

**Main Roads Western
Australia**

Report for Brand Highway
Upgrades at 92.60 to 95.90 SLK

Preliminary Environmental
Impact Assessment

FINAL DRAFT

April 2006



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1. Introduction and Project Description

1.1 Introduction

GHD Pty Ltd were engaged by Main Roads Western Australia's Mid West Region to prepare a desktop Preliminary Environmental Impact Assessment (PEIA) for a north bound and south bound passing lanes on the Brand Highway at Regans Ford, from 92.60 to 95.90 SLK. The site location has been presented in Figure 1.

This report details the requested PEIA, which:

- » Describes the significant aspects of the existing project environment; and
- » Details the primary environmental and social impacts of the proposed works.

This PEIA has been prepared based on:

- » Brief site inspection conducted on the 2nd April 2006;
- » Discussions with Main Roads WA Project Manager;
- » Consultation with the relevant government agencies, including the Department of Conservation and Land Management (CALM), the Department of Environment (DoE) and the Department of Agriculture (DoA), refer to Appendix B for details; and
- » A review of relevant databases.

Environmental and social aspects identified as requiring consideration during the project have been identified in Table 1.

1.2 Project Description

Main Roads Western Australia (MRWA) proposes to undertake several upgrades to improve road safety on the southern section of the Brand Highway from Gingin to Eneabba, being from 54.20 to 169.20 SLK. Figure 2 identifies all of these proposed passing lane locations.

This report details the findings for MRWA Site 3, incorporating a northern and southern passing lane upgrade, located to the north of Salt Lake Road, Regans Ford. The passing lanes are located together along a 3.3km section of the Brand Highway (overlapping for a length of 200 metres), so have been considered together in this Preliminary Environmental Impact Assessment report.

The passing lane details are as follows:

- » A north bound passing lane at 92.60 to 94.00 SLK (1.4km in length), and;
- » A south bound passing lane at 93.80 to 95.90 SLK (2.1km in length), approximately 7km south of Yandan Road.

Key features of the proposed road project include:

- » Road widening of approximately 8 metres from the existing seal;
- » Construction of a 1.4km long north bound passing lane and a 2.1km south bound passing lane (overlapping by 200 metres); and
- » The project is proposed to be completed during 2006 / 2007.



Table 1 Environmental and Social Aspects Considered

Aspect	Section
Surrounding Area Land Use	2.1
Reserves and conservation areas	2.2
Surface waters / drainage (watercourses, stormwater disposal, water quality, proclaimed waterways)	2.3
Wetlands	2.3
Groundwater	2.4
Salinity	2.5
Acid Sulphate Soils	2.6
Vegetation	2.7
Fauna	2.8
Contaminated sites	2.9
Aboriginal heritage	2.10
European cultural heritage	2.11
Air quality	2.11
Dust	2.12
Noise and vibration	2.13
Visual amenity	2.14
Public safety and risk (industrial plant, gas pipeline, unexploded ordinance)	2.15



2. Environmental Aspects

2.1 Surrounding Area Land Use

The project area is surrounded by general farming land and remnant vegetation, and is zoned as "Rural", under the Shire of Dandaragan Town Planning Scheme No. 6. The Australian Government (2006) describes the surrounding rural land uses as 'dry land agriculture' or 'livestock grazing'.

2.2 Reserves and Conservation Areas

No conservation areas are located in the near vicinity of the project area (Department of Land Information, 2006).

The Shire of Dandaragan Town Planning Scheme No. 6 does not recognise any local Parks and Recreation reserves in the vicinity of the roadworks.

2.3 Wetlands / Surface Waters & Drainage

The DoE have advised that the upgrades are within the northern extent of the proclaimed portion of the Moore River surface water catchment area.

No *Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998* wetlands or wetlands listed under the Ramsar Convention (1971) occur within the project area.

Several permanently and seasonally inundated wetlands occur approximately 1km to the west of the project area. These areas will not be impacted by the roadworks.

2.4 Groundwater

The proposal is within a proclaimed groundwater area, being the Gingin Groundwater Area. Construction of bores in this area require a 26D Licence under the *Rights in Water and Irrigation Act (1914)*, taking water (eg for dust suppression) will also require a licence.

The site works will not impact on any gazetted Public Drinking Water Supply Areas.

2.5 Salinity

The Department of Water (2006) identifies the area as having on average groundwater salinity levels of between 1000 and 3000 mg/L total dissolved solids (TDS).

The site is within the Moore River catchment area. The Moore River has been defined as saline, having recorded a mean salinity level of 7200 mg/L TDS between 1993 and 2002 (Department of Environment, 2005).

The vegetation clearing required to be undertaken as part of the proposed roadworks is unlikely to be of sufficient scale to result in, or exacerbate, salinity at the project site.



2.6 Acid Sulphate Soils

The project area has not been mapped for potential acid sulphate soils as part of the Western Australian Planning Commission's (2003) Planning Bulletin No. 64, although areas 50km to the south of the site have been mapped.

Those areas mapped identify inundated areas as posing a high risk of actual or potential acid sulphate soils less than 3 metres from the surface, with surrounding higher areas considered as having a moderate to low risk of having actual or potential acid sulphate soils generally at depths of greater than 3 metres from the surface.

It is considered that the site would fall into the latter category, with it likely that the project area would contain Acid Sulphate Soils at depth owing to the close proximity of the project area to various wetlands. As the roadworks associated with the project are not expected to require deep excavation, it is considered unlikely that Acid Sulphate Soils will be encountered during the project.

2.7 Vegetation

2.7.1 Site Vegetation Composition

The composition of remnant native vegetation in the project area was interpreted from mapping conducted by Beard (1976). According to this mapping, the project area is likely to contain two vegetation communities; being *Banksia menziesii* and *Banksia attenuata* Low Woodland and a mosaic of hakea scrub-heath and dryandra heath shrublands.

2.7.2 Site Vegetation Condition

Vegetation condition was assessed via a brief site inspection and aerial photography (Department of Land Information, 2006) and considered factors such as the continuity and extent of vegetation, adjacent land use, proximity to existing roads and other disturbance / disease vectors.

Based upon this assessment it was concluded that the road reserve supports good quality remnant vegetation, with the surrounding areas largely degraded agricultural grazing land.

2.7.3 Site Vegetation in a Regional Context

The relative importance of conserving remnant native vegetation in the project area at a regional scale was determined via the analysis of aerial photos by Shepherd *et al* (2002), the dataset has been archived as the 1997 vegetation extent. The results of this assessment are summarised in Table 2.

The Environmental Protection Authority (EPA), has established through Position Statement No. 2. (*Environmental Protection of Native Vegetation in Western Australia*), the "threshold level" below which species loss appears to accelerate exponentially at an ecosystem level. This is regarded as being at a level of 30% of the pre-clearing extent of the vegetation type (EPA, 2000).

In the case of Vegetation System Associations 1030, 1031 and 125 detailed in Table 2 below, more than 30% of the original regional extent remained intact in 1997. It is expected that the proposed clearing required for the project will have a negligible impact upon these Vegetation System Associations



Table 2 Regional Assessment of Vegetation Extent

Vegetation Association	Description	Pre-European Extent (Ha)	Current Extent (Ha)	% Remaining (1997)
1030	<i>Banksia attenuata</i> & <i>Banksia menziesii</i> Low Woodland	162,086	103,154	63.6
1031	Mosaic: hakea scrub-heath and dryandra heath shrublands	312,772	109,127	34.9
125	Bare Areas: Salt Lakes	3,940,746	3,536,992	89.8

2.7.4 Environmentally Sensitive Areas

The Department of Environment (2006) do not identify any Environmentally Sensitive Areas (ESAs) at the project sites.

2.7.5 Declared Rare Flora

A search was undertaken through the CALM Threatened (*Declared Rare*) Flora Database (TFD) and the *Western Australian Herbarium Specimen* (WAHERB) database for species of rare and priority flora located within the project area, including a 100 metre buffer from the project site. One Priority 3 species was recorded in this area in both of these databases. See Table 3 for a description of the species and Figure 3 for known locations of the populations.

CALM also provided results from a search of their *Declared Rare and Priority Flora* (DR&PF) list. The species in this list are those known to exist in the general localities of all the MRWA project sites shown in Figure 2, and not to this project site specifically. CALM's search response, including this list, have been provided in Appendix C.

Table 3 Threatened and Priority Flora CALM Databases

Species	Conservation Category	Database	Description (FloraBase, 2006)
<i>Haemodorum loratum</i>	3	TFD & WAHERB	Bulbaceous, perennial herb of 0.45m to up to 2m high. Flowers black, brown and green in November. Occurs on grey or yellow sand and gravel.

The Moora District Office of CALM have also advised that the declared rare species listed in Table 4 may also exist at the project site as nearby areas of remnant vegetation are known to host the species, which are known to co-occur. CALM have recommended an assessment of the habitat of the area, and if this is deemed suitable for the species a targeted flora survey should be undertaken.



Table 4 Declared Rare Flora – additional advice provided by CALM Moora District Office

Species	Conservation Category	Description (FloraBase, 2006)
<i>Ptychosema pusillum</i>	Rare	Perennial herb from 0.05 to 0.1 m high. Flowers pea shaped and coloured red, brown and yellow, from August to October. Occurs on sand rises.
<i>Drakaea elastica</i>	Rare	Tuberous perennial herb, of 0.12 to 0.3 m high. Flowers red, green and yellow, from October to November. Occurs in white or grey sand, in low-lying situations adjoining winter-wet swamps.

It is recommended a targeted priority flora survey be undertaken in Spring to identify the presence of the species listed in Table 3 and 4, prior to construction of the road (refer to Section 3.2 Recommendation 1a). Other priority species may also exist at the site (refer to Appendix C) and these should also be identified during the field survey.

2.7.6 Threatened Ecological Communities

A search of the CALM Threatened Ecological Community (TEC) Database was undertaken. No TECs are known to be located within the near vicinity of the site. The closest communities referred to as JB27 and JB28 are approximately 20km to the west of the site.

CALM have advised that occurrences of TECs encountered during the project works should be reported to CALM to ensure their ongoing management.

It is recommended a TEC assessment be undertaken during the targeted priority flora survey prior to construction of the road (refer to Section 3.2 Recommendation 1b).

2.7.7 Diseases or Pathogens

The project area can be considered as susceptible to the development of the dieback pathogen, *Phytophthora cinnamomi* (Dieback Consultative Council, 2001).

There are many dieback susceptible species in the area, including *Banksia* and *Dryandra* species. The vegetation on site is currently in good condition and does not appear to be showing any symptoms of dieback infection.

It is recommended a dieback survey be undertaken prior to construction of the road, as per Clearing Permit Condition 7(i)(i), refer to Section 3.2 Recommendation 1d.

Condition 15a of the MRWA Clearing Permit relating to dieback hygiene measures should be adhered to during roadworks, incorporating the following steps:

- » Clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- » Avoid the movement of soil in wet conditions;
- » If movement of soil in wet conditions is necessary, the permit holder must prepare, implement and adhere to a dieback management plan, developed in consultation with CALM;
- » Ensure that no dieback affected road building materials, mulches or fill are brought into an area that is not affected by dieback; and



- » Restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

Management measures should be included in the Construction Environmental Management Plan (refer to Section 3.2 Recommendation 3).

2.7.8 Weeds

The Department of Agriculture (DoA) have recorded 74 Declared Plants as occurring within the Shire of Dandaragan, in addition to a wide range of common and pasture weeds.

MRWAs Term Network Contractors are aware of their operational responsibilities under the *Agriculture and Related Resources Protection Act (1976)*, which stipulates that landowners whose properties support declared species are legally responsible for the management of the species.

The brief site inspection did not reveal the presence of any declared weeds, although pasture weeds such as African Lovegrass were present, particularly on the edges of the remnant vegetation.

The DoA has recommended the adoption of a biosecurity protocol to ensure weeds are not spread to other locations from the project site and no new weeds are introduced to the project site via road materials and machinery. Management measures should be included in the Construction Environmental Management Plan (refer to Section 3.2 Recommendation 3).

2.7.9 Project Clearing Impact

The road reserve contains good quality remnant vegetation, comprising *Banksia* woodlands and *Hakea* and *Dryandra* dominated heathlands, in good to very good condition, which will be impacted by the proposed road works.

MRWA have advised that a maximum of 8 metres is required from the edge of the existing seal to accommodate the proposed road works. The site currently has a gravel shoulder of approximately 3 metres in width. An extra 5 metres clearing over the 1.4km for the north bound passing lane and 2.1km for the south bound passing lane equates to 1.75 hectares of good quality remnant vegetation that will be required to be cleared.

MRWA have been granted a Purpose Clearing Permit (CPS 818/1) under the provisions of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. This permit provides for MRWA to conduct vegetation clearing associated with roadworks projects where that clearing is:

- » not within an Environmentally Sensitive Area, and
- » the clearing is not at variance with the 'Ten Clearing Principles'

The Department of Environment (2006) do not identify any Environmentally Sensitive Areas (ESAs) at the project site, however, the clearing is considered to be potentially at variance with the following 'Ten Clearing Principles':

1. Does the area to be cleared comprise a high level of biological diversity?
2. Does the area to be cleared comprise the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia?
3. Does the area to be cleared include, or is necessary for the continued existence of rare flora?



5. Is the area to be cleared significant as a remnant of native vegetation in an area that has been extensively cleared?

See Appendix A for an assessment against each of the criteria.

As the project is likely to be at variance with some of the ten clearing principles, it is recommended that MRWA undertake an Environmental Impact Assessment (EIA) process, including field surveys as described in Section 3.2 Recommendation 1.

Should the EIA studies determine that the project is at variance with one or more of the clearing principles, then MRWA will need to provide a vegetation offset, to the approval of the DoE. It is considered likely that the proposed project will trigger the offset requirement.

Where the EIA is significantly at variance with any of the above criteria, MRWA will need to apply to the CEO of the DoE for a clearing permit in respect of that clearing (Clearing Permit Condition 7n).

2.8 Fauna

A search was undertaken through CALM Threatened Fauna database, which includes species declared as 'Rare or likely to become extinct (Schedule 1)', 'Birds protected under an international agreement (Schedule 3)', and 'Other specially protected fauna (Schedule 4)'. See Table 5 and Appendix D for the CALM search results.

Table 5 Threatened Fauna

Scientific Name	Common Name	Record No / Date	Other information	Likelihood of Occurring in the Project sites
<i>Botaurus poiciloptilus</i>	Australasian Bittern	1 in 1921	This species inhabits beds of tall dense reeds and sedges in freshwater swamps.	Low
<i>Calyptorhynchus latirostris</i> ^{1A}	Carnaby's Black Cockatoo	14 from 1999 to 2001	This species moves around seasonally in flocks to feeding areas in proteaceous scrubs and heaths and eucalypt woodlands as well as pine plantations. Breeding occurs in winter/spring, mainly in the eastern forests and wheatbelt where they can find mature hollow-bearing trees to nest in.	Moderate
<i>Calyptorhynchus</i> sp ^{1A}	These records pertain to either Baudin's Black-Cockatoo or Carnaby's Black-Cockatoo.	3 from 1984 to 1990	As above.	Moderate



Scientific Name	Common Name	Record No / Date	Other information	Likelihood of Occurring in the Project sites
<i>Dasyurus geoffroii</i> ^{1B}	Chuditch	1 in 1987	This carnivorous marsupial occupies large home ranges, is highly mobile and appears able to utilise bush remnants and corridors.	Low
<i>Falco peregrinus</i>	Peregrine Falcon	1 in 2001	This species is uncommon and prefers areas with rocky ledges, cliffs, watercourses, open woodland or margins with cleared land.	Low – may fly over
<i>Macropus irma</i>	Western Brush Wallaby	4 from 1976 to 2003	This species occurs in areas of forest and woodland supporting a dense shrub layer.	Low
<i>Morelia spilota imbricata</i>	Carpet Python	1 in 1999	This species occurs in a variety of habitats including forest and heathland. It is often arboreal and preys on birds, other reptiles and small to medium size mammals. This species is listed under both Schedule 4 and Priority 4.	Low
<i>Platycercus icterotis xanthogenys</i>	Western Rosella (inland ssp)	2 in 1977 & 1979	This subspecies of the Western Rosella occurs in eucalypt and casuarina woodlands and scrubs, especially of Salmon Gum and tall mallees.	Low

Note:

1. These species are protected under the Commonwealth *Environmental Protection and Biodiversity Act 1999* (as well as the State *Wildlife Conservation Act 1950*) and have been categorised as:

- A. Endangered
- B. Vulnerable

Based upon the nominal clearing area associated with the project, it is considered unlikely that the project will significantly impact upon the long-term survival of any species of threatened fauna that may occur in the area. CALM have requested a field assessment of potential Carnaby's Cockatoo feeding and nesting sites (refer to Section 3.2 Recommendation 1c).

2.9 Contaminated Sites

A search for Potentially Contaminated Sites through the DoE Water Information (WIN) database was conducted. This search concluded that no previously recorded contaminated sites occur within the project area, which is consistent with the pattern of historical land use in the project area.



2.10 Aboriginal Heritage

A search of the Department of Indigenous Affairs (DIA) Register of Aboriginal Sites was conducted to determine the likelihood of the project impacting on a listed Aboriginal heritage site.

The database indicated that no known Aboriginal Heritage sites occur within the vicinity of the proposed project site.

It may be possible that there are unregistered sites in the project area and it is recommended that the MRWA Project Officer liaise with the MRWA Heritage Liaison Officer and appropriate representatives of the local Aboriginal community to determine the presence of unregistered sites (refer to Section 3.2 Recommendation 2).

MRWA and their contractors need to be aware of their obligations under the *Aboriginal Heritage Act (1972)* during the road construction.

2.11 European Heritage

A search of the Heritage Council of Western Australia's (2006) Heritage Places database was conducted to determine the likelihood of the project impacting upon a listed heritage site.

No sites of European heritage were located in close vicinity to the project area.

2.12 Air Quality

The road is not expected to significantly impact on regional air quality.

Dust may be generated during construction and should be managed for the protection of road users and adjoining landholders.

2.13 Noise and Vibration

Noise and vibration during the construction phase are not expected to be an issue, due to the lack of sensitive receptors in the area.

Noise and vibration should be controlled by MRWA standard work procedures in order to comply with the requirements of the *Environmental Protection (Noise) Regulations (1997)*.

2.14 Visual Amenity

Visual amenity for road users will be impacted, due to the clearing of remnant vegetation within the road reserve in an otherwise largely cleared landscape.

It is suggested the minimal nature of the works and low numbers of surrounding residents will result in minimal impacts on visual amenity.

2.15 Public Safety and Risk

Agility Management Pty Ltd (Pipeline Operator for APT Parmelia) have advised that their infrastructure does cross the Brand Highway within boundaries of the proposed roadworks. Agility have requested further details from MRWA. MRWA will make the appropriate enquiries, identify all services and work in



accordance with all requirements as part of their routine design investigations and construction management procedures.

Public safety and traffic safety during construction will be managed in accordance with Standard Contract Specifications.



3. Conclusions and Recommendations

3.1 Aspects Not Considered Relevant

Through the results of this PEIA and based upon available information, it is considered unlikely that the following will be impacted upon by, or will otherwise be of concern during, the proposed roadworks:

- » Reserves and Conservation Areas;
- » Wetlands, waterways and groundwater;
- » Salinity;
- » Acid Sulphate Soils;
- » Contaminated Sites;
- » European Heritage Sites;
- » Air Quality;
- » Noise and Vibration; or
- » Visual Amenity.

3.2 Recommendations

To ensure that the impact of the project are fully identified it is suggested that the following site investigations be conducted in order to resolve issues discussed throughout this report:

1. Development of EIA documentation to confirm the potential variances, including undertaking the following field surveys:
 - a. Targeted surveys for rare and priority flora species. The species identified as existing in this area should be surveyed in Spring, this will also allow the survey of other priority flora species that may exist at the site;
 - b. Threatened Ecological Communities survey;
 - c. Threatened fauna species habitat survey, particularly for the Carnaby's Cockatoo; and
 - d. Dieback survey.
2. It is recommended that MRWA Project Officer liaise with the MRWA Heritage Liaison Officer and appropriate representatives of the local Aboriginal community to determine the occurrence of any unregistered sites in the project area. Should MRWA discover any Aboriginal heritage artefacts during construction, works should be ceased immediately and an Archaeologist called to identify any artefacts and consult with the DIA.
3. Development of a Construction Environmental Management Plan by MRWA and its contractor. Issues to be considered in this management plan include:
 - a. Vegetation clearing;
 - b. Protection of threatened flora and threatened fauna habitat;
 - c. Damage to public property;



- d. Public consultation;
- e. Dust control;
- f. Traffic safety and access;
- g. Public safety, including management around gas infrastructure;
- h. Fire management;
- i. Vehicle servicing;
- j. Weed and dieback management;
- k. Drainage management;
- l. Erosion Control;
- m. Fuel and chemical storage and management;
- n. Rubbish disposal; and
- o. Environmental training.



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Figures



Appendix A
Department of Environment Clearing
Principles



1. *Does the area to be cleared comprise a high level of biological diversity?*

This project may potentially be at variance with this clearing principle.

Based upon a brief site visit and aerial photography interpretation, remnant vegetation at the project sites is believed to be in good and better condition, and likely to exhibit a high level of biodiversity.

To fully answer this question, biodiversity at the project site will need to be quantified by a field flora survey.

2. *Does the area to be cleared comprise the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia?*

This project may potentially be at variance with this clearing principle.

The project area falls within the known range of the Carnaby's Cockatoo, which feeds and nests in the general area. Vegetation at the project site is in good condition and may provide some habitat to the Carnaby's Cockatoo. CALM have requested an assessment be undertaken of the feeding and nesting habitat for the Carnaby's Cockatoo.

3. *Does the area to be cleared include, or is necessary for the continued existence of rare flora?*

This project may potentially be at variance with this clearing principle.

CALM searches have identified a Priority 3 species (*Haemodorum loratum*) within a 100m buffer from the site. In addition, the Moora Office of CALM have also suggested that the rare species, *Ptychosema pusillum* and *Drakea elastica*, are known to exist in the near vicinity of this site.

Given the good condition of the vegetation within the project area, the works site may potentially host more of these species, or other species of priority or rare flora.

A Spring flora survey has been recommended to assess the project site for the presence of these species, and other priority flora species that may potentially exist on site.

4. *Does the area to be cleared comprise the whole or a part of, or is necessary for the maintenance of, a threatened ecological community?*

No. The results of a search of the Department of Conservation and Land Management's Threatened Ecological Community Database concluded that no TECs have been previously recorded in the project area.

CALM have, however, recommended a TEC survey be undertaken during the spring flora survey to ensure that this is the case.

5. *Is the area to be cleared significant as a remnant of native vegetation in an area that has been extensively cleared?*

This project may potentially be at variance with this clearing principle.

The road reserve provides a significant area of remnant vegetation, with much of the immediate surrounds cleared for agricultural or grazing purposes. The road reserve potentially provide important corridors, particularly for birds and reptiles, between nature reserves.

The mapped Vegetation System Associations, 1030 and 1031, did not fall below the EPA 30% ecosystem "threshold level" in 1997, and it is expected the proposed clearing will have a negligible impact upon these Vegetation System Associations.



6. *Is the area to be cleared within, or in association with, an environment associated with a watercourse or wetland?*

No. The area is in upland vegetation.

7. *Is the clearing of the vegetation likely to cause appreciable land degradation?*

No. Only a nominal amount of vegetation clearing will be undertaken as part of the proposed roadworks and is unlikely to be of sufficient scale to result in significant land degradation.

The Department of Agriculture have assessed the proposed road works and consider the land degradation risk to be low.

8. *Is the clearing of the vegetation likely to have an impact on the environmental values of any adjacent or nearby conservation area?*

No. No conservation areas are located within the near vicinity of the roadworks.

9. *Is the clearing of the vegetation likely to cause deterioration in the quality of surface or underground water?*

No. Vegetation clearing is unlikely to be of sufficient scale to cause the deterioration in the quality of surface or underground water. Discharge will be retained onsite for *insitu* infiltration.

10. *Is the clearing of the vegetation likely to cause, or exacerbate, the incidence or intensity of flooding?*

No. Vegetation clearing is unlikely to be of sufficient scale to result in, or exacerbate the incidence or intensity of flooding.



Appendix B
Consultation



During the preparation of this PEIA GHD contacted the following stakeholders. The responses to our request for comments are detailed below.

Ms Annaleisha Sullivan, Geraldton Regional Office - Department of Environment.

Ms Sullivan advised that the highway doesn't cross any gazetted Public Drinking Water Supply Areas, however, the proposal is within the proclaimed Gingin Groundwater Area. Construction of bores in this area require a 26D licence under the *Rights in Water and Irrigation Act (1914)*. Taking water (eg for dust suppression) will also require a licence. The project site is within the northern most proclaimed section of the Moore River Catchment.

Ms Natalie Lauritsen, Geraldton Regional Office - Department of Environment.

Ms Lauritsen provided information on a basic check as for any clearing permit, consisting of a review of Environmentally Sensitive Areas, Threatened Ecological Communities and proximity to reserves. Ms Lauritsen advised that their records identified a priority species possibly located at or close to the site. No Environmentally Sensitive Area was identified at this site. Ms Lauritsen advised that it will be necessary for MRWA to apply for a clearing permit as the previous exemption that applied to this activity has now expired, however, GHD advised of MRWA's new purpose clearing permit.

Ms Gina Broun, Conservation Officer - Moora District Office - Department of Conservation and Land Management.

Ms Broun strongly recommended that the proponent undertake a flora survey of the project areas at an appropriate time of the year to determine the extent of both known and unrecorded populations of DRF and Priority Flora species as well as TEC occurrences. This site requires particular attention as nearby areas of remnant vegetation house the DRF species *Ptychosema pusillum* and *Drakea elastica*. The habitat of this site should be assessed for suitability and if deemed suitable for these species (which co-occur), they should be included in the flora survey at an appropriate time of year (October - early November would suit both). Ms Broun stated the outcome of the surveys may influence the locality of the passing lanes and will be necessary information in the event of the proponent applying for any Permits to Take DRF. The flora survey should include any area that will be impacted by works including the site itself, temporary access tracks, machinery parking areas and the new maintenance zones resulting from changes in road surface widths.

Ms Broun also advised that the project area falls within the known range of the rare Carnaby's Cockatoo which both feeds and nests in the local area. As part of the preliminary work, CALM recommend a survey to identify any of their nesting sites that may be impacted (including where loud machinery noises would disturb nesting birds) as this may have implications on the timing of works.

Ms Broun suggested other considerations may also impact on the preferred timing of works. Examples provided included, where DRF species or TECs occur within or immediately adjacent to the areas of proposed works, requiring the area to be surveyed at a particular time of year to identify their presence, and where remedial actions such as seed harvesting/propagule collection may be recommended for particular species at an appropriate time of year.

Ms Broun emphasised that all staff involved in the works must be made aware of their duty of care in regards to Environmentally Sensitive Areas (as defined in the new clearing legislation attached to the *Environmental Protection and Biodiversity Conservation Act (1999)*- this includes both TECs and rare plants) and the *Wildlife Conservation Act (1950)* which specifically protects DRF as well as provides protection to native flora species.



Mr Frank Rickwood, Moora District Office, Department of Agriculture.

Mr Rickwood recommended the adoption of a biosecurity protocol to ensure weeds are not spread to other locations from the sites and, new weeds are not introduced to the sites through road materials and machinery. He indicated the site has remnant vegetation and MRWA would need to seek clearances through DoE and CALM. He further stated the road works were not expected to interfere with any waterways.

Mr David Seinor, Corporate Services Manager, Shire of Dandaragan.

No comment was received prior to the completion of this report.

Mr Andrew Arnold – UXO Liaison Officer, Fire and Emergency Services Authority.

Mr Arnold advised that this site lies outside known unexploded ordinance (UXO) contamination sites, although other MRWA upgrade sites to the south and north do lie within contamination sites and will need to be surveyed (refer to Appendix D). Mr Arnold advised that numerous UXO have been found over the past 50 years, some in very close proximity to Brand Highway by former elements of UXO Services during the construction of the gas pipeline in the early 1980s.

Mr Gerard Connell – Lands Officer, Agility Management Pty Ltd (Operator of the Parmelia Gas Pipeline).

Mr Connell provided details of the gas pipeline infrastructure crossing in the vicinity of the project area. A gas crossing has been identified as crossing within the boundary of these two passing lanes. Mr Connell has advised that prior to any works commencing, Agility would be pleased to receive plans and work methodology. Each crossing will require a letter of conditions to be sent out to the main proponent for agreement and signing of on the site specific conditions.



Appendix C
CALM Rare and Priority Flora Search



Appendix D
CALM Threatened Fauna Search



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