materials within or adjoining the road reserve. e.g. Acid Sulphate Soils, existing petrol station, industrial site or waste disposal site (landfill)		
10	Buildings will require demolition.		✓

Completed By: *Signature* _____ *Date* 22/4/10

Name JACK BENZIE *Title* EA

To be reviewed by a Main Roads Environment Officer: *Signature* _____ *Date* 22/4/10

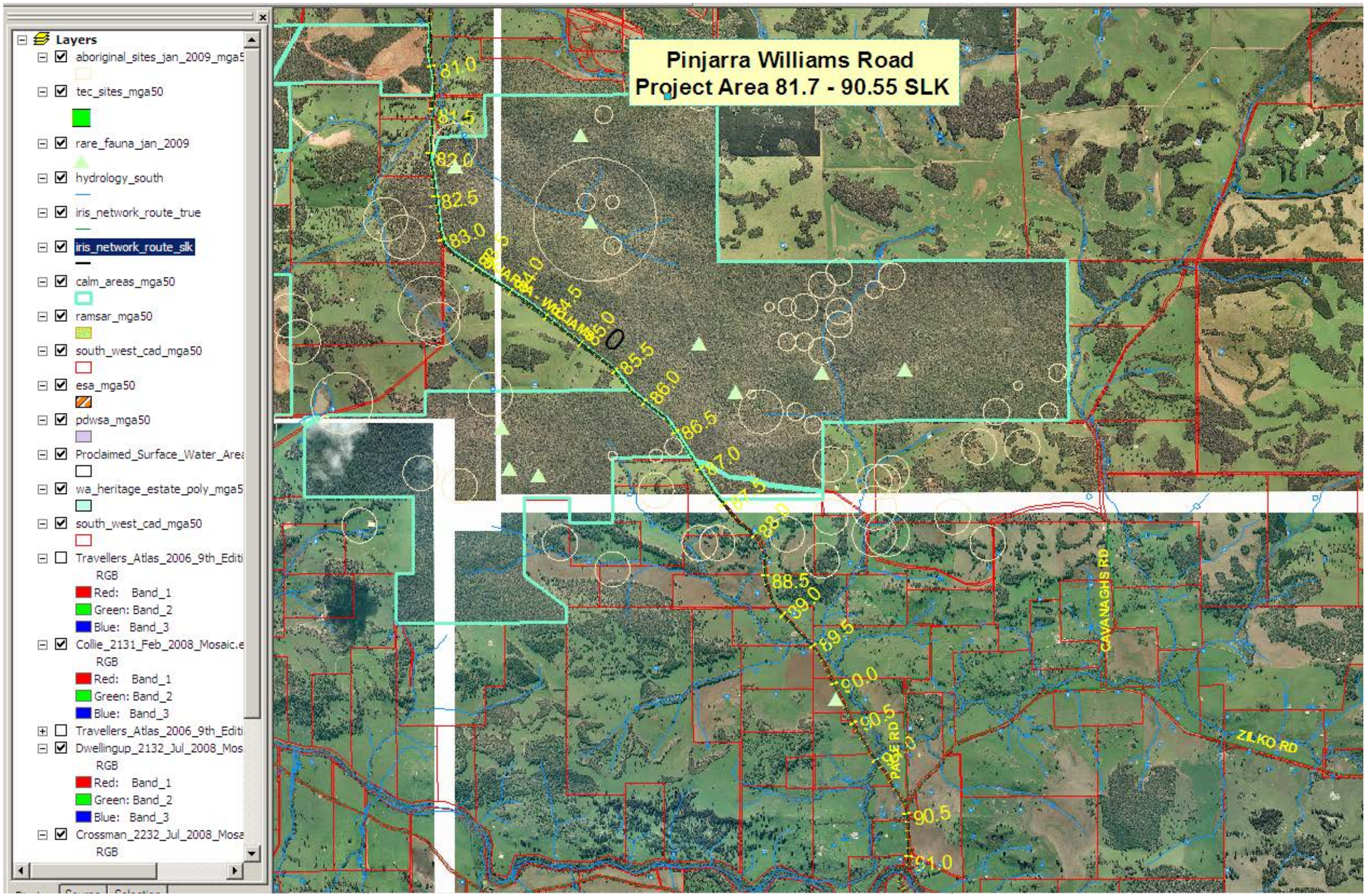
Name JEANETTE DELLA-BONA *Title* E.O.

Comments: _____

MAIN ROADS Western Australia
Low Impact Environmental Screening Checklist.doc

Appendix B

MAIN ROADS GIS DATABASE RESULTS



Main Roads GIS data base search results for environmental aspects

Appendix C

FLORA

- Department of Environment and Conservation assessment for Threatened Flora, Threatened Ecological Communities and Environmentally Sensitive Areas
- DEC advice regarding Threatened Flora survey
- Flora Survey Onshore Environmental (extracts)
- Correspondence with DEC Perth Hills District re Priority species
- Correspondence with DEC Species and Communities Branch re P3 flora
- Weed advice from Peel Bio Security Officer

Government of **Western Australia**
Department of **Environment and Conservation**

Your ref: MRSW M 1209
Our ref: 2005F179V01
Enquiries: Paul Tholen
Phone: 9295 9106
Fax: 9295 9101
Email: paul.tholen@dec.wa.gov.au

File 09/3981
Document No. BIO# 4448
Resp. Officer PDOE DELLA BONA

Jeanette Della-Bona
Environment Officer
Main Roads – South West Region
Robertson Drive,
PO Box 5010,
Bunbury WA 6231

MAIN ROADS W.A.
BUNBURY
5 MAR 2010
RECEIVED

Attention: Jeanette

Proposed Road Works: Pinjarra-Williams Road Moorapulling Road to Zilko Road

I refer to your correspondence of 17 November 2009, seeking comments on the above Proposed Road Works. The Department of Environment and Conservation (DEC) provides the following advice:

Current state of Pinjarra-Williams Road

It has been identified that the Pinjarr-Williams Road, section between Moorapulling Road and Zilko Road requires hazard reduction maintenance (approximately 20 km in length). The proposal is to minimise clearing of vegetation, however in some cases both sides of the road will be cleared up to a width of 6 meters from the *new edge seal*.

Clearing Permit:

It has been recognised that Main Roads has a statewide purpose permit which covers general clearing for road widening; however where clearing has the potential to impact threatened flora, the proposal may be at variance to principal "A" and therefore the holder of the permit will need to seek submissions from the Native Vegetation Conservation Branch (NVCB) of DEC.

Potential impacts upon identified threatened flora:

A desktop assessment has identified records of Priority flora located within the vicinity of the proposed road works. The vast majority of this threatened flora is concentrated in vegetation surrounding Mount Saddleback, which is within the same vegetation complex (Coolakin) as where the proposed road works are to take place.

The upgrade of the road may be at variance to principal "A" of Native Vegetation Protection legislation which relates to the taking of threatened flora namely: *Calytrix simplex* subsp. *simplex* a Priority 1 species, which is recorded in the Coolakin vegetation complex.

Priority One - Poorly Known: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey

Reduced Road length requiring maintenance:

Recent correspondence from Jeanette Della-Bona (28 January 2010) indicates the length of road subject to maintenance has been reduced to an 8 km length from the Worsley Bauxite Mine Access Road to Quindanning. This section has a higher concentration of threatened flora within close proximity than has the southerly section, with the majority of the road being across the Coolakin vegetation complex.

Perth Hills District
51 Mundaring Weir Road, MUNDARING WA, 6073
Ph: (08) 9295 9100 Fax: (08) 9295 9101
www.dec.wa.gov.au

Summary/Recommendations

DEC recommends the Department of Main Roads further investigate the possible occurrence of threatened flora along the section of Pinjarra-Williams Road as detailed above, prior to road works taking place. A flora survey will need to be carried out by a qualified botanist at an appropriate time of year in accordance with EPA Guidance Statement 51.

Results of the flora survey will need to be submitted to the Native Vegetation Conservation Branch for assessment and further comment.

Should you have any queries regarding this advice please contact Paul Tholen on: 9295 9106.

Yours sincerely

Stefan de Haan
District Manager
Perth Hills District

2 March 2010

RESULTS OF ASSESSMENT
Comments on assessment:

A desktop search of DEC's Threatened Flora Database and the WA Herbarium's Flora base indicated that although No Declared Rare flora species were recorded alongside or within 200 meters of the 20.06 km of road subject to this proposal, five species of Priority flora occur within close proximity to the proposed program of works and in the same vegetation complexes through which the road widening is to occur.

The species of Priority flora that could potentially occur on either side of the road include: *Senecio leucoglossus* a Priority 4 species found within the Michibin Complex; and *Calytrix simplex* subsp. *simplex* (P1), *Styliduim marradongense* (P3); *Tetratheca pilifera* (P3) and *Templetonia drummondii* (P4), which occur within the Dwellingup D4 Complex.

The Environmental Protection Authority's, *"Guidance for the Assessment of Environmental Factors". 'Level of assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain". No 10 2006.* specifically notes, " The National Objective sand targets for Biodiversity Conservation 2001-2005 (Commonwealth of Australia 2001a) recognise that the retention of 30%, or more, of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected. This percentage level of retention is also adopted in the EPA's Position Statement No 2 on environmental protection of native vegetation in Western Australia (EPA 2000)."

- The proposed upgrade of Pinjarra-Williams Road, occurs within the Northern Jarrah Forest and across the Coolakin, Dwellingup (D4), Michibin, Williams and Yalanbee (Y5) vegetation Complexes. The Vegetation Systems associated with this Program of Works include Bannister 3 which retains 57% of its pre-european extent, of which 67% is retained within DEC managed lands; Bannister 4 retaining 35% of which 44% is retained within DEC managed lands and West Darling 3 retaining 87% of the pre-european extent of which 88% is retained within DEC managed lands. DEC has been advised that this program of works involves an upgrade of existing roads and there will be no significant clearing involved.

The upgrade of the road occurs in native vegetation complex that, as outlined above, meets the formal reserved target for vegetation protection; however the proposed maintenance may be at variance to principal "A" of Native Vegetation Protection legislation which relates to the taking of threatened flora namely: *Calytrix simplex* subsp. *simplex*, which is recorded in the Coolakin vegetation complex surrounding Mount Saddleback.

Priority One - Poorly Known: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey

DEC recommends the Department of Main Roads further investigate the possible occurrence of threatened flora along the section of Pinjarra-Williams Road as detailed above, prior to road works taking place. The flora survey will need to be carried out by a qualified botanist at an appropriate time of year in accordance with EPA Guidance Statement 51.

Signature:	Paul Tholen	Nature Conservation Officer	2/3/2010
Signature:	Stefan de Haan	District Manager	2/3/2010

Department of Environment and Conservation assessment for Threatened Flora, Threatened Ecological Communities and Environmentally Sensitive Areas: Pinjarra Williams Road from Moorapulling Rd (SLK 70.60) to Zilko Road (91.64)

From: Swinburn, Marnie [Marnie.Swinburn@dec.wa.gov.au] Sent: Wed 10/03/2010 8:39 AM
To: DELLA BONA Jeanette (EO)
Cc: Tholen, Paul
Subject: RE: Main Roads Flora report and Letter

First Previous

Hi Jeanette,

I have been advised that a survey for Calytrix simplex subsp. simplex is required during the flowering period in order to comply with EPA Guidance statement 51. If a survey was to be carried out in the non-flowering period it would not comply as the survey would fall outside of the optimal time for surveying this species.

DEC's Native Vegetation Conservation branch does consider the advice of experts such as WA Herbarium botanists and such an expert has been consulted and believes that if a thorough survey was completed at this time of year, a botanist would at best be able to rule out the presence of the target species if no Calytrix sp. were found. However, the main issues with surveying at this time of year are:

1. It would be difficult to observe any sterile Calytrix species amongst the vegetation 2. A botanist would find it difficult to separate to the species and subspecies level if any Calytrix spp were found (and therefore confirmation of the presence/absence of the target species may not be possible).

Acceptance of the reliability of surveys is done on a case by case basis by NVCB but I cannot comment on what the final decision maker would find acceptable. It is therefore advised that a survey carried out in the non-flowering period may not achieve the outcome that Main Roads requires and a survey during the flowering period of this species is recommended.

regards

Marnie Swinburn
Conservation Officer (Flora)
Department of Environment and Conservation Perth Hills District | Jarrahdale

Phone: (08) 9526 1204
Mobile: 0429 080 542
Fax: (08) 9525 5547
Address: 398 George Street JARRAHDALE WA 6124 Marnie.Swinburn@dec.wa.gov.au

-----Original Message-----
From: DELLA BONA Jeanette (EO) [mailto:jeanette.dellabona@mainroads.wa.gov.au]
Sent: Tuesday, 9 March 2010 12:12 PM
To: Swinburn, Marnie
Cc: Tholen, Paul; BENZIE Jaice (EA)
Subject: RE: Main Roads Flora report and Letter

Thanks Marnie

DEC advice regarding Threatened Flora survey

onshore environmental consultants
ABN 41 095 837 120
PO Box 227
YALLINGUP WA 6282

Jeanette Della-Bona
Environment Officer South West
Main Roads Western Australia
Robertson Drive
PO Box 5010
Bunbury Western Australia 6231

3 May 2010

RE: Targeted Flora Survey
Pinjarra-Williams Road (Marradong and Quindanning section)

For:
Main Roads Western Australia

Conducted by:
Dr J. P. Bull and Mr F. Obbens
Onshore Environmental Consultants
28th - 29th April 2010

Introduction

Main Roads Western Australia commissioned Onshore Environmental Consultants Pty Ltd (Onshore Environmental) to conduct a Targeted Flora Survey of roadside vegetation along two sections of the Pinjarra-Williams Road between Marradong and Quindanning (Figure 1). The first section (4 km long) was located between Marradong (the Bannister-Marradong Road turnoff) and the access road into the Worsley Alumina mine site. The second section (10 km long) commenced approximately 10 km south of the Worsley Alumina turnoff and finished at Zilko Road, just north of the locality of Quindanning. At a major bend in the road along the southern section (UTM 50 454320E, 6350866N), it was requested that the width of the survey area be increased to 30 m on the inside of the bend for a length of 300 m either side.

Methods

On the 28th and 29th April 2010, two botanists conducted a Targeted Flora Survey of the roadside vegetation along two sections of the Pinjarra-Williams Road. The methodology for the survey consisted of:

- Onshore Environmental personnel walking the entire survey area on both sides of the road, with a particular focus on sections with remnant native vegetation.
- A specific search for five Priority Flora species previously found in the surrounding area (as per data supplied by Main Roads Western Australia):
    - *Calytrix simplex* ssp. *simplex* (P1);
    - *Stylidium marradongense* (P3);
    - *Tetratheca pilifera* (P3);
    - *Templetonia drummondii* (P4); and
    - *Senecio leucoglossus* (P4).
- A search for other Priority or Declared Rare Flora;
- A description of habitat, population size and location information for each Priority or Declared Rare Flora taxon found. Location information included GPS waypoints and whether the populations were found on the east or west side of the road.

Flora Survey report (page 1 of 2)

10km section of the Pinjarra-Williams Rd north of Quindanning

One priority flora taxon was found at two locations; *Goodenia katabudjar* (Priority 3) - see Plate 1.

Population 1 occurred on the eastern side of the road approximately 3 km north of Zilko Road, on top of a cut that had been made through a small breakaway slope. The associated vegetation was a mixture of Wandoo (*Eucalyptus wandoo*), Marri (*Corymbia calophylla*) and Jarrah (*Eucalyptus marginata*) woodland over *Gastrolobium spinosum* and *Marianthus bicolor* with scattered weedy grasses, herbs and a deep leaf litter.

Population 2 occurred on both sides of the road approximately 400 m - 500 m south of the Curnow Road turnoff. This population was not continuous and could be separated into three sub-populations (See Table 1). The surrounding vegetation consisted of a Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) open forest with scattered trees of *Allocasuarina fraseriana* over a low shrubland of *Bossiaea ornata, Trymalium ledifolium* var. *rosmarinifolium* and *Hakea lissocarpha*. *Tetraria capillaris* and *Tetraria octandra* were the primary sedges.

Table 1. Location and Population Information for *Goodenia katabudjar* along the Pinjarra-Williams Rd

Population	Information	Side of Road	Est. No. Plants	Waypoint Code	UTM Zone	Easting	Northing
Population 1	Population 1 occurs **between** MRE12 and MRE14	Eastern; between 5-10m from tarmac	24	MRE12	50H	457943	6347476
				MRE14	50H	457936	6347476
Population 2	Subpopulation 2a occurs **between** MRW15 and MRW16	Western; between 4-10m from tarmac	500	MRW15	50H	457141	6348429
				MRW16	50H	457116	6348466
	Subpopulation 2b occurs **between** MRW17 and MRW18	Western; between 4-10m from tarmac	300	MRW17	50H	457107	6348486
				MRW18	50H	457096	6348499
	Subpopulation 2c	eastern; 5m from tarmac	20	MRE19	50H	457096	6348534

Flora Survey report (page 2 of 2)

Locations of Goodenia Katabudjar (Priority 3)

-----Original Message-----
From: Swinburn, Marnie [mailto:Marnie.Swinburn@dec.wa.gov.au]
Sent: Wednesday, 16 June 2010 4:02 PM
To: SWANSON Peter (PEO)
Subject: RE: Pinjarra-Williams Road 81.7 - 91.68 SLK P3 Goodenia katabudjar

Hi Peter,

I was out in the field and spoke to Jeanette via telephone. The gist of the conversation was that Veg Branch believed the clearing of the Priority flora Goodenia katabudja 'may' be at variance with the clearing permit conditions and that Main Roads would have to determine where the variances lay and consult your Purpose Permit. The clearing and purpose permits and how they are interpreted for this species are not within my area of knowledge so if you have any questions regarding these, please contact Belinda Walker at Native Veg Branch (DEC) on 9219 8707.

regards

Marnie Swinburn
Conservation Officer (Flora)
Department of Environment and Conservation Perth Hills District | Jarrahdale
Address: 398 George Street JARRAHDALE WA 6124 Marnie.Swinburn@dec.wa.gov.au

From: DELLA BONA Jeanette (EO) [mailto:jeanette.dellabona@mainroads.wa.gov.au]
Sent: Wednesday, 16 June 2010 12:45 PM
To: Swinburn, Marnie
Subject: RE: Pinjarra-Williams Road 81.7 - 91.68 SLK P3 Goodenia katabudjar

Hi Marnie
Could you please respond to peter.swanson@mainroads.wa.gov.au

From: Swinburn, Marnie [mailto:Marnie.Swinburn@dec.wa.gov.au]
Sent: Tuesday, 8 June 2010 8:59 AM
To: DELLA BONA Jeanette (EO)
Cc: Tholen, Paul
Subject: RE: Pinjarra-Williams Road 81.7 - 91.68 SLK P3 Goodenia katabudjar

Hi Jeanette,

Further to our conversation on Thursday, I have requested confirmation from DEC's Vegetation Branch that the taking the 20 plants in population 2C will not conflict with Main Road's clearing permit conditions. I will advise you of their response ASAP.

regards

Marnie Swinburn
Conservation Officer (Flora)
Department of Environment and Conservation Perth Hills District | Jarrahdale

Marnie.Swinburn@dec.wa.gov.au<mailto:Marnie.Swinburn@dec.wa.gov.au>

_____

From: Swinburn, Marnie
Sent: Wednesday, 2 June 2010 12:09 PM
To: Tholen, Paul
Subject: RE: Pinjarra-Williams Road 81.7 - 91.68 SLK P3 Goodenia katabudjar

Hi Paul,

Had a few discussions with Species & Communities Branch and Threatened Flora seed centre. There are a few points to consider regarding Jeanette's email:

The new population:

* Main roads or their environmental consultants are requested to complete a TPFRF and send to DEC to register this new population. I have attached the form and associated manual.
* A plant specimen is also requested to be collected and lodged with the WA Herbarium for verification

Level of impact

* SCB are appreciative of Main Roads efforts in limiting the impacts if they do indeed move the widening to the other side of the road. 20 plants would be considered a reasonable proportion of the population to disturb. Jeanette may wish to receive formal endorsement by contacting the Branch Manager, Species and Communities Branch via letter notifying them of the intention to take 20 plants and other efforts at mitigating the impact

Translocation/Seed Collection/Movement of Topsoil

* Translocation is considered the last resort in plant conservation and generally reserved for DRF species. To optimize success seed or seedlings are used rather than whole mature plants. Therefore it is not a recommended mitigation strategy. Further surveys of the area to identify other populations would be best.
* Seed collection is the preferred option in this case, where between 50-100 plants from the whole population/s are sampled not just those being disturbed. The Threatened Flora Seed Centre (TFSC) currently has no collections for this species and would be keen to add this species to their conservation store. However the timeframe to do so may not coincide with Main Roads works program. It appears the plant flowers in December and viable seed would have been present in March/April. An experienced seed collector is also required to ensure viable seed is collected. If Jeanette would like to pursue seed collection, then I recommend she contacts Anne Cochrane from the TFSC (9842 4526). I have notified Anne that Jeanette may be in contact with her.
* I would not recommend movement of topsoil outside of the road works due to potential disease transmission, however replacement of soil to areas once works have been completed may be a better alternative.

Hope I covered all issues. I am happy to discuss further with you or send directly to Jeanette if you wish.

regards

Marnie Swinburn

Conservation Officer (Flora)
Department of Environment and Conservation Perth Hills District | Jarrahdale

Phone: (08) 9526 1204
Mobile: 0429 080 542
Fax: (08) 9525 5547
Address: 398 George Street JARRAHDALE WA 6124
Marnie.Swinburn@dec.wa.gov.au<mailto:Marnie.Swinburn@dec.wa.gov.au>

_____

From: Tholen, Paul
Sent: Tuesday, 1 June 2010 9:26 AM
To: Swinburn, Marnie
Cc: Huston, Robert; jeanette.dellabona@mainroads.wa.gov.au; Spencer, Philip
Subject: FW: Pinjarra-Williams Road 81.7 - 91.68 SLK P3 Goodenia katabudjar

HI Marnie,

I have been dealing with this development for a little while now on the general upgrade of the Pinjarra-Williams Road - desktop analysis and some fauna issues.

This new query re: significant impact of a P3 population is probably something you are better able to deal with.

Please advise.

Regards,

Paul Tholen
Nature Conservation Officer
Fauna and Land Planning
Perth Hills District

Phone: 9295 9106
Mobile: 0409 379 134

_____

From: DELLA BONA Jeanette (EO) [mailto:jeanette.dellabona@mainroads.wa.gov.au]
Sent: Friday, 28 May 2010 4:57 PM
To: Tholen, Paul
Cc: GRIST Gristy (PM); Grist, Alan; BENZIE Jaice (EA)
Subject: Pinjarra-Williams Road 81.7 - 91.68 SLK P3 Goodenia katabudjar

Hi Paul

How are you? I am seeking “flora” advice on the proposal to widening along the Pinjarra Williams Road for 8.85km (see aerial below)... this is the Quindanning end of my original proposal to you for 8.85km. We sent out botanists again to look up those priority species you indicated might be in the area in our original correspondence:

- Calytrix simplex subsp. simplex (P1)
- Stylidium marradongese (P3)
- Tetratheca pilifera (P3)
- Templetonia drummondii (P4)

and instead of finding these, the P3 flora Goodenia katabudjar was found (see details further below in this email and also attached.) I have also checked on

the Australian Virtual Herbarium and attached an excel spreadsheet of where these P3s have been found in Australia too for your information.

I went out on site yesterday with the Project Manager and it seems that the only way we can avoid impact to the greater number of plants is by moving the widening to the other side of the road (eastern), however the smaller part of Population of the Goodenia will then be hit ie subpopulation 2c of 20 plants. (locations are marked out there with blue tape). This will be 2.5% of the total 820 plants that will be impacted in this population (2).

I am just checking with you if you deem this to be a significant impact and also seek advice on how we can best reutilise/transplant it if possible or if you want to collect seed? I was thinking we can outline in the management plan the best way to manage these 20 plants, eg by removing the plants and associated topsoil and respreading to areas you may suggest. I am also hoping to organise a Topsoil Management Plan for the whole project to utilise the good topsoil available from where the road passes through the timber reserve.

For your information and advice, please.

Kind regards

Jeanette Della-Bona
Environment Officer South West

Correspondence with DEC Perth Hills District regarding Priority Flora: *Goodenia katabudjar* (P3)

Mr K Atkins
Manager
Species & Communities Branch
Locked Bag 104
BENTLEY DELIVERY CENTER WA 6983

18 November 2010

Dear Ken

REQUEST TO TAKE P3 *GOODENIA KATABUDJAR*
PINJARRA WILLIAMS ROAD, QUINDANNING

Main Roads South West Region proposes to widen the Pinjarra Williams Road in the Quindanning area, mid 2011. Earlier this year a flora survey was undertaken and approximately 844 Priority 3 *Goodenia katabudjar* plants were found along the Pinjarra Road reserve. Our botanist has since reported the findings to the DEC (using the DEC Threatened and Priority Flora Report Form as requested by your branch).

A site inspection has been undertaken with the Project Manager and in order to minimise impact to the greater number of plants, it is possible to move the widening to the eastern side of the road. This will result in the smaller subpopulation of Goodenia (2c) of 20 plants being impacted (refer attached flora survey results).

We have received advice regarding Goodenia from the Species and Communities Branch via the Perth Hills District which includes the following:

1. To undertake seed collection of Goodenia where between 50 – 100 plants from the whole population are sampled (not just those being disturbed) as the Threatened Flora Seed Centre (TFSC) currently has no collection of this species. This plant flowers in December and viable seed would be present in March/April.
2. Anne Cochrane (from TFSC) has been contacted and arrangements have been made to have the seed collected.

Can you please confirm whether the removal of 20 Priority 3 *Goodenia katabudjar* plants is a significant impact with respect to known populations? Main Roads will in the meantime carry out the management recommendations listed above regarding this P3 plant. If you require any further information please contact me on 97255661.

Yours sincerely

Jeanette Della-Bona
ENVIRONMENT OFFICER

Correspondence with DEC Species and Communities Branch regarding Priority Flora: (P3) *Goodenia katabudjar* (1 of 2)

Government of **Western Australia**
Department of **Environment and Conservation**

Your ref: 09/4265
Our ref: D107906
Enquiries: Dr K Atkins
Phone: 08 9334 0425
Fax: 08 9334 0278
Email: Ken.atkins@dec.wa.gov.au

Ms Jeanette Della-Bona
Environmental Officer
Main Roads Western Australia
PO Box 5010
BUNBURY WA 6231

09/4265
Document No. B10#22765
Resp. Officer P.DOE Della Bona
Related B10#22261

Dear Jeanette

REQUEST TO TAKE PRIORITY FLORA

I refer to your letter dated 18 November 2010, and the associated flora report, regarding the proposed widening of the Pinjarra Williams Road, and the potential impact to the Priority 3 Flora *Goodenia katabudjar*.

The results of the flora survey have demonstrated that the proposed road widening is able to proceed with minimal impact to the sustainability of this population of Priority Flora, through appropriate road design.

The maintenance of the larger part of the population containing an estimated 800 plants, with the loss of the smaller subpopulation of 20 plants represents a good planning outcome, and is not considered to be a significant impact to the conservation of this species, either at this site, or overall.

The proposed management actions for this species are also supported.

I appreciate the approach that Main Roads has taken over the management of this site, and the advice provided to this Department.

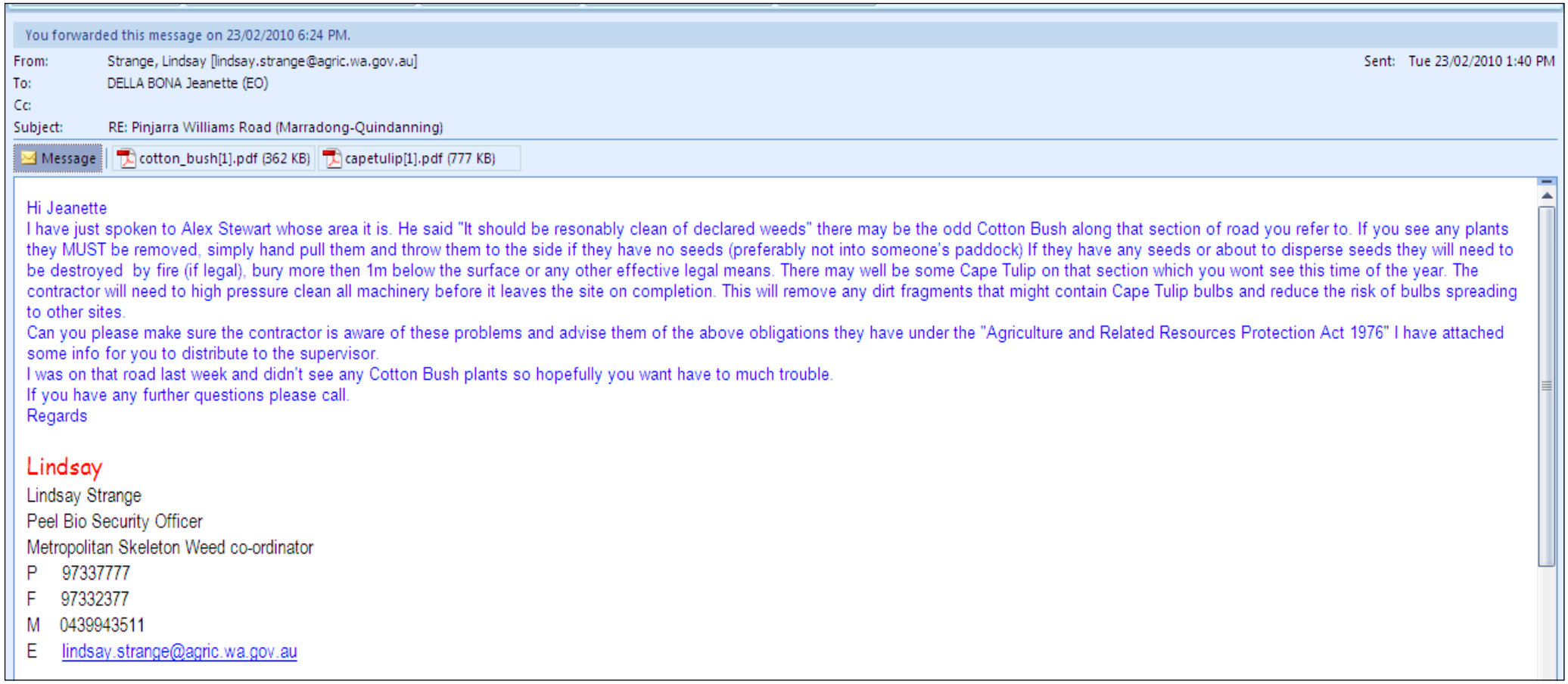
Yours sincerely

Dr Ken Atkins
Manager, Species and Communities Branch
for Keiran McNamara
Director General

24 November 2010

Species and Communities Branch: 17 Dick Perry Avenue, Technology Park, Kensington
Phone: (08) 9334 0455 Fax: (08) 9334 0278 Teletype: (08) 9334 0546
Postal Address: Locked Bag 104, Bentley Delivery Centre, Western Australia 6983
www.dec.wa.gov.au
wa.gov.au

Correspondence with DEC Species and Communities Branch regarding Priority Flora: (P3) *Goodenia katabudjar* (2 of 2)



You forwarded this message on 23/02/2010 6:24 PM.

From: Strange, Lindsay [lindsay.strange@agric.wa.gov.au] Sent: Tue 23/02/2010 1:40 PM
To: DELLA BONA Jeanette (EO)
Cc:
Subject: RE: Pinjarra Williams Road (Marradong-Quindanning)

Message | cotton_bush[1].pdf (362 KB) | capetulip[1].pdf (777 KB)

Hi Jeanette
I have just spoken to Alex Stewart whose area it is. He said "It should be resonably clean of declared weeds" there may be the odd Cotton Bush along that section of road you refer to. If you see any plants they MUST be removed, simply hand pull them and throw them to the side if they have no seeds (preferably not into someone's paddock) If they have any seeds or about to disperse seeds they will need to be destroyed by fire (if legal), bury more then 1m below the surface or any other effective legal means. There may well be some Cape Tulip on that section which you wont see this time of the year. The contractor will need to high pressure clean all machinery before it leaves the site on completion. This will remove any dirt fragments that might contain Cape Tulip bulbs and reduce the risk of bulbs spreading to other sites.
Can you please make sure the contractor is aware of these problems and advise them of the above obligations they have under the "Agriculture and Related Resources Protection Act 1976" I have attached some info for you to distribute to the supervisor.
I was on that road last week and didn't see any Cotton Bush plants so hopefully you want have to much trouble.
If you have any further questions please call.
Regards

Lindsay
Lindsay Strange
Peel Bio Security Officer
Metropolitan Skeleton Weed co-ordinator
P 97337777
F 97332377
M 0439943511
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Weed advice from Lindsay Strange: Peel Bio Security Officer

Appendix D

FAUNA

Extracts from Cockatoo & Opportunistic Fauna Survey Report

Black Cockatoo

Habitat Assessment

Pinjarra – Williams Road (part)

Quindanning

April 2010
Version 1

On behalf of:
Main Roads Western Australia
P O Box 5010
BUNBURY, WA 6231

Prepared by:
Greg Harewood B.Sc.
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BUNBURY WA 6231
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EXECUTIVE SUMMARY

This report details the results of a black cockatoo habitat assessment of remnant native vegetation bordering sections of the Pinjarra – Williams Road just north of Quindanning. The assessment has been carried out on behalf of Main Roads Western Australia (MRWA).

The study area comprised two sections of the Pinjarra – Williams Road. Area "A" extended from SLK 67.5 (~MGA Zone 50, 448 584 mE 6 363 877 mN) to SLK 71.62 ((~MGA Zone 50, 449 642 mE 6 360 113 mN).

Area "B" extended from SLK 81.7 (~MGA Zone 50, 454 184 mE 6 352 202 mN) to SLK 91.64 (~MGA Zone 50, 459 595 mE 6 344 448 mN) (Figure 1).

The assessment of the entire study area site was carried on the 26 April, 2010 by the Author. The assessment was carried out on foot using a GPS equipped PDA for guidance and as a data recorder.

All trees within the proposed clearing areas were assessed for the potential to contain suitable hollows for black cockatoos. Characteristics of each tree recorded will include tree species, number, type and size of hollows observed.

For the purposes of this study a potential cockatoo nest hollow will be defined as:

Generally any tree which is alive or dead that contains one or more visible hollows (cavities within the trunk or branches) suitable for occupation by any of the three black cockatoo species for the purpose of nesting/breeding. Hollows that had an entrance greater than about 12cm in diameter and would allow the entry of a cockatoo (white tailed or red-tailed) were recorded as a "potential nest hollow".

Details of habitat trees (i.e. any tree with a hollow) that appeared not suitable for black cockatoos were also recorded.

The extent of potential cockatoo foraging habitat present on site, based on the vegetation units/species present, was noted. During field work direct or indirect evidence of foraging by cockatoos was recorded (location, evidence type and species responsible).

In total 57 trees containing hollows of some size were observed within the proposed/potential clearing footprint. Of these, 18 appeared to contain hollows with entrances large enough for a black cockatoo to enter. No evidence of any hollow actually being in use or previously used by black cockatoos was seen.

The location of habitat trees including those determined to contain a potential cockatoo nest hollow observed is shown in Figure 2 (Area A) and Figure 3 (Area B). Details on each potential cockatoo nest tree are provided in Appendix A. Details on each habitat tree (including the potential cockatoo nest trees) are provided in Appendix B.

Evidence of black cockatoos foraging was common and widespread within the study area. Evidence attributed to Carnaby's Black Cockatoo was found in the form of chewed Pine cones (introduced tree species), Marri and Jarrah nuts. Foraging evidence attributed to the Forest Red-tailed Black Cockatoo was found in the form of chewed Marri and Sheoak nuts. No evidence of Baudin's Black Cockatoo foraging was observed. Details of the opportunistic observations made of black cockatoos foraging is provided in Appendix C.

It should be noted that these observations do not represent all of the foraging evidence seen or likely to be present. As mentioned evidence of black cockatoos foraging was common and widespread within the study area and it was impractical to record every example.

Irrespective of the amount of foraging evidence seen almost all of the remnant native vegetation within the study areas represents potential foraging habitat though it is not possible to determine the area of vegetation (and therefore foraging habitat) that will require removal at this stage as the exact areas requiring clearing are yet to be defined.

It is understood that the MRWA have a state-wide purpose permit issued under the Native Vegetation Clearing Regulations 2004. The use of this permit is only appropriate if the proposed clearing is not at variance to any of the 10 clearing principles as defined under the regulations.

One purpose of the assessment reported on here is to provide information relevant to principle (a) & (b) of the clearing regulations. Based on the assessment results and despite the fact that the area is or is possibly being utilised by some species of conservation significance it is the Author's opinion that the area requiring clearing is very unlikely to have what would be considered a high level of biological diversity or constitute the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

This opinion is based on the fact that fauna habitats present within the proposed clearing footprint are generally degraded, are common and widespread in the general area and the faunal assemblage potentially present is unlikely to be of a high diversity or different to that found in similar habitats located elsewhere in the region. It can therefore be concluded that the area to be cleared does not contain habitats of high ecological significance from a faunal perspective or contain faunal assemblages that are ecologically significant. Also the area to be cleared is also relatively small and is spread along a ~15km section of road verge. The impact of clearing on fauna or fauna habitat will therefore be very small/negligible at any one location. Existing fauna populations (including those of conservation significant species) are very unlikely to be affected by the loss of small areas of habitat spread out over such a distance.

A number of fauna species known to or potentially present within the study area are listed under the federal *Environment Protection and Biodiversity Conservation Act*

(*EPBC Act, 1999*). Development proposals ("actions") that are likely to have a significant impact on any listed species should be referred to the Department of Environment, Water, Heritage and Arts (DEWHA) for assessment. The aim of a referral is to provide certainty about whether a proposal does or doesn't need approval under the *EPBC Act*. The proposed action should be considered at its broadest possible scope. This includes all stages and components of the action, all related activities, and all related infrastructure such as roads and powerlines, if applicable.

It is the proponent's responsibility to determine if their proposed action (e.g. clearing and development of an area of native bushland) requires referral. To aid in determining if a proposal is likely to have a significant impact DEWHA provide a series of Significant Impact Guidelines (DEH 2006). These guidelines outline a 'self-assessment' process, including detailed criteria, to assist persons in deciding whether or not referral may be required.

An assessment of the likelihood of significant impact on *EPBC Act* listed species present suggests that it is highly unlikely that the impact caused by the proposed road works would trigger any of the significant impact criteria. This is primary because of the relatively small area of clearing required, the fact that it is spread over a wide area and the existence of substantial areas of habitat areas nearby.

The most likely impact of the proposed clearing is the potential for fauna to be killed or injured during site works. The following recommendations are provided for guidance and aim to reduce the potential impact on fauna and fauna habitat and should be implemented if considered reasonable and practicable for the project in question. It is recommended that:

- During clearing operations a suitably experienced "fauna spotter" should be employed to inspect logs, trees and hollows (where possible) before clearing to reduce likelihood of injury to fauna. Trees observed to contain hollows should be felled in a manner that reduces the likelihood that fauna present will be injured. Hollows in fallen trees should be inspected for fauna prior to removal from the site. If feasible any fauna encountered should be relocated to suitable retained habitat nearby.

- During site works, areas requiring clearing should be clearly marked and access to other areas restricted to prevent accidental clearing of areas to be retained.

- No dead, standing or fallen timber should be removed unnecessarily. Logs (hollow or not) and other debris resulting from land clearing should be used to enhance fauna habitat in untouched and rehabilitated areas if possible. Where possible, logs are to be retained either by pushing the logs into the surrounding forest, when significant disturbance to the forest can be avoided, or the logs cut so that the length of log outside the clearing area remains insitu.

- All staff working on site should be made aware that native fauna is protected. Personnel working on the project should not be allowed to bring firearms, other weapons or pets onsite.

- While the probability that any of the black cockatoo species breed within trees in the clearing footprint can be considered to be low, the documented breeding and fledging times of the respective species (see below) suggests that the best time to carry out clearing at the site would be in the months of April, May or June so as to avoid the peak breeding times for all species in question. It would also be possible to carry out observations of potential nest hollows to establish if they were in use if clearing needed to be undertaken at other times.

Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*

J	F	M	A	M	J	J	A	S	O	N	D

Baudin's Black- Cockatoo Calyptorhynchus baudinii

J	F	M	A	M	J	J	A	S	O	N	D

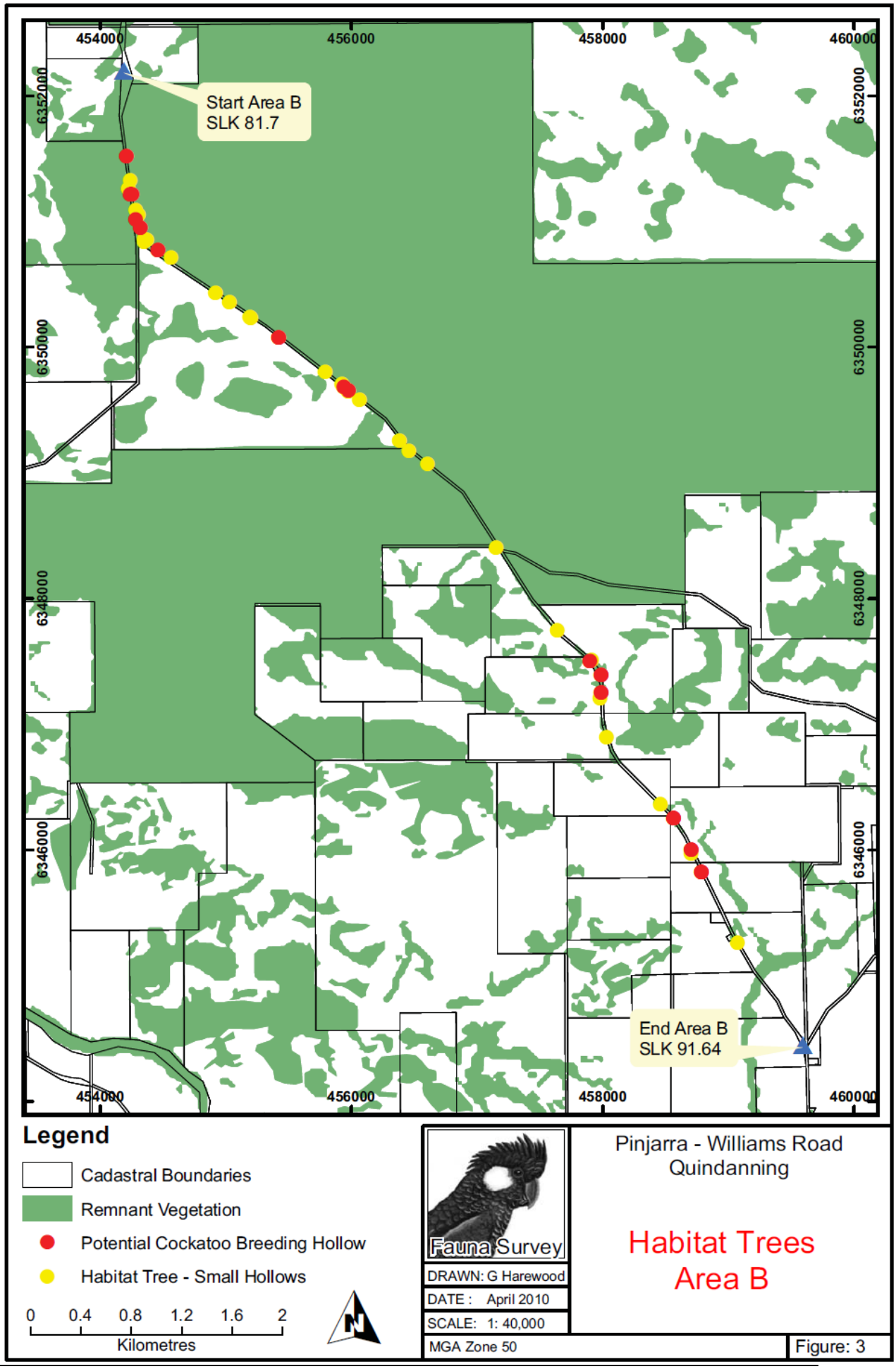
Carnaby's Black- Cockatoo Calyptorhynchus latirostris

J	F	M	A	M	J	J	A	S	O	N	D

Period in which breeding is most likely to commence
Period in which fledging could extend through

- Native fauna injured during clearing or normal site operations should be taken to a designated veterinary clinic or a DEC nominated wildlife carer.

- Any trenching required for services should be kept open for only as long as necessary and suitable escape ramps and bridging provided if the site is to be left unattended for extended periods. Significant sized trenches should be inspected for fauna immediately prior to filling.


454000
456000
458000
460000
6352000
6350000
6348000
6346000
Start Area B
SLK 81.7
End Area B
SLK 91.64
Legend
Cadastral Boundaries
Remnant Vegetation
Potential Cockatoo Breeding Hollow
Habitat Tree - Small Hollows
0 0.4 0.8 1.2 1.6 2
Kilometres
N
Fauna Survey
DRAWN: G Harewood
DATE : April 2010
SCALE: 1: 40,000
MGA Zone 50
Pinjarra - Williams Road
Quindanning
Habitat Trees
Area B
Figure: 3

Fauna observed in or near study area

Pinjarra - Williams Road, Quindanning

Compiled by Greg Harewood - April 2010
Observed (Sighted/Heard/Signs) = +

Class **Family** *Species*	Common Name	Conservation Status	Observed April '10
Birds			
Accipitridae Kites, Goshawks, Eagles, Harriers			
Aquila audax	Wedge-tailed Eagle	Bp LC	+
Falconidae Falcons			
Falco cenchroides	Australian Kestrel	LC	+
Cacatuidae Cockatoos, Corellas			
Calyptorhynchus banksii naso	Forest Red-tailed Black Cockatoo	S1 VU Be VU	+
Calyptorhynchus latirostris	Carnaby`s Cockatoo	S1 EN Bp EN A2bcd+3bcd	+
Psittacidae Parrots			
Platycercus spurius	Red-capped Parrot	LC	+
Platycercus zonarius	Australian Ringneck Parrot	LC	+
Cuculidae Parasitic Cuckoos			
Cacomantis flabelliformis	Fan-tailed Cuckoo	LC	+
Pardalotidae Pardalotes, Bristlebirds, Scrubwrens, Gerygones, Thornbills			
Acanthiza apicalis	Broad-tailed Thornbill	Bh LC	+
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	Bh LC	+
Acanthiza inornata	Western Thornbill	Bh LC	+
Gerygone fusca	Western Gerygone	LC	+
Pardalotus striatus	Striated Pardalote	LC	+
Sericornis frontalis	White-browed Scrubwren	Bh LC	+
Smicrornis brevirostris	Weebill	Bh LC	+

WAWC Act Status - S1 to S4, EPBC Act Status - EX = Extinct, EN = Endangered, VU = Vulnerable, Mg = Migratory, DEC Priority Status - P1 to P5, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions = LC, LR, NT, DD ect - see www.iucnredlist.org/info/categories_criteria2001#categories.

Class **Family** *Species*	Common Name	Conservation Status	Observed April '10
Meliphagidae Honeyeaters, Chats			
Acanthorhynchus superciliosus	Western Spinebill	LC	+
Anthochaera carunculata	Red Wattlebird	LC	+
Anthochaera lunulata	Western Little Wattlebird	Bp	+
Lichenostomus virescens	Singing Honeyeater	LC	+
Lichmera indistincta	Brown Honeyeater	LC	+
Melithreptus lunatus	White-naped Honeyeater	Bp LC	+
Phylidonyris novaehollandiae	New Holland Honeyeater	Bp LC	+
Petroicidae Australian Robins			
Petroica multicolor	Scarlet Robin	Bh LC	+
Pachycephalidae Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers			
Colluricincla harmonica	Grey Shrike-thrush	Bh LC	+
Pachycephala pectoralis	Golden Whistler	Bh LC	+
Pachycephala rufiventris	Rufous Whistler	LC	+
Dicruridae Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo			
Grallina cyanoleuca	Magpie-lark	LC	+
Rhipidura fuliginosa	Grey Fantail	LC	+
Rhipidura leucophrys	Willie Wagtail	LC	+
Campephagidae Cuckoo-shrikes, Trillers			
Coracina novaehollandiae	Black-faced Cuckoo-shrike	LC	+
Artamidae Woodswallows, Butcherbirds, Currawongs			
Cracticus tibicen	Australian Magpie	LC	+
Corvidae Ravens, Crows			
Corvus coronoides	Australian Raven	LC	+

WAWC Act Status - S1 to S4, EPBC Act Status - EX = Extinct, EN = Endangered, VU = Vulnerable, Mg = Migratory, DEC Priority Status - P1 to P5, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions = LC, LR, NT, DD ect - see www.iucnredlist.org/info/categories_criteria2001#categories.

Class **Family** *Species*	Common Name	Conservation Status	Observed April '10
Zosteropidae White-eyes			
Zosterops lateralis	Grey-breasted White-eye	LC	+

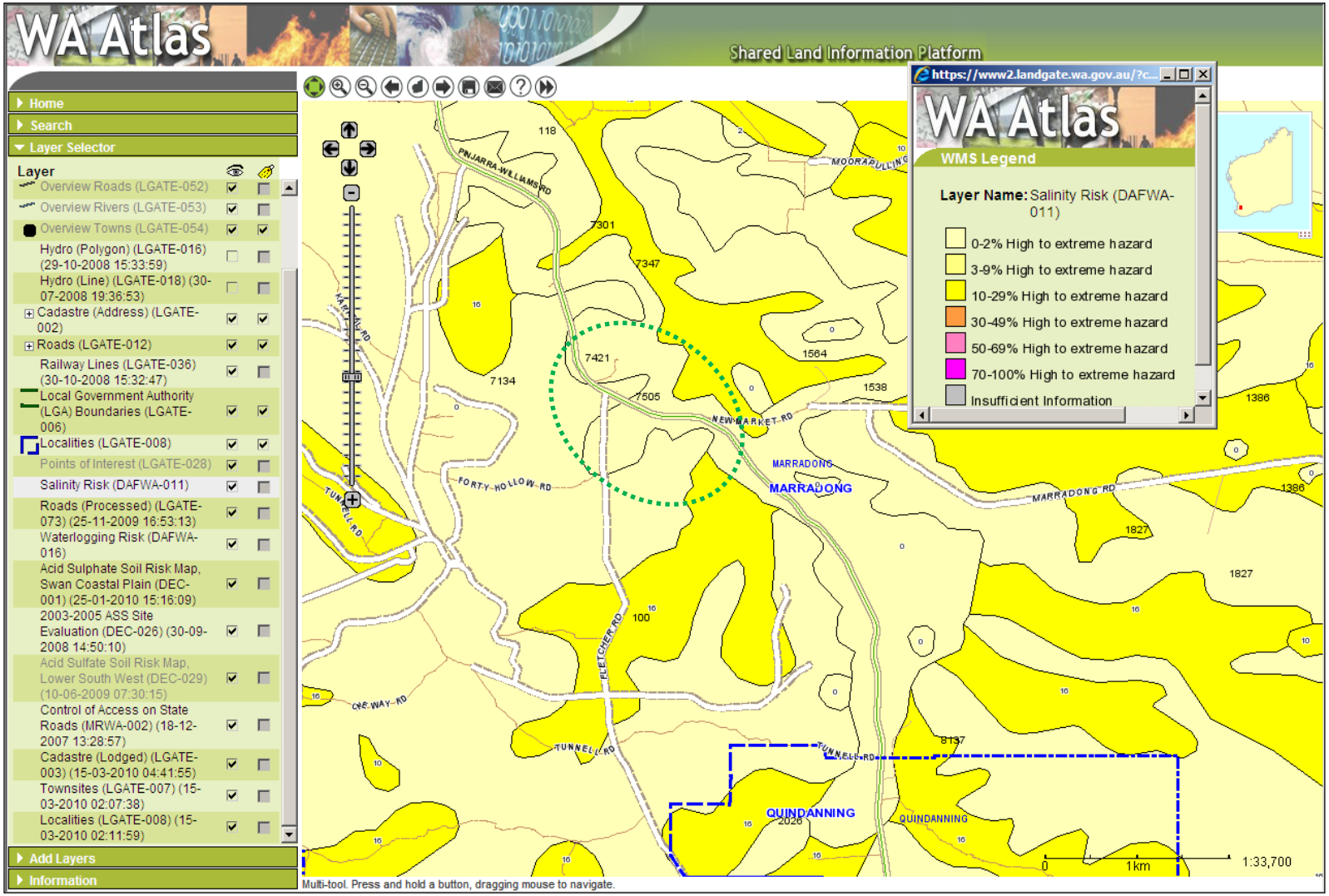
Mammals

Macropodidae Kangaroos, Wallabies			
Macropus fuliginosus	Western Grey Kangaroo	LR/LC	+

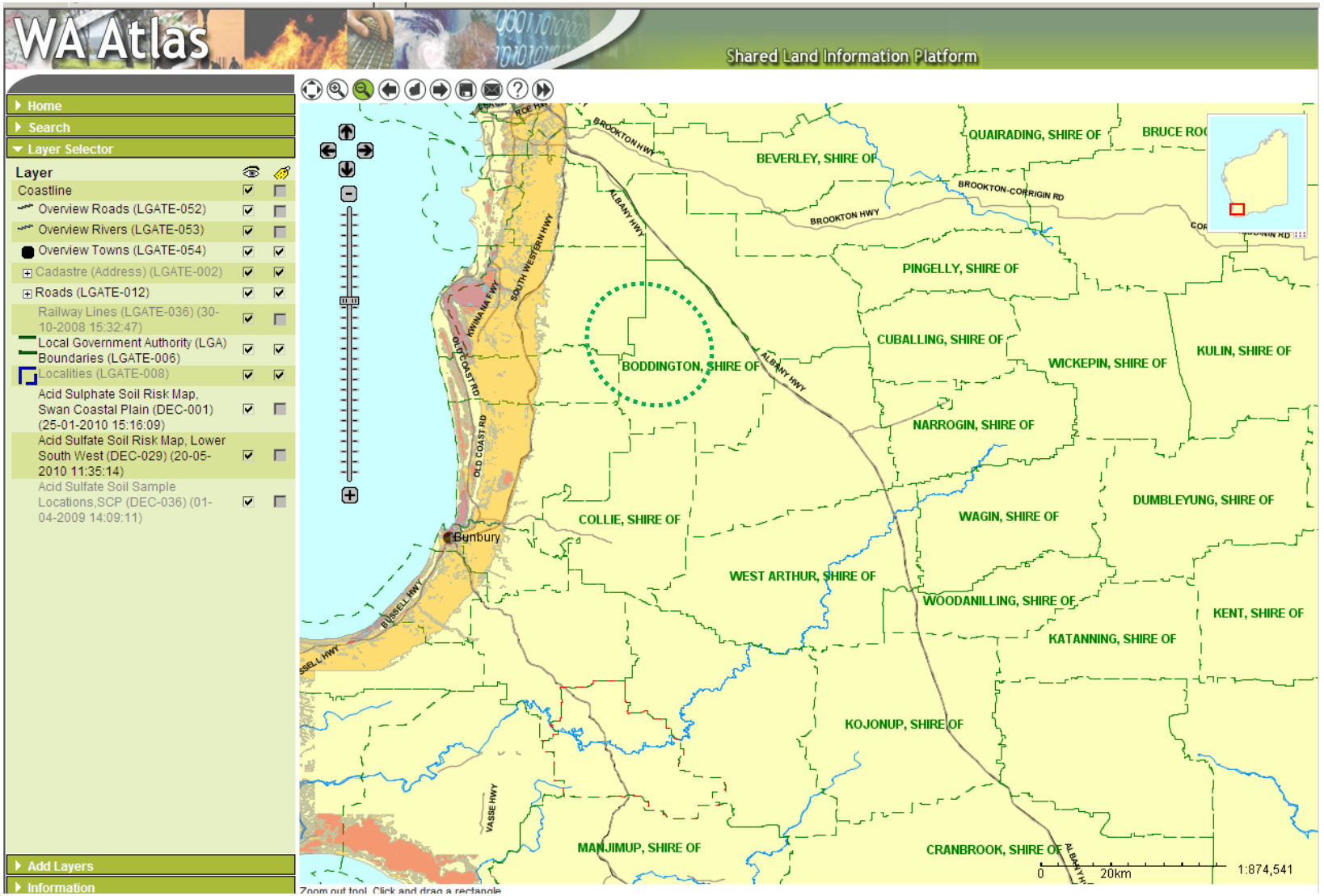
Appendix E

LAND INFORMATION

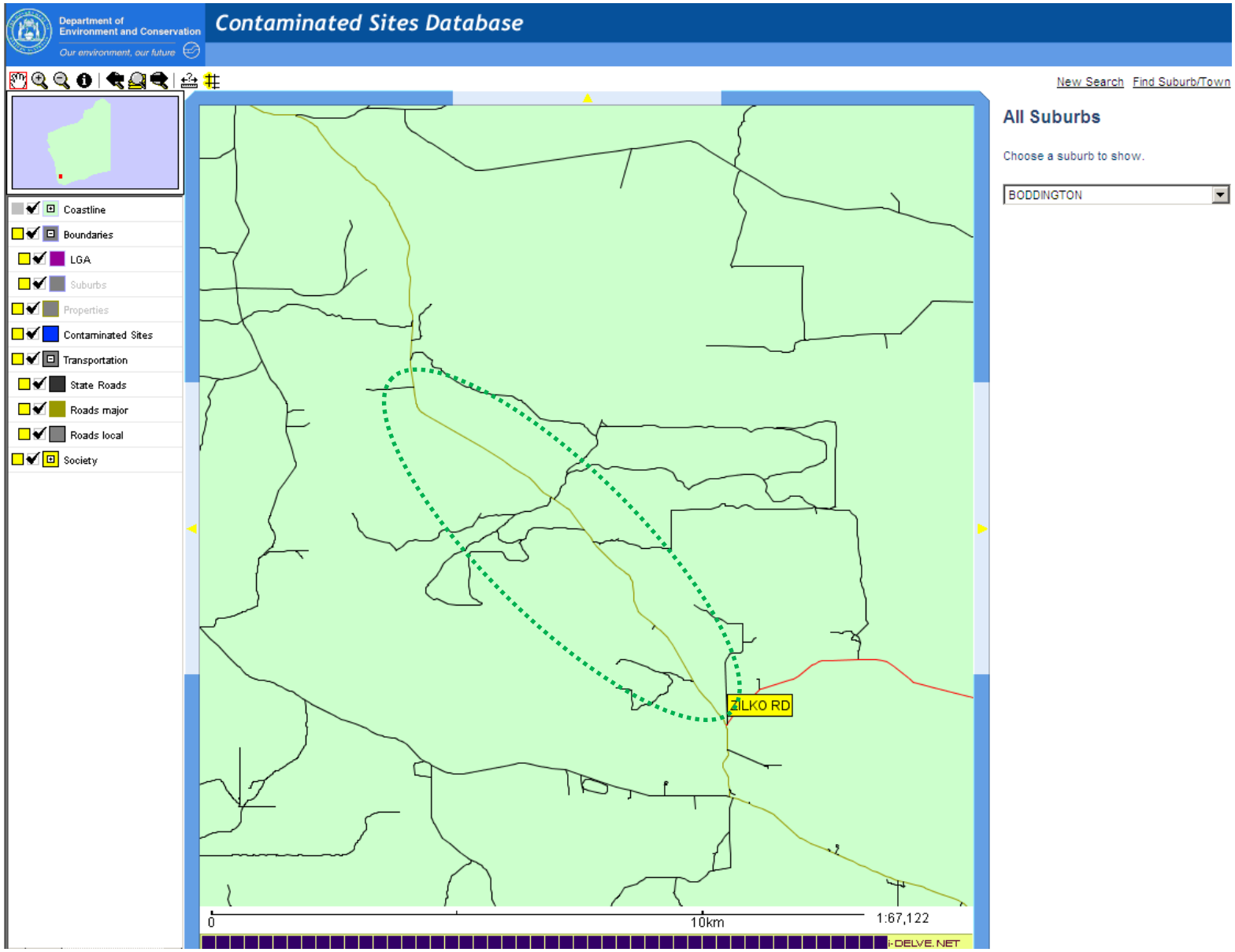
- **SLIP database WA Atlas: Salinity & Acid Sulphate Soils**
- **Department of Environment & Conservation: Contaminated Sites Register**



Shared Land Information Platform (SLIP) WA Atlas (Salinity)



Shared Land Information Platform (SLIP) WA Atlas (Acid Sulphate Soils)



Department of Environment & Conservation: Contaminated Sites Register (December 2009)

Appendix F

DIEBACK

Department of Environment and Conservation Dieback Assessment January 2010

Department of
Environment and Conservation

Our environment, our future

Phytophthora Disease Interpretation Report
Main Roads Western Australia
Pinjarra Williams Road Roadworks

FOREST MANAGEMENT BRANCH
Department of Environment and Conservation
Release 1.00
12 March 2010

Introduction

Background

Phytophthora dieback disease caused by the pathogen *Phytophthora cinnamomi (P.c.)* is a major threat to the biodiversity of south-western Australia. The spread of this water mould is facilitated by the movement of soil infested with spores, particularly under warm, moist conditions.
Consequently, a major component in the strategy to constrain this disease involves managing access and soil-disturbance activities within native vegetation. Knowledge of the occurrence of the disease in the landscape is therefore an essential prerequisite to formulating suitable hygiene management practices.
Interpretation and mapping of the presence of *Phytophthora cinnamomi* was undertaken for Main Roads Western Australia (MRWA) for the purpose of proposed roadworks along the Pinjarra Williams Road between Marradong and Quindanning. This work was completed on 28 January 2010 by Disease Hygiene Officers Dayne Ivandich and Julie Cox from the DEC Forest Management Branch, Bunbury.

Location and Size of Areas

The area of interpretation along the Pinjarra Williams Road comprised road reserve between Marradong and Quindanning. The section of road is 26 kilometres in length and the total area interpreted is 128.3 hectares. Interpretation was completed on 28 January 2010.

Historical land use and past disturbance

Quindanning Block Compartment 3 was interpreted in June 2008 and re-checked in May 2009 by DEC interpreters. The section of this coupe adjacent to Pinjarra Williams Road was found in both instances to be uninfested with *P.c*.
The most recent prescribed burn in this area was in the 2002/ 2003 fire season.
This area of interpretation is within the 700- 800mm rainfall zone.

Methods

Interpretation

Field interpretation followed the standard methods and operating procedures described in the document titled "Volume 2 - *Phytophthora cinnamomi* and disease caused by it: Interpreter guidelines for detection, diagnosis and mapping" (CALM 2001).
Background information was sought through DEC records prior to engaging in field work.
The presence of the disease was determined through observation and sampling of recently-dead indicator species (flora that is susceptible to infection with the pathogen).
Non-differential, hand-held global positioning system (GPS) receivers were used for navigation and to record survey boundaries and waypoints within the areas.

Demarcation

The uninterpretable category was demarcated using 25mm "Tiger" tape (black and pink stripes) with the knots facing towards the uninterpretable category.

Soil and plant sampling

One soil and tissue sample was taken from a recent *Banksia grandis* death at GDA position E 457331 N6348194.

Picture 1. Banksia grandis specimen sampled for infection with *P.c*.
This was sent to the Vegetation Health Service (VHS) at DEC in Kensington for diagnostic baiting for the presence of the *P.c*. pathogen.

Mapping

The field observations, boundaries, waypoints and survey data were downloaded into a Geographic Information System from a Global Positioning System unit (GPS) to generate a map of *Phytophthora cinnamomi* occurrence map for the area.

Results

Disease Distribution

No symptoms or evidence of *Phytophthora cinnamomi* were found in the surveyed area.

Category	Area (ha)
Uninfested	27.9
Infested	0.0
Uninterpretable	100.4
Unmappable	0.0
Total	**128.3**

Sample Results
No result has yet been received for the sample taken (as of 8 February 2010), however it is considered unlikely to be P.c. due to the location and lack of chronology of deaths.

Discussion

Disease expression
There was no disease expression apparent, and no evidence of the disease was found along the area of interpretation. Areas of low rainfall are less likely to become infested with *P.c.* as conditions are less favorable for the survival of the disease pathogen.
The major vegetation complexes found in the project area, as described by J. Havel and L. Mattiske, were Michibin, Yalanbee and Coolakin.
The Michibin vegetation type occurred in the low lying watercourses and was typified by an overstorey of *Eucalyptus loxophleba* (York Gum) and *Allocasuarina huegeliana*, with a variable understorey that includes *Typha orientalis*.


Picture 2. Roadside Michibin Vegetation Type.


Picture 3. Close up of Michibin understorey.

Higher in the profile the Yalanbee vegetation community was the predominant vegetation type as found in the Quindanning Forest Block. The overstorey is dominated by *Eucalyptus marginata* (Jarrah) with an admixture of *Corymbia calophylla* (Marri). The understorey is sparse being represented by *Banksia grandis*, *B. sessilis* and an assorted shrub and herb layer.


Picture 4. Roadside Yalanbee Vegetation Type.


Picture 5. Yalanbee Vegetation Type.

The Coolakin vegetation type had a variable overstorey of Jarrah and *Eucalyptus wandoo* (Wandoo) with a sparse and variable understorey including assorted *Hakea* and *Acacia* species.

Picture 6. Coolakin Vegetation Type.

Picture 7. Saddleback Minesite Intersection.

The Michibin and Coolakin vegetation communities contain insufficient indicator species to enable reliable interpretation and as such are uninterpretable.
The Yalanbee vegetation type contained an adequate representation of healthy indicator species (*Banksia grandis, B. sessilis, Hibbertia sp*.) and lacked any discernible disease symptoms and was interpreted as uninfested.
Mature tree deaths were apparent at the entrance to the Saddleback Minesite (see Picture 7) but these were outside the project area and were not intensively investigated. The cause of these deaths may not be disease related.

Recommendations

Hygiene Management

Any vehicles, machinery or equipment should be free of soil and plant material prior to entering the protectable areas. 'Clean on Entry' (COE) points should be established to move between categories. Cleaning down at an appropriate location on leaving the area will also help prevent the potential spread of disease and weeds.
Applying and maintaining hygiene standards for activities in the area will greatly reduce the risk of spreading or introducing the disease. Apply and maintain hygiene standards for movement of vehicles along all of the current forest tracks and any construction activities.

Conclusion

The Pinjarra Williams Road between Marradong and Quindanning was interpreted on 28 January 2010 by Disease Hygiene Officers Dayne Ivandich and Julie Cox from DEC for the presence of the soil borne *Phytophthora cinnamomi* pathogen.
No evidence of the disease was found along the area surveyed. This was attributable to the low rainfall providing dry conditions not favourable for the survival of the pathogen. Disease symptoms were difficult to detect due the relatively low number of susceptible species in the study area.
Two maps have been prepared to show disease boundaries. These maps are valid until 28 January 2013. As *Phytophthora cinnamomi* has the ability to spread autonomously and through vectors such as machinery, vehicles and animals, the map boundaries should be re checked if the maps are more than 1 year old (28 January 2011). A full interpretation is to be done after three years (28 January 2013), if there are continuing or new activities within the coupe boundaries.

Dayne Ivandich
Disease Hygiene Officer
FMB Bunbury

8 February 2010

References

Department of Conservation and Land Management (2000) *Phytophthora cinnamomi* and disease caused by it. Volume I Management Guidelines

Department of Conservation and Land Management (2001) *Phytophthora cinnamomi* and disease caused by it. Volume II Interpreter guidelines for detection, diagnosis and mapping

Havel, J.J. (1975) Site Vegetation Mapping in the Northern Jarrah Forest (Darling Range). 2. Location and Mapping of Site-Vegetation Types.

Botanic Gardens Trust Sydney NSW. Armillaria root Rot – fact sheet. http://www.rbgsyd.gov.au/information_about_plants/pests_diseases/fact_sheets/armillaria_root_rot

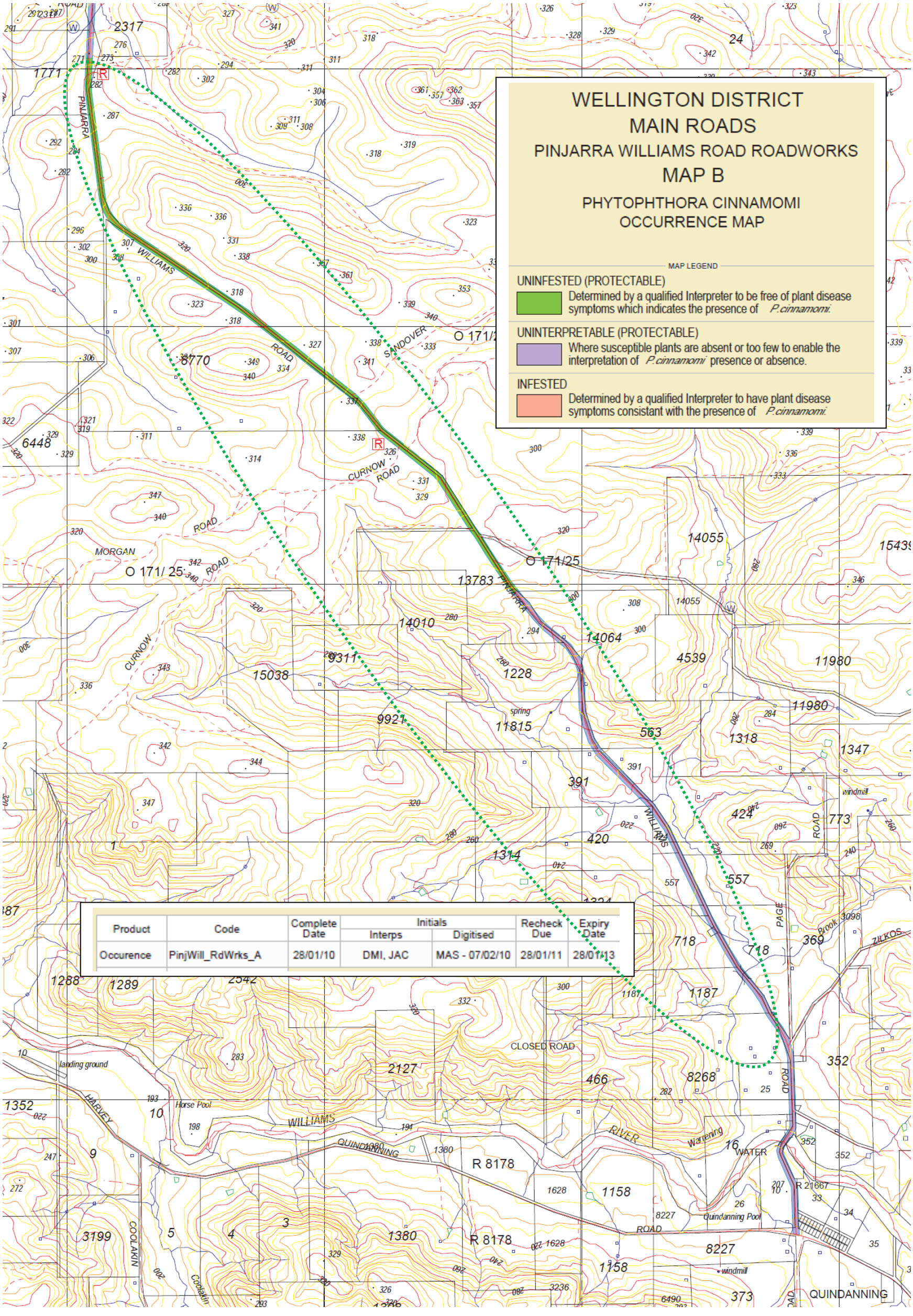
WELLINGTON DISTRICT
MAIN ROADS
PINJARRA WILLIAMS ROAD ROADWORKS
MAP A
PHYTOPHTHORA CINNAMOMI OCCURRENCE MAP

MAP LEGEND

UNINFESTED (PROTECTABLE)
Determined by a qualified Interpreter to be free of plant disease symptoms which indicates the presence of *P.cinnamomi.*

UNINTERPRETABLE (PROTECTABLE)
Where susceptible plants are absent or too few to enable the interpretation of *P.cinnamomi* presence or absence.

INFESTED
Determined by a qualified Interpreter to have plant disease symptoms consistant with the presence of *P.cinnamomi.*


WELLINGTON DISTRICT
MAIN ROADS
PINJARRA WILLIAMS ROAD ROADWORKS
MAP B
PHYTOPHTHORA CINNAMOMI
OCCURRENCE MAP
MAP LEGEND
UNINFESTED (PROTECTABLE)
Determined by a qualified Interpreter to be free of plant disease symptoms which indicates the presence of P.cinnamomi.
UNINTERPRETABLE (PROTECTABLE)
Where susceptible plants are absent or too few to enable the interpretation of P.cinnamomi presence or absence.
INFESTED
Determined by a qualified Interpreter to have plant disease symptoms consistant with the presence of P.cinnamomi.
PINJARRA
WILLIAMS
ROAD
SANDOVER
CURNOW
MORGAN
HARVEY
COOLAKIN
QUINDANNING
CLOSED ROAD
landing ground
Horse Pool
spring
windmill
Quindanning Pool
WATER
RIVER
Warening
Brook
ZILKOS
PAGE
2317
1771
6448
6770
O 171/25
O 171/ 25
13783
14055
15439
14010
9311
15038
9921
11815
1228
14064
4539
11980
1318
1347
563
391
424
773
420
1314
557
718
369
1187
2127
466
8268
352
1380
R 8178
1158
8227
3199
1352
1288
1289
2542
1324
Product
Code
Complete Date
Initials
Interps
Digitised
Recheck Due
Expiry Date
Occurence
PinjWill_RdWrks_A
28/01/10
DMI, JAC
MAS - 07/02/10
28/01/11
28/01/13

Appendix G

WATER

Department of Water:

- **Public Drinking Water Source Area & Country Water Supply Area**
- **Bed & Banks Permit**
- **Geographic Atlas**

Landgate: Shared Land Information Platform (SLIP)

Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA) mapping tool

You replied on 25/02/2010 2:25 PM.

From: DUNN Brett [Brett.Dunn@water.wa.gov.au] Sent: Thu 25/02/2010 7:44 AM
To: DELLA BONA Jeanette (EO)
Cc:
Subject: RE: Pinjarra-Williams Road

Hi Jeanette,

My apologies in not responding to your query yesterday, I was out of the office all day.

The area contained within the figure is not located in a Public Drinking Water Source Area or Country Area Water Supply Area. There are also no significant wetlands or waterways located along this alignment.

Please feel free to contact me if you require anything further.

Kind Regards,

Brett Dunn
Senior Natural Resource Management Officer
Department of Water
Kwinana Peel Region
PH: (08) 9550 4202
Email: brett.dunn@water.wa.gov.au

Public Drinking Water Source Area & Country Water Supply Area

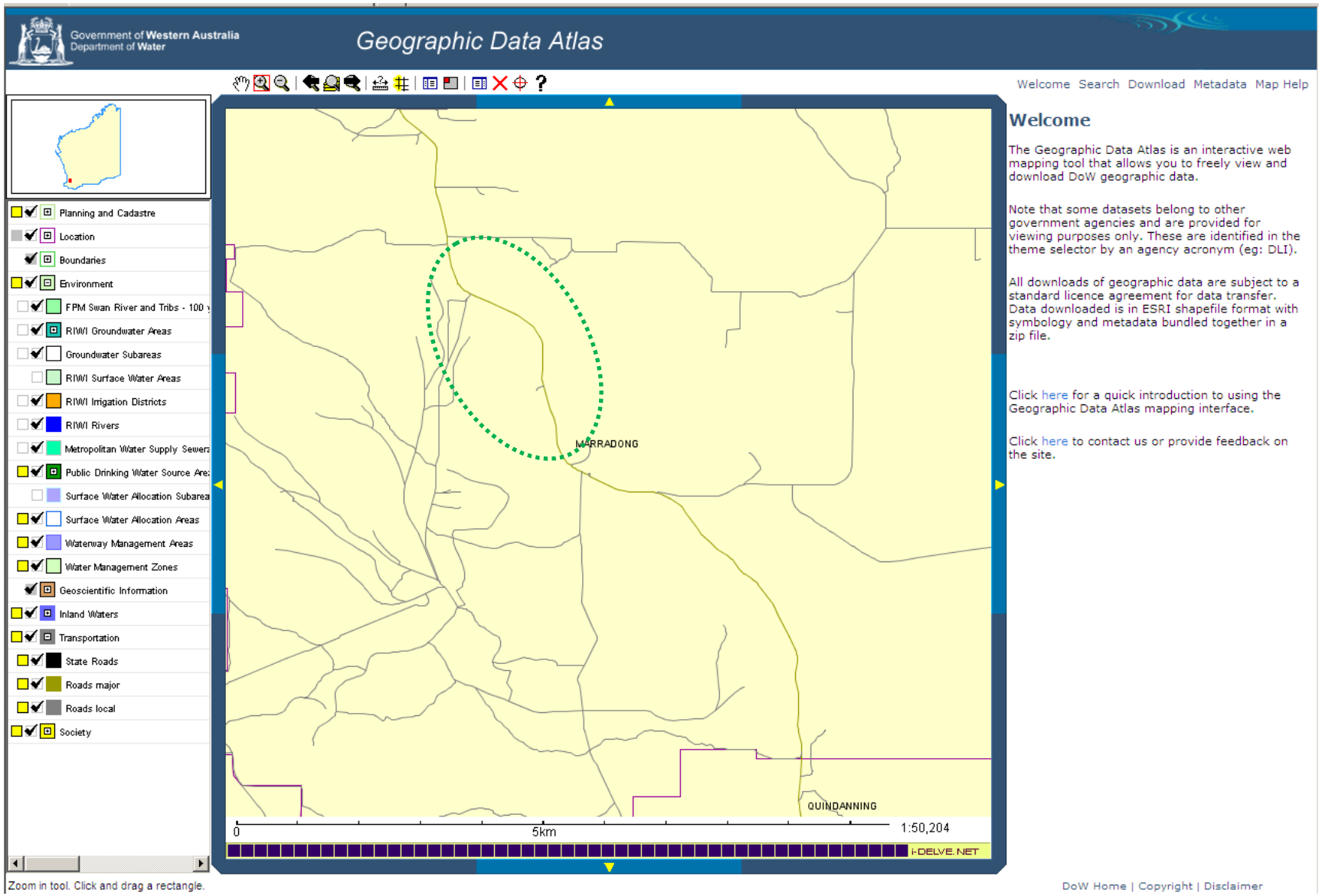
Hi Jeanette,

If you are replacing existing infrastructure over the creek eg replacing culverts or modifying an existing crossing you would not need a Bed and Banks Permit.

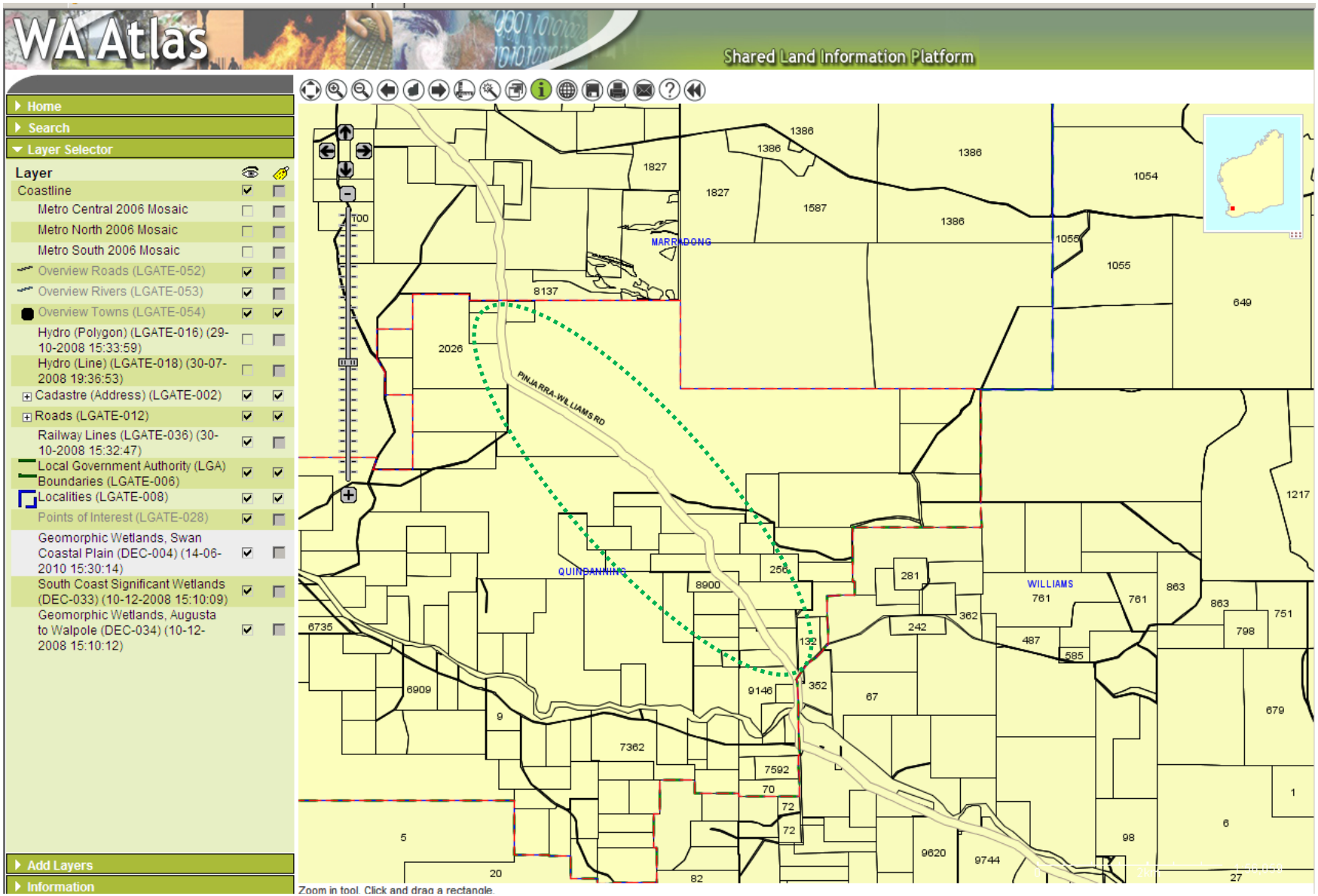
Cheers,

Brett Dunn
A/Program Manager – Urban Water Management
Department of Water
Kwinana Peel Region
PH: (08) 9550 4202
Email: brett.dunn@water.wa.gov.au

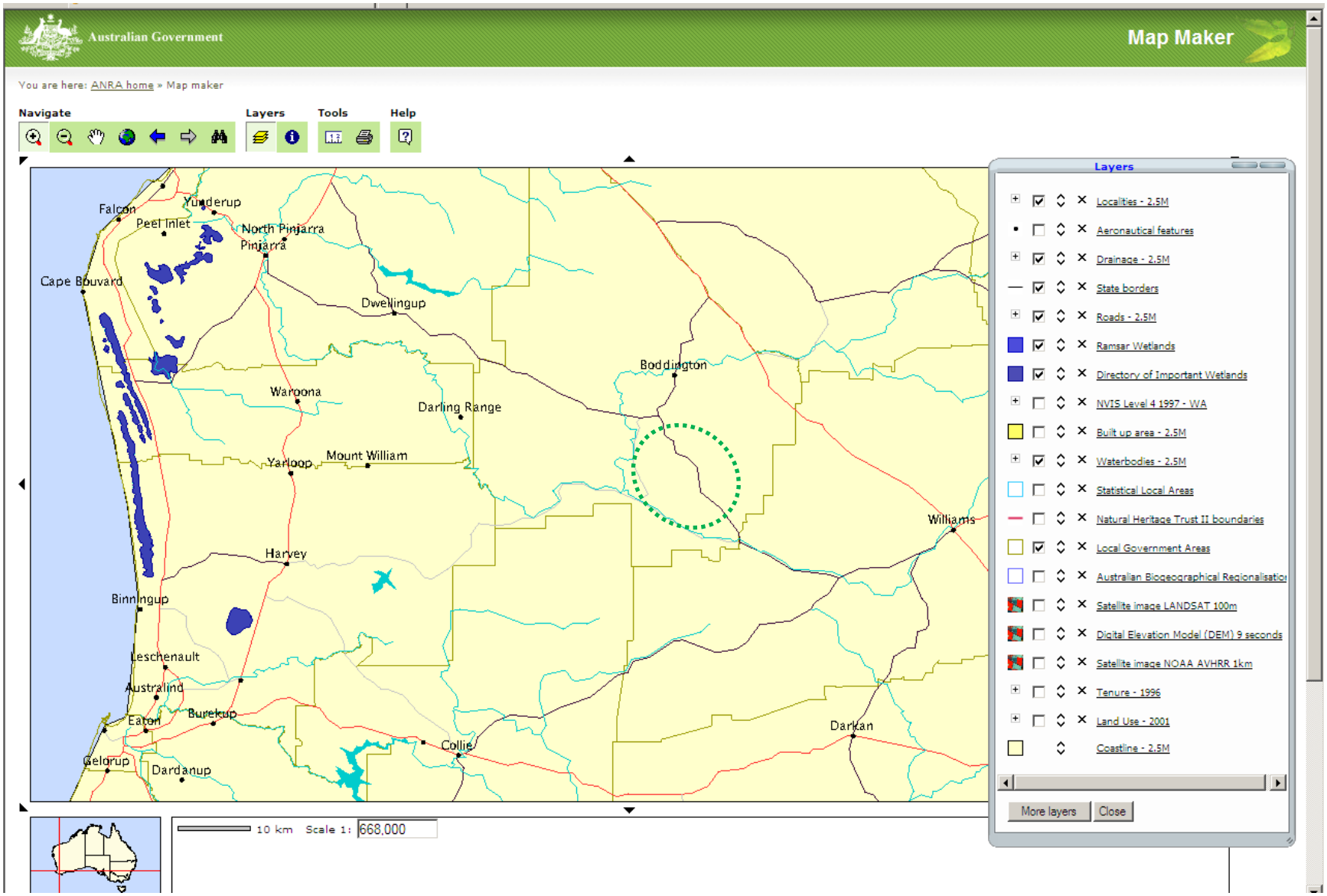
Bed & Banks Permit



Department of Water: Geographic Atlas



Landgate: Shared Land Information Platform(SLIP)

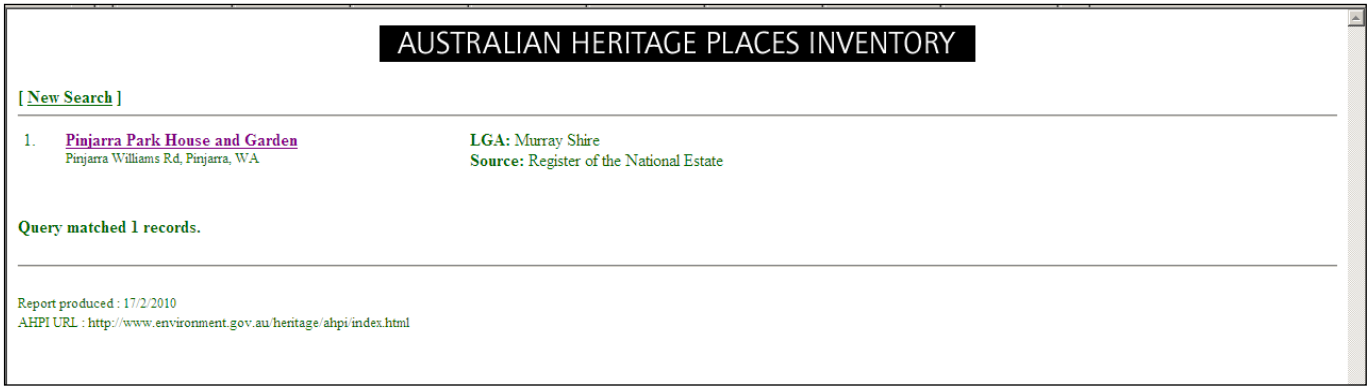


Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA) mapping tool

Appendix H

HERITAGE

Australian Heritage Places Inventory
Western Australian Heritage Council Register
Department of Indigenous Affairs Heritage Enquiry System
Extracts from Ethnographic and Archaeological Survey: Brad Goode June 2010



AUSTRALIAN HERITAGE PLACES INVENTORY

[New Search]

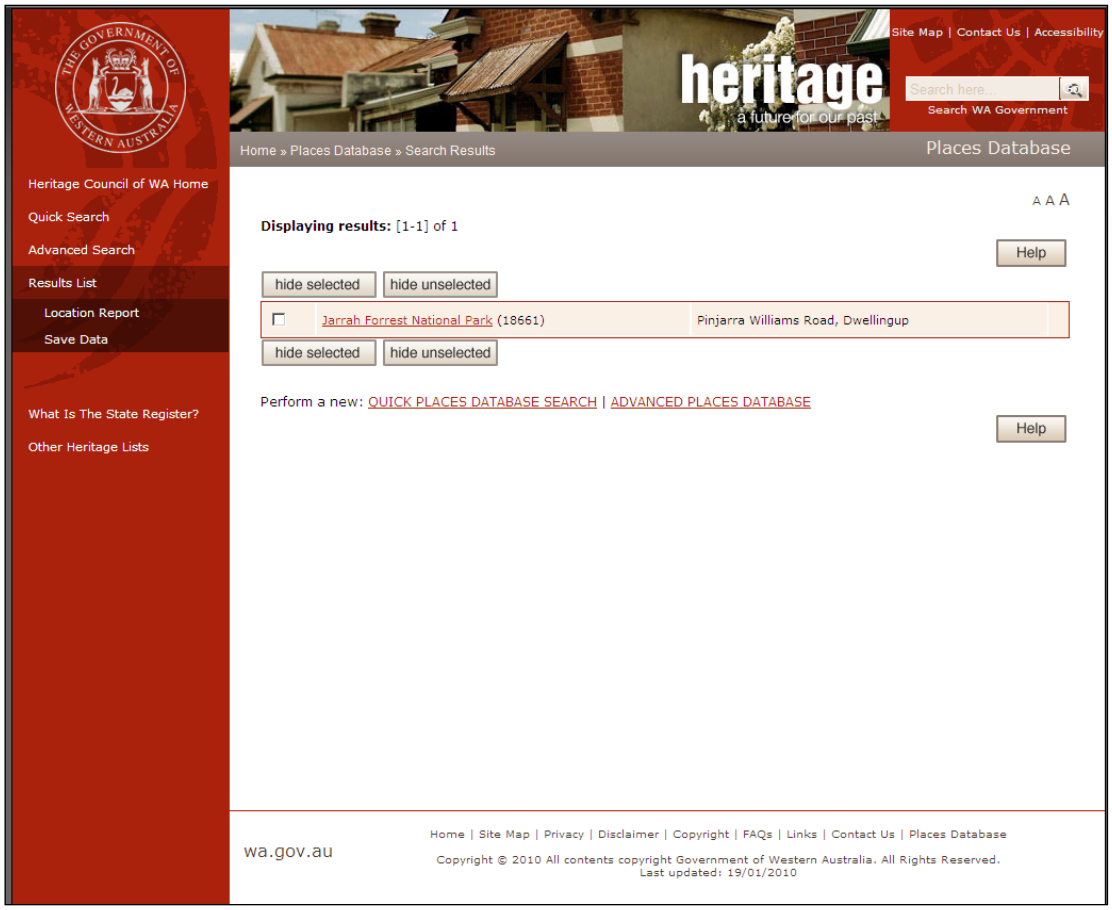
1. Pinjarra Park House and Garden
Pinjarra Williams Rd, Pinjarra, WA

LGA: Murray Shire
Source: Register of the National Estate

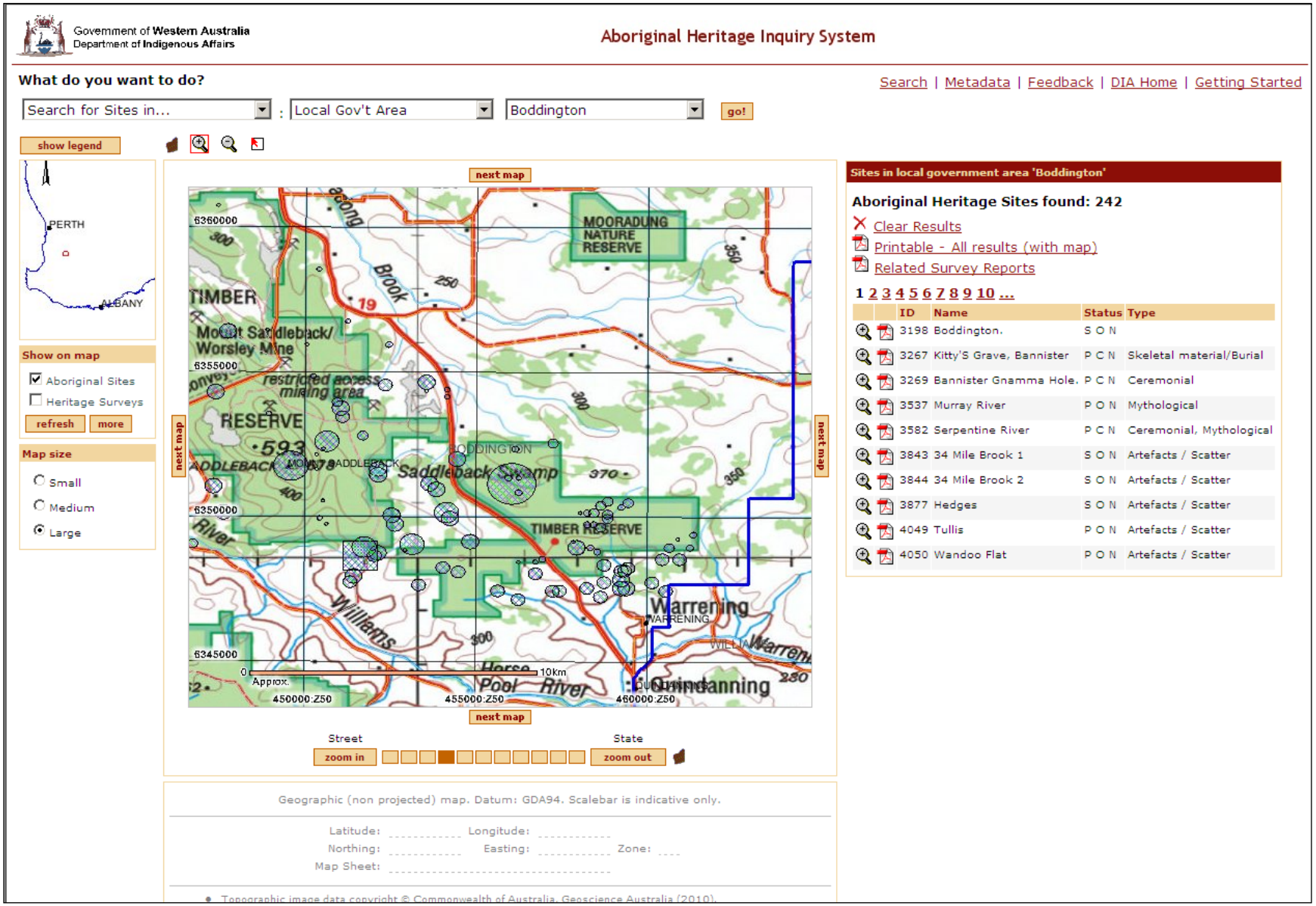
Query matched 1 records.

Report produced : 17/2/2010
AHPI URL : http://www.environment.gov.au/heritage/ahpi/index.html

Australian Heritage Places Inventory database search



Western Australian Heritage Council Places Database Search 17/02/10



Aboriginal Heritage Inquiry System database search 05/05/10

CULTURALLY RESTRICTED REPORT

AN ABORIGINAL HERITAGE SURVEY OF A SECTION OF THE PINJARRA WILLIAMS ROAD, BETWEEN MARRADONG AND QUINDANNING – 67.5 TO 91.68 SLK, IN WESTERN AUSTRALIA.

A report prepared for GHD Pty Ltd on behalf of Main Roads Western Australia

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The Registrar
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PERTH WA 6000

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HERITAGE SURVEY

EXECUTIVE SUMMARY

Main Roads WA proposes to widen and upgrade sections of the Pinjarra Williams Road, between Marradong and Quindanning (67.5 to 91.68 SLK). Specifically Main Roads WA propose to build a double lane sealed road to provide a safe route for the increased amount of traffic envisaged to use the road due to the expansion of the mining industry in the area. Main Roads WA wishes to determine whether any Aboriginal heritage sites of significance will be affected by the proposed road works thereby fulfilling their obligations under the Western Australian Aboriginal Heritage Act (1972).

GHD Pty Ltd has commissioned a 'site identification' Aboriginal Heritage survey of the proposed road upgrades. The Aboriginal heritage survey was conducted in two separate field visits. The section of the Pinjarra Williams Road between **71.62 and 91.68 SLK** was surveyed between the 16th and 30th March 2010 and will be referred to in this report as '**Project Area A**'. The section between **71.62 and 67.5 SLK** was surveyed between the 14th of April and the 5th of May and will be referred to as in this report as '**Project Area B**'. All survey was restricted to the current road reserve within a corridor of between 40m and 100m either side of the road (see pg 11 for an illustration of the two project areas.)

As a result of several searches of the DIA Sites Register pertaining to the development areas no previously recorded ethnographic Aboriginal heritage sites were identified to be located within the defined survey corridors of either Project Area A or Project Area B on the Pinjarra Williams Road.

Therefore **no previously recorded** ethnographic Aboriginal heritage sites will be affected by the road widening works as they are currently planned.

Archival research has established that the nearest ethnographic site's to the proposed road corridor are site ID 20219 Dilyan's Burial and Additional Burial Site, site ID 27935 the Hotham River, and site ID 17214 Mt Saddleback (Mokine). These sites are all located several kilometres north east, north and south west of the road corridor respectively and as such none of these sites will be directly affected by the road works as they currently planned (see maps of sites Appendix 3).

As a result of consultations held with representatives of the Gnaala Karla Booja (GKB) WC98/58 Native Title Claim group and the Narkle family, no **new** ethnographic sites of significance, as defined by Section 5 of the Western Australian Aboriginal Heritage Act (1972), were identified to be located within the boundary of proposed road works corridor **in project areas A or B**.

There for it is considered that there are **no ethnographic barriers** to the road widening within **project areas A or B as long as the road works are wholly contained within the current road reserve.**

During the consultations regarding **Project Area A**, the Native Title representatives made **two recommendations** regarding the proposed road works and there potential to affect areas of ethnographic interest.

Firstly, it was requested that where Main Roads WA intend to conduct clearing in order to widen the road and extend the culvert crossing at a ephemeral tributary of the Marradong Brook (452 801mE & 635 6215mN) that all works be restricted to the west side of the Pinjarra Williams Road where the brook is already highly degraded and where no spring currently exists.

Secondly, the GKB representatives also recommended that Main Roads WA avoid the archaeological site known as the **Scarred Wandoo Tree FS 1**, located on the west side of the Pinjarra Williams Road, at 458 699mE 634 5975mN. Scared Wandoo Tree FS1 will likely be determined as a site of significance under Section 5a of the Western Australian Aboriginal Heritage Act (1972) (see accompanying archaeological report by Harris & Marci 2010).

If Main Roads intends to modify their plans and extend their road works outside of the current road reserve and to conduct bridge works at the Marradong Brook crossing, then there are a number of reported ethnographic issues that will need to be taken into consideration before work can proceed.

During the consultations the Marradong Brook was identified as a place of mythological significance in association with the narratives that has previously been recorded for the Hotham River, site ID 27935 (see Goode & Yates 2008).

It must however be noted that there is some inconsistency in these reported narratives between the informants reporting mythological associations at the Marradong Brook.

The Narkle family reported that the serpent known to them as the '*Dukatj*' (defined as a Dugite snake) created the Marradong Brook, and that all the water courses in the region are connected spiritually to the Hotham River from which the *Dukatj* travelled (see by Goode & Yates 2008). Mr Phillip Narkle said that the Marradong Brook was a part of the '*Dukatj's*' spirit; 'The *Dukatj* comes out from Pumphrey's Bridge and all the creeks throughout the catchment of the Hotham are a part of the same song line/storyline'. Mr Narkle described this song line/story line as his family's bloodline.

Mr James Khan identified that the Marradong Brook is associated with the mythology previously recorded for the Hotham River, as a place where the *Waugal* exists (see Review of Relevant Reports Section – by Goode & Yates 2008– for the initial recording of the narrative regarding the creation of the Hotham River). Mr James Khan stated that he believes the Marradong Brook along with the other tributaries of the Hotham River should be registered as Aboriginal heritage sites based upon these associations. Mr Khan says that this brook is the creation of the offspring of the Hotham River *Waugal* and also that the Marradong Brook is named as *Marr* [after Bindon & Chadwick 2002; 312], or *Marh-ra* [after Moore 1884; 51] which is the Nyungar word for hand.

During the consultations Mt Saddleback (site ID 17214) or Mokine Hill was also identified as a site of mythological and ceremonial significance to Nyungar people. Again, the narratives reported by both parties differed slightly.

The Narkle family said that Mokine Hill is a sacred place for their family and was part of an unspecified story [did not wish the myth to be recorded] or song line that included all the hills through to Mundijong/Armidale, Mt Cook and extended through to Wandering and Pumphrey's Bridge. They stated that the area around Mokine Hill was considered to involve '*Maben* stuff' [sorcery or magic] and that the area was '*Warra*' [a place to be avoided]. Mr Keith Narkle was said to be the traditional owner or custodian of the area and that only he could go on Mokine Hill without any bad repercussions. Mokine hill was also reported to be a place frequented by '*Mummeries*' (little spirit people/creatures) who could cause bad things to happen to people who should not go on the hill.

The Thorne and Khan families identified Mt Saddleback/Mokine Hill to have been created by the *Waugal* who had also created the Hotham River (see Yates & Goode 2008). The informants also reported the existence of a male initiation site at Mokine Hill, high up on top of the hill on the Collie side. The informants said that the site was dangerous to women, who were not allowed on the hill and also made reference to the existence of '*Mummeries*', however they

stated that these associations were not restricted to Mokine Hill only, in that all hills in the area had '*Mummeries*' present.

Similar reports were recorded by Pearce in (1981:5) who said that Mokine Hill 'was once a Corroboree site … It was a 'Sprit Place'. In this report Pearce reported that Mokine Hill was a ceremonial site and also reported ritual use of an ochre quarry in the vicinity of the hill.

During the current survey the informants however had no knowledge of this ochre source or its associations with ceremonies reported to have occurred at Mokine Hill. The current informants did not specify an extent for the area nor did they accurately locate the ceremonial area, excepting to say that you can see it high on the hill on the Collie side. It was the view of the informants that the area of significance did extend to adjoin the road reserve along the Pinjarra Williams Road, and advised Main Roads not to clear any further west than the current road reserve.

All consulted requested that Mt Saddleback/Mokine Hill be registered and protected under Section 5b of the Western Australian Aboriginal Heritage Act (1972). As each group could not accurately determine an extent for the area that warrants protection further consultation would be needed to progress this proposal. It is the view of the current author that the DIA should pursue this course of action as the ethnographic information provided would likely lead to a positive assessment of this area in terms of the AHA.

As the proposed road works in the vicinity of Mokine Hill are confined to the east side of the Pinjarra Williams Road, no action is required on behalf of the proponent in regard to this area. As the consultant was only briefed to consider the road corridor no further attempt was made to define the nature of this reported area in terms of the AHA.

During the consultations representatives from the Thorne and Khan Families reported a historical camp site to be located within the 'Old Marradong' town site, adjacent to fruit trees and date palms on a dry ridge north of the Marradong Brook floodplain and to the south of the church (448 549mE 636 3085mN centre). The camp was reported to have been occupied during the 1930's by several families who lived in bush humpies as itinerant farm workers.

The report was based upon oral information passed from the previous generation. None of the current informants had lived there or had personally visited people living there. Several informants believed that parents or grandparents would have stopped there when working for the Batt and Nicholls families as farm labourers. No extent for this reported camp site could be established and no statements of significance were made.

As the reported historic camp site is located some 75m to the west of the Pinjarra Williams Road it was determined that the road works would not the affect the reported camp area. As the reported camp area is within private property no physical inspection of the area was made in order to determine if any cultural material exists within the site. As the site was not fully recorded during the survey it is unlikely that the area would meet the criteria required to define the area as a site in terms of Section 5 of the Western Australian Aboriginal Heritage Act (1972).

However further ethnographic recording in the area may lead to a positive assessment of this place under Section 5a of the Western Australian Aboriginal Heritage Act (1972) as a place that marks associations with Nyungar people and European settler society and as a place where cultural material may exist that was associated with Nyungar peoples life during this period.

During the consultations the Nyungar informants also made a number of resolutions and requests in regards to the **Project Area B**.

The Nyungar informants agreed to Main Roads request to pump a small amount of water from the Marradong Brook to use during the road works, provided there was no disruption to the flow of the water in the brook and that the brook was not polluted in any way as a result of this action. It was not considered that this activity would affect the cultural values that are held for the Marradong Brook.

In regard to Main Roads request to be able to remove several Melaleuca trees, located approaching the bridge abutments over the Marradong Brook, the Nyungar informants stated that the trees could be cleared as long as they were replanted after the works had been conducted. The Narkle family stressed that only the trees necessary to be removed should be removed and that no trees should be removed from the Marradong Brooks embankments. To remove trees from the brooks embankments would be considered as unacceptable damage to the values held for a site and would likely require ministerial consent.

All the informants consulted stated that that there were no issues with the road works as proposed, for Project Area B, provided there was no interference to the embankments of the Marradong Brook or alteration to the flow of water in the brook.

The group requested that monitors should be present if any ground disturbing works were required in the vicinity of the Marradong Brook.

The proposed road works in the location where the Pinjarra Williams Road bridges the Marradong Brook were supported by all parties based upon the understanding that there would be no actual interference to the bed and embankments of the Marradong Brook and provided; that the flow of the water in the brook is not altered; that no pollution resulting from the road works enters the brook; and that the associated riparian vegetation upon the embankments is not interfered with.

Should Main Roads be required to change their plans and directly affect (ground disturbance) the main arm of the Marradong Brook then Main Roads may be required to seek ministerial consent pursuant to making application under Section 18 the Western Australian Aboriginal Heritage Act (1972).

As a result of the above report the following recommendations can be made:

In regard to **Project Area A**;

- **It is recommended** that all works conducted at the ephemeral tributary of the Marradong Brook at 452 801mE & 635 6215mN be contained to the west side of the Pinjarra Williams Road where the brook/spring is already in a degraded state.

- **It is recommended** that Main Roads avoid the **Scarred Wandoo Tree FS 1** located on the west side of the Pinjarra Williams Road at 458 699mE 634 5975mN.

In regard to **Project Area B**;

- **It is recommended** that all works in the vicinity of Mokine Hill/Mt Saddleback be contained to the eastern side of the Pinjarra Williams Road or only within the current road reserve to the west.

- **It is recommended** that works in the vicinity of the Marradong Brook; do not alter the flow of the water in the brook; do not directly or indirectly pollute the brook; or interfere with the bed or embankment of the Brook.

- **It is recommended** that Main Roads only remove trees that are necessary to be removed from near the bridge abutments at the Marradong Brook and that the same species are replanted once the road works are completed.

- **It is recommended** that if ground disturbing works are required in the vicinity of the Marradong Brook that Nyungar monitors be appointed to oversee the initial ground disturbing works.

- **It is recommended** that if Main Roads alter their current plans, and that work is to proceed that will directly affect the bed and embankments of the Marradong Brook, or beyond the western road reserve near Mt Saddleback/Mokine Hill, that further consultations should be conducted with the Nyungar community prior to lodging notice pursuant to an application under Section 18 of the Western Australian Aboriginal Heritage Act (1972) for consent to use the land that may contain an Aboriginal heritage site. These consultations and the subsequent application will provide Main Roads with clarity with regards to the ethnographic attribution of significance of the above places in terms of the obligations under Section 5 of the AHA.

ARCHAEOLOGICAL CONCLUSIONS

DISCUSSION

An archaeological survey was undertaken at the behest of Main Roads WA of a stretch of the Pinjarra Williams Road (between 67.5 and 91.68 SLK), near Quindanning, WA. The survey area was composed primarily of denuded farmland used for grazing livestock and for growing wheat and lupin crops. Some areas of remnant bushland survive in this area, in particular a large stretch of Timber Reserve. The Timber Reserve is comprised of open jarrah forest, and it is probable that the surrounding areas would have been the same prior to European farming. The landscape is undulating, with gravelly, lateritic hills being the main feature, and with some areas of granite sub-cropping and outcropping. Two fairly substantial, although ephemeral, waterways exist within the area.

Much of the previous research in the region was the result of a comprehensive survey undertaken by Pearce in the 80s. Contrary to previous findings in forests his results indicate that that the eastern jarrah woodland/forest was extensively utilised. Large sites occur on silty or sandy gravel near swamps or creeks. Small sites occur near watercourses on gently sloping valley floors on lateritic gravel or sandy gravel and seldom on stony ridges or hillsides. Many of the sites in the Marradong Quindanning region were small (average 15 artefacts) and the types and distribution of tools indicate the sites were used for mundane activities related to foraging by small groups staying only a few days at each location. As water is scarce in summer the small sites represent winter and spring camps. The larger sites suggest recurrent occupation for camping, social gatherings or ceremonies. The temporal markers of scalar cores, backed pieces and flat adzes indicate Late Holocene occupation spanning 4000 years.

Background research into the archaeology of the area suggests that while there is low potential to find archaeological sites, sites may be encountered close to water sources, such as rivers, creeks and swamps. In general, ground surface visibility is characteristically low in jarrah forests and woodlands. As a result of this, archaeological sites are commonly found in disturbed ground as this increases surface visibility in places where it was once lacking. Archaeological sites nevertheless require some land integrity for the sites to have any provenance and, thus, scientific significance. The highest disturbance factor of mining and logging together with farming techniques, infrastructure, settlements and low visibility are seen as the major contributors to the lack of archaeological sites located in the study area. These major alterations have obliterated or camouflaged potential sites.

AN ABORIGINAL HERITAGE SURVEY OF A SECTION OF THE PINJARRA WILLIAMS ROAD, BETWEEN MARRADONG AND QUINDANNING - 67.5 TO 91.68 SLK, IN WESTERN AUSTRALIA.

RECOMMENDATIONS

It is recommended that every effort be made to avoid **Field Site 1 – Scarred Wandoo Tree.** If this is not feasible, it will be necessary for Main Roads WA to apply to the Minister for consent to disturb the site under Section 18 of the Aboriginal Heritage Act 1972. It is unlikely that such an application for disturbance will be supported by the traditional landowners.

It is recommended that monitoring of any ground disturbance works for potential subsurface archaeological material be undertaken by Aboriginal representatives of an area 200m either side of the Marradong and Warrening Brooks or their tributaries, and within a 100m radius of **Field Site 1 – Scarred Wandoo Tree**.

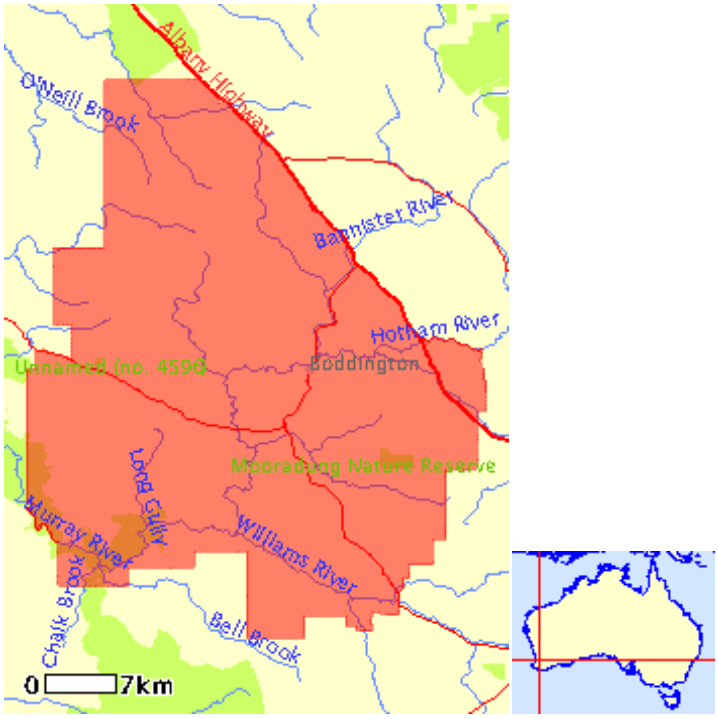
The most likely areas where archaeological sites, in particular, artefact scatters or burials may occur are generally banks of rivers, creeks, swamps and exposed sandy deposits. The removal or excavation of large quantities of sediment increases the risk of disturbing archaeological sites that may lie beneath the ground surface. **It is recommended** that Main Roads WA inform any project personnel of their obligation to report any archaeological material, should this be encountered during earthmoving, as outlined under Section 15 of the Aboriginal Heritage Act 1972.

If Main Roads WA locates an archaeological site in the process of survey or ground excavation, **it is recommended** that work cease in the immediate area. Any skeletal material should be reported to Department of Indigenous Affairs and the Western Australian Police Service. Any artefactual material should be reported to Heritage and Culture Division, Department of Indigenous Affairs.

Appendix I

DEPARTMENT OF THE ENVIRONMENT, WATER, HERITAGE & ARTS

EPBC Act Protected Matters Report **10 December 2009**



Search area Boddington Western Australia

Summary
Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	3
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
Threatened Species:	8
Migratory Species:	8
Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Places on the RNE:	None
Listed Marine Species:	5
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None
State and Territory Reserves:	5
Other Commonwealth Reserves:	None
Regional Forest Agreements:	1

Wetlands of International Significance [Dataset Information] (Ramsar Sites)	
BECHER POINT WETLANDS	Within same catchment as Ramsar site
FORRESTDALE & THOMSONS LAKES	Within same catchment as Ramsar site
PEEL-YALGORUP SYSTEM	Within same catchment as Ramsar site

Threatened Species [Dataset Information]	Status	Type of Presence
Birds		
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo	Vulnerable	Species or species habitat may occur within area
Calyptorhynchus baudinii Baudin's Black-Cockatoo, Long-billed Black-Cockatoo	Vulnerable	Roosting known to occur within area
Calyptorhynchus latirostris Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo	Endangered	Breeding likely to occur within area
Leipoa ocellata Malleefowl	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Bettongia penicillata ogilbyi Woylie	Endangered	Species or species habitat known to occur within area
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
Setonix brachyurus Quokka	Vulnerable	Species or species habitat may 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
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
Haliaeetus leucogaster White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area

Appendix J

SITE PHOTOGRAPHS

Plate 1 View south of typical vegetation in the project area at 81.86 SLK

Plate 2 View north of typical vegetation in the project area at 82.40 SLK. Note narrow road reserve (approx 20m wide)

Plate 3 View north of vegetation typical within the project area at 84.88 SLK

Plate 4 View north of road and road verge at 86.48 SLK

Plate 5 View north of road and road verge at 87.58 SLK

Plate 6 View south of road and road verge at 88.37 SLK

Plate 7 View north of road and road verge at 88.37 SLK

Enquiries: Peter Swanson on 9725 5692
Our Ref: 09/4265
Your Ref:

Appendix K

MAIN ROADS ASSESSMENT AGAINST THE CLEARING PRINCIPLES

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

1. AREA UNDER ASSESSMENT DETAILS

Proponent details

Proponent's name:	**MRWA**
Contacts	Name: Peter Swanson Phone: 9725 5692 Fax: 9725 5666 Email: peter.swanson@mainroads.wa.gov.au

Property details

Property:	Road reserve 81.7-91.64 SLK Pinjarra - Williams Road, Marradong to Quindanning, Shire of Boddington
Colloquial name:	

Area Under Assessment

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:	Site Plan Attached
3.6 Ha		Mechanical	Widening and upgrade plus minor realignment of Pinjarra – Williams Road	Yes ☒ No

2. BACKGROUND

Existing environment and information

Description of the native vegetation under application

Site Visit Undertaken	X Yes No	**Fauna / Flora Survey Undertaken**	☒ Yes ☐ No
Site Report Attached	☒ Yes ☐ No	**Fauna / Flora Survey Report Attached**	Yes X No
Site Photos Attached	☒ Yes ☐ No	**Other Relevant References Attached**	Yes X No

Vegetation Complex	Clearing Description	Vegetation Condition	Comment
According to a desktop search of DEC's Threatened Flora Database and the WA Herbarium's Flora base by Nature Conservation Officer Paul Tholen from DEC Perth Hills District (2/3/10) the proposed upgrade of Pinjarra-Williams Road occurs	Approximately 40% of the linear distance under application has timber reserve on one side of the road. 25% has timber reserve on both sides of the road. The remainder is bound by pastoral and agricultural paddocks.	The vegetation under application is 3.6 Ha of native vegetation with a condition rating ranging from Good to Completely Degraded (Keighery, 1994) spread over 8.85 kilometres of road	The floral survey targeting priority flora was conducted on the 28th and 29th April 2010 by Onshore Environmental consultants to target the following priority flora: *Calytrix*

within the Northern Jarrah Forest and across the Coolakin, Dwellingup, Michibin, Williams and Yalanbee (Y5) vegetation Complexes.	The purpose of the clearing is to improve lateral clearance on the Pinjarra – Williams Road where widening is proposed. The disturbance will be limited to clearing between 2 and 4m of vegetation mostly on both sides but in some sections only on one side and in some instances, none at all will be required as it is currently sufficiently cleared. The Vegetation Systems associated within these proposed works include Bannister 3 which retains 57% of its pre-European extent, of which 67% is retained within DEC managed lands; Bannister 4 retaining 35% of which 44% is retained within DEC managed lands and West Darling 3 retaining 87% of the pre-European extent of which 88% is retained within DEC managed lands.	reserve.	*simplex* subsp. *simplex* (P1), *Stylidium marradongese* (P3), *Tetratheca pilifera* (P3), Senecio leucoglossus (P4) and *Templetonia drummondii* (P4) as requested by the DEC.

3. 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 application is for the widening from 81.7 – 91.64 SLK and a minor realignment of the Pinjarra Williams Road requiring the clearing of approximately 3.6 Ha of native vegetation. The condition of the vegetation under application ranges from Good (particularly adjacent to the timber reserve) to Completely Degraded.

A cockatoo and opportunistic fauna survey was undertaken in April 2010 to identify the presence of habitat and foraging trees of threatened cockatoo species as well as other indigenous birds and ground dwelling fauna.

"Based on the assessment results and despite the fact that the area is or is possibly being utilised by some species of conservation significance it is the Author's opinion that the area requiring clearing is very unlikely to have what would be considered a high level of biological diversity or constitute the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

A desk-top search of DEC's Threatened Flora Database and the WA Herbarium's Flora base indicated that although No Declared Rare flora species were recorded alongside or within 200m of the roadside subject to this proposal, five species of Priority flora were found to potentially occur within close proximity and in the same vegetation complexes through which the road widening is to occur.

None of these taxa were found during a Flora Survey targeting these species, however a Priority 3 plant, Goodenia katabudjar (P3) was identified at two locations

The design for the project was therefore adjusted to avoid the majority of the plants by widening on the opposite side of the road but approximately twenty plants (of 820 in total) will be impacted. Further correspondence with DEC has confirmed that this is an acceptable level of impact that may be at variance to Clearing Principles (a & c).

Methodology DEC's Threatened Flora Database and the WA Herbarium's Flora base
DEC correspondence
Targeted flora survey: Onshore Environmental
(Appendix C)

Harewood, G., April 2010, Black cockatoo habitat assessment Pinjarra-Williams Road (part) Quindanning). (Appendix D)

(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 likely to be at variance to this Principle**

The vegetation under application is 3.6ha of native vegetation spread over 8.85 kilometres of road reserve. The road reserve is quite narrow (20m) in most sections with the road verge vegetation only 4-5m wide on each side of the road. There are areas that are completely clear and more than one kilometer that does not contain understorey.

Three threatened species of cockatoo are known to occur within the shire of Boddington: Carnaby's Cockatoo *Calyptorhynchus latirostris* (Vulnerable), Baudin's Cockatoo *Calyptorhynchus baudinii* (Endangered) and Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* (Endangered under *WA Wildlife Conservation Act 1950* and Vulnerable under the *Environment Protection Conservation and Biodiversity Conservation Act 1999).*
Four threatened ground dwelling animals have also been recorded in the precinct: Woylie (*Bettongia penicillata ogibyi*, P5), Chuditch (*Dasyurus geoffroii)*, Red-tailed Phascogale (*Phascogale calura)* and Quokka (*Setonix brachyuru)* (EPBC Protected Matters search).

A cockatoo and opportunistic fauna survey was undertaken in April 2010 to identify the presence of habitat and foraging trees of threatened cockatoo species as well as other indigenous birds and ground dwelling fauna.

*"In total 57 trees containing hollows of some size were observed within the proposed/potential clearing footprint (*of both project sites in the report – 38 in Area B*). Of these, 18* (15 in Area B) *appeared to contain hollows with entrances large enough for a black cockatoo to enter. No evidence of any hollow actually being in use or previously used by black cockatoos was seen."*

"Based on the assessment results and despite the fact that the area is or is possibly being utilised by some species of conservation significance it is the Author's opinion that the area requiring clearing is very unlikely to have what would be considered a high level of biological diversity or constitute the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

This opinion is based on the fact that fauna habitats present within the proposed clearing footprint are generally degraded, are common and widespread in the general area and the faunal assemblage potentially present is unlikely to be of a high diversity or different to that found in similar habitats located elsewhere in the region. It can therefore be concluded that the area to be cleared does not contain habitats of high ecological significance from a faunal perspective or contain faunal assemblages that are ecologically significant. Also the area to be cleared is also relatively small and is spread along a ~15km section of road verge. The impact of clearing on fauna or fauna habitat will therefore be very small / negligible at any one location. Existing fauna populations (including those of conservation significant species) are very unlikely to be affected by the loss of small areas of habitat spread out over such a distance."
(Harewood, G., April 2010).

Therefore based on this advice the proposal is considered not likely to be at variance to this principle.

Methodology Harewood, G., April 2010, Black cockatoo habitat assessment Pinjarra-Williams Road (part) Quindanning). (Appendix D)
DEWHA EPBC Act Protected Matters Report 10/12/09 and Biodiversity Species Profile and Threats Database (Appendix I)

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

Comments **Proposal may be at variance to this Principle**

A desk-top search of DEC's Threatened Flora Database and the WA Herbarium's Flora base indicated that although No Declared Rare flora species were recorded alongside or within 200m of the roadside subject to this proposal, five species of Priority flora were found to potentially occur within close proximity and in the same vegetation complexes through which the road widening is to occur.

DEC required that Main Roads investigate further the possible occurrence of threatened flora prior to road works taking place by employing a qualified botanist to inspect the site. The species to be targeted were *Calytrix simplex* (Not threatened) to rule out *Calytrix simplex sp.* (P1) as they are of similar appearance; and also occurrences of *Stylidium marradongese* (P3), *Tetratheca pilifera* (P3), *Templetonia drummondii* (P4) and *Senecio leucoglossus* (P4). The survey was completed April 2010. None of these taxa were found, however a Priority 3 plant, *Goodenia katabudjar (P3)* was identified at two locations.

The design for the project was therefore adjusted to avoid the majority of the plants by widening on the opposite side of the road but approximately twenty plants (of 820 in total) will be impacted. Further correspondence with DEC has confirmed that this is an acceptable level of impact that may be at variance to Clearing Principles (a) & (c).

Methodology DEC's Threatened Flora Database and the WA Herbarium's Flora base
DEC correspondence
Targeted flora survey: Onshore Environmental (Appendix C)

(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 Threatened Ecological Communities (TECs) were identified in or adjacent to study area from desktop investigations and field surveys.

Methodology Main Roads ArcGIS database search (Appendix B)
DEC correspondence
Targeted flora survey: Onshore Environmental (Appendix C)

(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 likely to be at variance to this Principle**

It was confirmed by DEC that the proposed project occurs within the Northern Jarrah Forest and across the Coolakin, Dwellingup (D4) Michibin, Williams and Yalanbee (Y5) vegetation Complexes. The Vegetation Systems associated with these proposed works include Bannister 3 which retains 57% of its pre-european extent, of which 67% is retained within DEC managed lands; Bannister 4 retaining 35% of which 44% is retained within DEC managed lands and West Darling 3 retaining 87% of the pre-european extent of which 88% is retained within DEC managed lands.

Therefore as the proposed clearing occurs in native vegetation complexes that meet the formal reserved target (30%) for vegetation protection, the clearing is not likely to be at variance to this principle.

Methodology DEC correspondence re flora (Appendix C)

(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 may be at variance to this Principle**

Consultation with the Department of Water (DoW) revealed that there were no groundwater issues in the project area (i.e. no Public Drinking Water Source Areas or Country Area Water Supply (CAWS) areas). DoW also noted that there were no significant wetlands or waterways located along the alignment. Clearing required near the Warrening Gully watercourse (between SLK 90.5 and 91) is of a minor nature that will not interfere with the beds or banks; however the vegetation is of a type that is growing in association with a water course.

Methodology

- Main Roads ArcGIS database (Appendix B)
- Department of Water (Appendix G)
- Commonwealth Department of Environment, Water, Heritage and the Arts mapping tool (Appendix I)

(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 soils within the project area mainly comprise the Dwellingup (D) and Coolakin (Ck) lateritic soils that contain sands and gravels with also some Michibin (Mn) containing yellow duplex soils and some rock outcrop. These ironstone gravel soils are associated with a low risk of salinity and have nil to low risk of acid sulphate soils. It is therefore not considered likely that the proposed clearing would result in any significant increase in salinity or have an impact on acid sulphate soils.

The main land degradation risk associated with the removal of vegetation on the identified soil type is considered to be soil erosion, however given the area under application is limited to 3.6 Ha over 8.85km, within a narrow linear road reserve, it is not likely to result in appreciable soil erosion.

Given the above, it is considered that the proposed clearing would not likely result in appreciable land degradation.

Methodology SLIP Acid Sulphate Soils Risk Map Swan Coastal Plain
Department of Environment and Conservation, February 2010, Phytophthora Disease Interpretation Report "Main Roads Western Australia – Pinjarra Williams Road Roadworks"

(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**

Timber Reserve (O171/25) vested with the Conservation Commission is adjacent to Pinjarra-Williams Road on the north side between SLK 81.8 & 85.4 and on both sides between SLK 85.4 & 87.6. Land will need to be acquired from this reserve to undertake the project and approximately one hectare will be cleared.

There will be no further impact on the reserve as all proposed works will be within the (current & future) road reserve.

Methodology DEC managed land database search in Main Roads ArcGIS (Appendix B)

(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 likely to be at variance to this Principle**

Consultation with the Department of Water (DoW) revealed that there were no groundwater issues in the project area ie no Public Drinking Water Source Areas or Country Area Water Supply (CAWS) areas. DoW also

noted that there were no significant wetlands or waterways located along the alignment.

Due to the size and nature of the proposed works, and that works will take place most likely in dry conditions (early April) it is unlikely that the quality of surface or groundwater would be deteriorated.

Methodology Department of Water (Appendix G)

(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 likely to be at variance to this Principle**

Due to the linear nature of the clearing of 3.6 Ha over 8.85 km (ie contained within a narrow, linear road reserve) and the predicted timing of the clearing operations in the dry season (early April), it is not considered likely that the proposed clearing of vegetation would impact on peak flood height or duration. Existing drainage regimes will not be altered.

Methodology Consultation with Main Roads' Project Manager

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

Comments

Native title has not been determined as yet over this area although there has been an application by the Gnaala Karla Booja (WC98/58) under the Native Titles Act 1993.

Methodology National Native Title Tribunal (www.nntt.gov.au)

4. Assessor's recommendations

List of Principles seriously at variance, at variance or maybe at variance

The following clearing principles may be at variance to Principles:

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

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

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

Recommendation:
In accordance with Part 2: Section 8(a) of Main Roads Clearing Permit (818/4) submissions will be invited from the following stakeholders:

- Native Vegetation Conservation Branch of the Department of Environment and Conservation
- Department of Water
- Conservation Council WA
- Office of the Commissioner of Soil and Land Conservation of the Department of Agriculture and Food
- Shire of Boddington

5. OFFICER PREPARING REPORT

Peter Swanson
Title: Project Environment Officer
South West Region
Main Roads Western Australia
Phone: 9725 5692 Date: July 2010

Appendix L

Stakeholder Letter and Responses

Main Roads letter to stakeholders
Department of Water submission
Department of Environment and Conservation submission
Main Roads response to DEC submission

Enquiries: Peter Swanson on 9725 5692
Our Ref: 09/4265
Your Ref:

29 July 2010

Manager
Native Vegetation Conservation Branch
Department of Environment and Conservation
Locked Bag 104
Bentley Delivery Centre WA 6983

Dear Sir/Madam

PINJARRA WILLIAMS ROAD UPGRADE (SLK 81.70-91.64)

Main Roads South West Region is currently planning improvements to Pinjarra Williams Road, Quindanning (SLK 81.70-91.64) in the Shire of Boddington. The clearing for the project has been assessed against the *Environmental Protection Act's* Clearing Principles and it is considered that the clearing may be at variance with one or more of the clearing principles. Therefore in accordance with Condition 8(a) of Main Roads' Clearing Permit CPS 818/4 Main Roads invites submissions from relevant stakeholders.

Pinjarra – Williams Road is the only remaining single lane sealed main road in the South West Region. Based on safety standards and traffic volumes, its size and condition are generally considered sub-standard and requiring improvement. Works have been scheduled and are progressing in stages between Marradong and Quindanning with this being one of the final stages.

With the opening of the New Perth Bunbury Highway in 2009, Pinjarra – Williams Road, in conjunction with the proposed Pinjarra bypass and Greenlands Road, is predicted to provide access to the Port of Fremantle, which will increase the likelihood of it being used more regularly to transport freight.

The current seal width along this section varies from 3.8 – 5.7m which is insufficient for opposing vehicles to pass each other without either or both leaving the sealed surface. Many drivers are unaware of the usual convention of passing on single lane sealed roads by moving the left wheels onto the gravel shoulder, which can lead to confusion. Even for those who are aware of the conventions, leaving the sealed surface introduces an additional driving hazard that is not appropriate on a modern road.

Flora and Fauna Surveys have recently been undertaken. Based on the information provided and in order to reduce the amount of vegetation cleared, the design of the widening has been adjusted to avoid potential habitat trees and significant flora. With consideration of the general condition of the present vegetation, the clearing will occur on mostly one side of the road only and occasionally on both.

The estimated area of native vegetation to be cleared for the widening is approximately 5.28ha; though at this stage the design has not been completely finalised. The majority of the clearing will occur in existing Main Roads' reserve with a small section (0.95ha) to be cleared in acquired timber reserve (O171/25) vested with the Conservation Commission on the east side between SLK 82.7-83.4.

The following was noted from site investigations:

- The vegetation to be cleared consists of marri, jarrah and wandoo woodland;
- The road reserve is quite narrow: approx 20m with only 4-5m of vegetated verge on each side of the road
- Other than shrub and sapling material, trees generally range from between 100-400 mm in diameter with the occasional tree up to 600 mm diameter.
- Using the Keighery Vegetation Condition Rating; the condition of the native vegetation to be cleared ranges from Rating 4 - 6: Good to Completely Degraded.
- The project area adjoins farmland, BHP (Crown land) and a timber reserve.
- The soils are mainly gravel / lateritic.

An assessment undertaken by DEC District Manager of the Perth Hills District in March 2010 indicated that "*the proposed upgrade of Pinjarra Williams Road occurs within the Northern Jarrah Forest and across the Coolakin, Dwellingup (D4) Michibin, Williams and Yalanbee (Y5) vegetation Complexes. The Vegetation Systems associated with these proposed works include Bannister 3 which retains 57% of its pre-European extent, of which 67% is retained within DEC managed lands; Bannister 4 retaining 35% of which 44% is retained within DEC managed lands and West Darling 3 retaining 87% of the pre-European extent of which 88% is retained within DEC managed lands".*

As recommended by DEC, Main Roads investigated the possible occurrence of threatened flora along the section of Pinjarra-Williams Road by engaging a qualified botanist to undertake a targeted flora survey in April 2010. No Declared Rare Flora species as listed on DEC's Threatened Flora Database and the WA Herbarium's Flora Base as being in the vicinity were recorded however, two populations of *Goodenia katabudjar* (P3) were found. The design for the project was adjusted to avoid the majority of the plants by widening on the opposite side of the road but approximately twenty plants (of 820 in total) will be impacted. Further correspondence with DEC Threatened Species Branch has confirmed that this is an acceptable level of impact that may be at variance to the Clearing Principles.

Because of the above information, Main Roads considers that the project may be at variance to the following principles:

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

If your organisation wishes to comment on this proposed project, please provide your submission by COB 20 August 2010 to PO Box 5010. Bunbury WA 6231 or email to peter.swanson@mainroads.wa.gov.au.

For further details, please contact Peter Swanson on 9725 5692.

Yours sincerely

Gerry Zoetelief
A/DIRECTOR SOUTH WEST OPERATIONS
MAIN ROADS WESTERN AUSTRALIA

CC:
Regional Manager
Department of Water
Avon District Office
PO Box 497
Northam WA 6401

Director
Conservation Council WA
2 Delhi Street
West Perth WA 6005

Office of the Commissioner of Soil and Land Conservation
Department of Agriculture and Food
Locked Bag 4
Bentley Delivery Centre WA 6983

Chief Executive Officer
Shire of Boddington
PO Box 4
Boddington WA 6390

Main Roads letter to stakeholders

Government of **Western Australia**
Department of **Water**

looking after all our water needs

Your ref: 09/4265
Our ref: RF815-08
SRS27487
Enquiries: Tom Lerner, Ph: 9552 4230

11 August 2010

Main Roads Western Australia
South West Region
Robertson Drive
Bunbury, WA 6231

Attn: Gerry Zoetelief

MAIN ROADS W.A.
BUNBURY
16 AUG 2010
RECEIVED

File 09/4265
Document No. BIO#15462
Resp. Officer PEO Swanson
Related to BIO# 14646 (Not E)

Re – Pinjarra Williams Road Upgrade (SLK 81.70-91.64)

Thank you for the letter dated 29 July 2010. The Department of Water (DoW) has no objections to the proposal, however would like to offer the following advice:

Waterway Crossing:

- A Bed and Banks permit is required prior to any activities that affect the watercourse, this can be found by following the link below. http://www.water.wa.gov.au/Doing+business+with+us/Water+licensing/Licensing+publications+and+forms/default.aspx .

If you wish to discuss the above further please contact the DoW's Mandurah Office on (08) 9550 4230.

Yours Sincerely,

Adrian Parker
Program Manager – Urban Water Management

Kwinana Peel Region
107 Breakwater Parade Mandurah Ocean Marina Mandurah Western Australia 6210
PO Box 332 Mandurah Western Australia 6210
Telephone (08) 9550 4222 Facsimile (08) 9581 4560
www.water.wa.gov.au
wa.gov.au

XDWAL005

Department of Water submission

Government of **Western Australia**
Department of **Environment and Conservation**

Your ref: 09/4265
Our ref: CPS 818/4
Enquiries: Jeremy Quartermaine
Phone: 9219 8744
Fax: 9219 8701
Email: jeremy.quartermaine@dec.wa.gov

Mr Gerry Zoetelief
A/ Director South West Operations
South West Region
Main Roads Western Australia
PO Box 5010
BUNBURY WA 6231

Dear Mr Zoetelief

CPS 818/4 – SUBMISSION – PINJARRA WILLIAMS ROAD UPGRADE – WIDENING SINGLE LANE

Thank you for your letter dated 29 July 2010, inviting the Department of Environment and Conservation's (DEC) Native Vegetation Conservation Branch to provide comment on Main Roads Western Australia's (MRWA) proposal to upgrade the single sealed lane road within Pinjarra Williams Road, within the Shire of Boddington. I understand that the proposal involves the clearing of approximately 5.28 hectares of native vegetation.

Submissions are invited in accordance with condition 8 of clearing permit CPS 818/4 for any clearing that 'may be at variance', 'is at variance' or 'is seriously at variance' with the clearing principles contained within Schedule 5 of the EP Act.

The 5.28 hectares of native vegetation proposed to be cleared has been assessment against the clearing principles contained in Schedule 5 of the *Environmental Protection Act 1986* (EP Act), taking into account information you have provided and information the Department of Environment and Conservation (DEC) has obtained through consultation.

In relation to clearing principle (a), you advise that the proposal 'may be at variance.' I agree with this level of variance due to the predominately degraded condition of the vegetation proposed to be cleared. However, the proposed clearing will impact on the priority three flora species *Goodenia katabudjar.*

In relation to clearing principle (b), you advise that the proposal 'may be at variance.' I have found the proposal 'is at variance' to clearing principle (b). The vegetation under application contains 57 trees containing hollows, of which 18 may be suitable for Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) and the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*). In addition to this, evidence of these species utilising the vegetation under application as foraging habitat was observed on site. To avoid impacts to these species, it is recommended that a fauna clearing specialist be present during clearing.

Carnaby's Black Cockatoo is currently listed as endangered under the *Wildlife Conservation Act 1950* and have been given the status of endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Actions which are likely to have a significant impact on the species require approval under the EPBC Act. Please contact the Department of the Environment, Water, Heritage and the Arts for further information on your responsibilities.

Native Vegetation Conservation Branch
Phone: (08) 9219 8700 or (08) 9219 8744 Fax: (08) 9219 8701 Email: nvp@dec.wa.gov.au
Postal Address: Locked Bag 104, Bentley Delivery Centre, BENTLEY WA 6983
www.dec.wa.gov.au/nvc
wa.gov.au

I note that you have not identified any variance levels for the remaining clearing principles. After desktop analysis and additional advice, I have found clearing principle (f) to be at variance. There are several watercourses that intersect the proposed clearing area and a small section of the vegetation is considered to be riverine. However, given that the clearing is to occur within an existing road reserve, where culverts are used to divert water flow, the proposed clearing is not likely to result in any significant impacts to riparian vegetation, or watercourses and wetlands within the area.

The proposed clearing is not likely to be at variance to the remaining clearing principles.

I understand the proposal will include the clearing of 0.95ha of native vegetation within timber reserve O171/25. DEC's Land Unit has advised that at present, a request for the 0.95 hectares of native vegetation to be cleared within timber reserve O171/25 has not been received. In addition to this, notification of your intention to impact 20 individual *Goodenia katabudjar* plants has not been received by DEC's Species and Communities Branch.

Please contact DEC's Land Unit and Species and Communities Branch to address the above issues.

In accordance with conditions 5(a)(ii) and 9(c) and Part V of clearing permit CPS 818/4, MRWA is required to submit for approval an offset proposal as the clearing 'may be at variance' to principle (a) and 'is at variance' to principle (b). Please note that this requirement will need to be addressed before clearing proceeds.

If you have any queries regarding the matters raised above, please contact Jeremy Quartermaine at DEC's Native Vegetation Conservation Branch on (08) 9219 8744.

Yours sincerely

Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

Officer delegated under Section 20
of the Environmental Protection Act 1986

24 August 2010

Cc: Mr Murray Limb, Manager, Main Roads WA, PO Box 6202, East Perth 6892

Department of Environment and Conservation submission

Your submission by email was received by Main Roads 6 days outside of the 21 day process allowed for under the CPS 818/4. Therefore technically speaking, Main Roads is not compelled to accept this submission in accordance with Clearing Permit 818/4 Part 2 Section 8 (c). Delays of this nature may result in a project proceeding and clearing taking place without appropriate evaluation. In this case however clearing did not take place, therefore Main Roads will respond to your letter of 24th August 2010 as follows:

- The statement you make regarding the number of trees containing hollows is incorrect. The fauna report that was forwarded to you is for two sections of Pinjarra Williams Road and not just the section in this application (Section B). The report clearly demarcates these two sections and although the number of trees in each section is described less clearly, they are listed in Appendices A & B and graphically displayed in Figures 2 & 3.

  The actual numbers in the relevant section (B) are 44 trees containing hollows and 15 that may be suitable for Cockatoos.

- Regarding impacts to endangered cockatoos, there are pertinent considerations that should be taken into account from the following statements contained in the cockatoo survey report by Harewood (refer pages 3 & 4):

  "In total 57 trees containing hollows of some size were observed within the proposed/potential clearing footprint. Of these, 18 appeared to contain hollows with entrances large enough for a black cockatoo to enter. No evidence of any hollow actually being in use or previously used by black cockatoos was seen. Ten of the potential cockatoo nest hollows were in Jarrah trees, five in Wandoo trees and three in dead trees of unknown species.

  The frequency of hollows in Jarrah is in part a reflection of the overall abundance of this species relative to the other suitable tree species present (i.e. Wandoo and Marri). It should however be noted that Jarrah trees much less commonly develop hollows large enough for black cockatoos to utilise compared to Marri or Wandoo[1] which suggests those Jarrah identified as potential cockatoo nest hollows are most likely unsuitable despite having entrances of a suitable size".

  Considering that there are eight Jarrah trees in Section B (Appendix A) "that are most likely unsuitable", one may conclude that there are just seven trees (of 15) with hollows potentially suitable for cockatoos in Section B.

- The letter to stakeholders from Main Roads (29th July 2010) stated that "the design of the widening has been adjusted to avoid potential habitat trees and significant flora". It has since been determined that of the seven trees with hollows potentially suitable for cockatoos in Section B (as identified above) only three will be required to be removed.

1. Kirkby, T. (2009) *Results of Black Cockatoo Survey at Lot 2 Dawesville*. Unpublished report for WA Limestone.

- The fauna survey "*Black cockatoo habitat assessment Pinjarra-Williams Road (part) Quindanning*" Harewood, G., April 2010, clearly states that:

"it is the Author's opinion that the area requiring clearing is very unlikely to have what would be considered a high level of biological diversity or constitute the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia".

and furthermore:

"An assessment of the likelihood of significant impact on EPBC Act listed species present suggests that it is highly unlikely that the impact caused by the proposed road works would trigger any of the significant impact criteria. This is primarily because of the relatively small area of clearing required, the fact that it is spread over a wide area and the existence of substantial areas of habitat areas nearby".

As per the Main Roads internal Environmental Assessment and Approval process, the EIA/EMP was reviewed and the decision not to refer the project to DEWHA has been endorsed by Main Roads Manager Environment.

- Regarding Principle (f) I submit the following:

    - Information provided by Brett Dunn (A/Program Manager – Urban Water, Department of Water 25th February 2010) states that the project area: *"is not located in a Public Drinking Water Source Area or Country Area Water Supply Area. There are also no significant wetlands or waterways located along this alignment".*

    - Clearing proposed in the vicinity of the water course is mainly of Typha and weeds rather than native vegetation, although there are a few young melaleuca saplings that may be removed in the process.

    - Also the EIA/EMP states:
        - "Construction works are to be undertaken in the drier months to reduce the potential for soil erosion due to vegetation removal and heavy rains".
        - "The removal of the weed Typha will be undertaken where possible as part of the works to improve the flow of water through the culverts".

- Your concern regarding the area of the timber reserve to be cleared is unwarranted at this stage as Main Roads has yet to define the exact area of land required. When this is known, the request to excise this land will be referred, together with appropriate documentation, to the DEC Land Unit for endorsement prior to further processing through the Department of Regional Development and Lands.

- Notification of Main Roads intention to impact 20 specimens of P4 *Goodenia katabudjar* has been informally given to DEC Species and Communities Branch via DEC Hills District Botanist, Marnie Swinburne, (refer correspondence forwarded to you 11th August 2010). An Application to Take Protected (Native) Flora will however be made by Main Roads to formalise the procedure.

- Regarding your statement that “Main Roads is required to submit for approval an offset proposal as the clearing ‘may be at variance’ …”, I draw your attention to CPS 818/4 Part III 9(c) which states:

  “*If part or all of the clearing to be done is or is likely to be at variance with one or more of the clearing principles, then the permit holder must implement an offset in accordance with Part V of this Permit with respect to that native vegetation*”.

At this stage, and prior to receiving your review of the above items, we consider that the clearing may be at variance only; which would then be interpreted as *not* requiring an offset.

Look forward to your response at your earliest convenience.

Regards

Peter Swanson

Main Roads response to DEC submission