Main Roads Western Australia

Coolgardie Esperance Highway 155.95 SLK (H10) and Norseman Hyden Road Intersection

Preliminary Environmental Impact Assessment

March 2007

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Executive Summary

Main Roads Western Australia (Main Roads WA) commissioned GHD Pty Ltd (GHD) to complete a Preliminary Environmental Impact Assessment (PEIA) associated with the intersection upgrade at Coolgardie Esperance Highway (H10) and Norseman Hyden Road approximately 10km north of Norseman in the Shire of Dundas. The Project involves the clearing of 0.4ha (500m x 8m) of vegetation in an effort to increase the line of sight at the intersection and sealing 100m of the road (at the intersection) to a 7m wide pavement.

A number of desktop assessments were undertaken to determine the potential environmental impacts of the proposed works. These included identification and reporting of:

- climate;
- topography, hydrology and soils;
- vegetation i.e. clearing and presence of Declared Rare or Priority Flora (DRF), Threatened Ecological Communities and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (*EPBC Act*) listed species;
- weed management;
- significant fauna;
- indigenous heritage;
- non-indigenous heritage;
- land use; and
- construction phase impacts.

No issues identified during the development of this PEIA are considered to require referral to the Environmental Protection Authority or the Commonwealth under the *EPBC Act.*

It is estimated that approximately 0.4 hectares of vegetation will be required to be removed as part of works in the Project area. Based upon the currently available information, it is possible that the proposed works are at variance with the DEC's 10 Clearing Principles. This initial assessment may differ however when more information is obtained through a field flora survey of the Project area. The project is likely to require an Area specific Clearing Permit if it is at variance with the 10 Clearing Principles.

A search of Aboriginal heritage sites revealed an inconsistency in the location of the Aboriginal heritage site Munjuni, Different sources place this site at varying distances to the project area and co-ordinates were unavailable. As the positioning of Aboriginal heritage site Munjuni is unreliable an archaeological and ethnographic assessment is recommended to confirm if the site will be impacted.

1. Introduction

Main Roads West Australia (Main Roads WA) has commissioned GHD Pty Ltd (GHD) to complete a Preliminary Environmental Impact Assessment (PEIA) for the intersection upgrade, for safety reasons, at 155.95 SLK Coolgardie Esperance Highway (H10) and Norseman Hyden Road.

The intersection is located approximately 10km north of Norseman in the Shire of Dundas. Visibility for vehicles looking left (north) when entering onto the highway from Norseman Hyden Road is currently below Main Roads standards. The works proposed involve the clearing of approximately 0.4ha (500m x 8m) of vegetation to increase the line of sight at the intersection. Signs and pavement marking will also be improved to increase safety. The Norseman Hyden Road is currently unsealed and the works proposed include sealing 100m of the road (at the intersection) to a 7m wide pavement.

Throughout this report the search area is defined as the project and the surrounding area. The search area is evident in Figure 1 and photographs are contained within Appendix A. The project area is defined by the area directly affected by the works, this includes the 0.4ha clearing of vegetation and the 100x7m sealing of the road at the intersection.

1.1 Scope of report

This PEIA has been prepared to conform to Main Roads Consultant Brief. It:

- Identifies and reviews existing relevant environmental reports;
- Conducts an initial assessment to determine the key environmental aspects for the road proposal;
- Assesses the project against the *Environmental Protection Act's* 10 Clearing Principles (Schedule 5);
- Assesses all environmental aspects likely to require referral of the project and advises whether the project should be referred to the Environmental Protection Authority (EPA);
- Assesses all matters of National Environmental Significance likely to require referral of the project to the Commonwealth Department of Environment and Water Resources (DEW);
- Consult with relevant government agencies as required;
- Determines (but does not apply for) clearances required under other legislative provisions, including (but not limited to) those required under the following Acts:
- *Conservation and Land Management Act (1984);*
- *Wildlife Conservation Act (1950);*
- *Environmental Protection Act (1986);*
- *Rights in Water and Irrigation Act* (1914);

- *Heritage of Western Australia Act* (1990);
- *Aboriginal Heritage Act* (1972); and
- Based on the information provided by Main Roads WA and database/literature reviews, the environmental and social aspects considered and discussed in this PEIA include:
- Climate;
- Geology and soils;
- Topography and hydrology;
- Vegetation i.e. clearing and presence of Declared Rare or Priority Flora (DRF), Threatened Ecological Communities and the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) listed species;
- Weed management;
- Fauna;
- Indigenous heritage;
- Non-indigenous heritage;
- Land use; and
- Construction phase impacts.

The Main Roads WA brief required a desktop investigation to assess a number of issues. However, some of these issues are considered not to be relevant to this study.

Table 1 identifies these issues and provides reasons why they were not assessed.

Table 1 Environmental Issues Not Relevant to the Proposed works

Issue	Reason for non - assessment
Contaminated Sites	A search of the Department of Environment and Conservation LEGACI database identified no contaminated sites within the Project boundaries or surrounding area. Past and current land uses of the project area do not involve potentially contaminating activities. Therefore, contamination is not suspected.
Public safety and risk	Public safety and risk will be managed in accordance with standard Main Roads WA specifications.
Noise and Vibration	Noise and vibration are not considered to be an issue based on the lack of sensitive receptors within the project boundaries or surrounding area.
Dieback	The risk and spread of Dieback disease is not considered to be an issue based on the location and annual rainfall.
Visual Amenity	Given the isolated location and nature of the project area visual amenity is not considered an issue.

LEGEND

- Aboriginal Heritage Sites
- Mining Tenements

Declared Rare & Priority Flora

- (R) Declared Rare Flora - Extant Taxa
- Priority 1 - Poorly Known Taxa
- Priority 2 - Poorly Known Taxa
- Priority 3 - Poorly Known Taxa
- Priority 4 - Rare Taxa

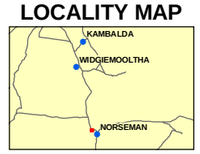
MAP UNITS PROJECTED IN MGA ZONE 50
NOTE THAT POSITIONAL ERRORS CAN BE > 5M IN SOME AREAS
AERIAL PHOTOGRAPHY SOURCED FROM LANDGATE - 2003 NORSEMAN MOSAIC
REPRODUCED BY PERMISSION OF LANDGATE, PERTH, WA, COPYRIGHT LICENCE 30/2004

SCALE

75 0 75 150 225m

1:7,500 at A3

LOCALITY MAP



Southern Goldfields Region

CREATED BY	CHECKED	APPROVED
MD		

HORIZONTAL DATUM: GDA94 **PROJECTION:** MGA ZONE 51

HEIGHT DATUM: **METADATA RECORDED:**

DATE	FILE LOCATION
13.03.07	G:\61\19284\GIS\MXD\6119284-G1.mxd

REVISION	DRAWING NO
0	6119284-G1

mainroads WESTERN AUSTRALIA

GHD CLIENTS|PEOPLE|PERFORMANCE

PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT COOLGARDIE-ESPERANCE HIGHWAY AND

NORSEMAN-HYDEN ROAD INTERSECTION UPGRADE

Figure 1
Environmental Constraints

1.2 Structure of Report

This PEIA has been structured as follows:

» Section 2: Outlines the project

» Section 3: Environmental and social issues considered relevant to this Project are outlined on a topic-by-topic basis. Each of the topics includes a baseline environmental description, and where appropriate this is followed by a preliminary assessment of potential environmental constraints and GHD's recommendation to Main Roads WA.

» Section 4: Discusses the need for referral and approvals that may be required by the proposed project.

» Section 5: Draws conclusions from the preliminary EIA and reiterates the management recommendations provided in Section 3.

2. Project Description and Justification

The project involves the upgrading of the intersection of Coolgardie to Esperance Highway (H10) and Norseman to Hyden Road in an effort to improve the safety of road users. At present visibility for vehicles looking left (north) when entering the highway from Norseman Hyden Road are below Main Roads WA standards.

According to Main Roads WA, the proposed road works will consist of the following actions:

- Clearing of approximately 0.4ha (500 x 8m) of vegetation;
- Improvement of signs and pavement markings; and
- Sealing 100m of the road (at the intersection) to a 7m wide pavement.

3. Environmental Aspects and Management

The environmental and social issues considered relevant to this Project are outlined on a topic-by-topic basis in the following section. Each of the topics includes a baseline environmental description, and where appropriate this is followed by a preliminary assessment of potential environmental constraints and GHD's recommendation to Main Roads WA.

3.1 Climate

The closest Bureau of Meteorology weather station located to the project area is at Norseman. This information is presented in Table 2.

Table 2 Climate Information from Norseman Weather Station (012065)

Mean Annual Maximum Temperature Range	32.5 ^{0}C (January) & 16.6^{0}C (July)
Mean Annual Minimum Temperature Range	15.8^{0}C (January/February) & 5.2^{0}C (July)
Mean Annual Rainfall	289.6 mm
Mean Annual Raindays per year	69.4

Source: Commonwealth Bureau of Meteorology 2007.

3.2 Topography, Hydrology and Soils

3.2.1 Topography

Topographical information provided by Landgate Map Viewer shows the project area to be relatively flat.

3.2.2 Hydrology

A search of Wetlands Base shows no Ramsar or protected wetlands within 100km of the project area. The nearest water body is Lake Cowan, a large (96956 ha) non-perennial salt lake situated approximately 3 km from the project area. The Western Australian Online Atlas indicates one main non-perennial drainage line located 0.1km south of the project area flowing from west to east to Lake Cowan.

Run-off or spills from the works impacting Lake Cowan directly is not an issue however it is possible that some run-off off may impact the drainage line. To reduce this likelihood management recommendations should be followed.

A DEC WIN Database Bore Search was conducted and no bores were identified within a 15km radius from the project area. As the site is within 3km of the saltwater Lake Cowan it is possible that groundwater will be close to the surface and potentially saline.

As dewatering will not be an aspect of the proposed works disposal of saline water will not be an issue.

Recommendation 1

No laydown areas should be placed within 50m of the drainage line in order to reduce the risk of pollution from potential spills.

Recommendation 2

If the proposed plans alter and dewatering will be needed Main Roads WA should consider the potential saline quality of the groundwater and disposal options.

3.2.3 Soils

Geology mapping provided by the Department of Industry and Resources and Geological Survey of Western Australia indicates the project area crosses three geology types.

- Colluvium;
- Saline and gypsiferous evaporite deposits; and
- Gabbro in the Mission Sill (a layered mafic-ultramafic intrusion).

The Geological Survey of Western Australia (GSWA) 1:250.000 map series was also referred to, to determine specific geology and soil characteristics of the search area. The search area is described as Eolian deposits of clay, silt and sand, calcareous containing nodular sheet kankar, in part reworked. It also has Eolian deposits of gypsiferous clay and silt, with associated seed and granular gypsum. It forms dunes and seets derived from playas.

Acid Sulphate planning Bulletin mapping only covers metropolitan areas. In other areas site characteristics are used to determine if Acid Sulphate soils are likely to be present. Unfortunately there is a lack of groundwater data around the search area which causes difficulty in making a certain judgement on the presence of Acid Sulphate Soils. Given the location being a considerable distance inland, flat and having calcareous soils it is unlikely that Acid Sulphate Soils are present. Under the proposed plans Acid Sulphate Soils should not be an issue due to only minimal excavations and no dewatering.

LEGEND

Road Centrelines

Geology

- Ab - Massive and pillowed basalt, includes doleritic interiors
- Abb - Massive and pillowed basalt, minor intrusive dolerite
- Abd - Doleritic to gabbroic-textured basalt
- Abl - Pillow Basalt
- Abm - High Mg basalt
- Acw - Grey-white banded chert and rare jasper, locally iron-rich
- Ams - Mafic and ultramafic schist, chlorite-rich
- Aog - Gabbro
- Aogm - Gabbro in the MISSION SILL
- As - Clastic sedimentary rock
- Asf - Felsic volcaniclastic rock
- Ash - Grey black shale and slate
- Aux - Pyroxenite
- Auxm - Pyroxenite in the MISSION SILL
- Czc - Colluvium
- Czl - Laterite and ferruginous deposits
- Cztd - Quartz sand and gypsum dune deposits
- Czts - Saline and gypsiferous evaporite deposits
- Czy - Feldspar-rich sands
- PLdjn - Norite in JIMBERLANA DYKE
- Qa - Allivium
- q - Quartz vein

MAP UNITS PROJECTED IN MGA ZONE 50
NOTE THAT POSITIONAL ERRORS CAN BE > 5M IN SOME AREAS
BASE GEOLOGY INFORMATION PROVIDED BY GEOLOGICAL SURVEY OF WESTERN AUSTRALIA. SOURCED FROM DEPARTMENT OF INDUSTRY AND RESOURCES, 2007.
FOR FURTHER GEOLOGICAL DESCRIPTIONS, SEE 1:100,000 GEOLOGICAL MAP - NORSMAN (3233), 1994, FIRST EDITION

SCALE

200 0 200 400 600m

1:20,000 at A3

LOCALITY MAP

Southern Goldfields Region

CREATED BY	CHECKED	APPROVED
MD		

HORIZONTAL DATUM: GDA94 **PROJECTION:** MGA ZONE 51

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13.03.07	G:\61\19284\GIS\MXD\6119284-G1.mxd

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mainroads WESTERN AUSTRALIA GHD CLIENTS|PEOPLE|PERFORMANCE

PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT COOLGARDIE-ESPERANCE HIGHWAY AND NORSEMAN-HYDEN ROAD INTERSECTION UPGRADE

Figure 2
Geology

3.3 Vegetation and Flora

Shepherd et al (2005) classifies the search area as Binneringe 9. Which is a Medium woodland predominantly consisting of Coral Gum (*Eucalyptus torquata*) & Goldfields Blackbutt (E. le soufii).

Table 3 summarises the vegetation at the site and indicates its status with regard to the Shepherd (2005) draft vegetation extent classifications.

Table 3 Vegetation Type and Extent Data for Coolgardie-Esperance Highway and Norseman-Hyden Road Intersection

Vegetation Type Shepherd (2005)	Shepherd Vegetation Extent Data			
	Pre-European extent (ha)	Current remaining extent (%)	(%) in IUCN Class 1-4 Reserves	(%) in other Reserves in IBRA subregion
Medium woodland; Coral Gum and Goldfields Blackbutt.	240509.682	99.7%	1.3%	3.6%

Source: Shepherd (2005)

Table 3 indicates that the vegetation type likely to occur within the Project area is widespread and largely intact, as compared to the pre-European vegetation area extent. Vegetation type does not pose a constraint on clearing.

3.3.1 Threatened Ecological communities

The Department of Environment and Conservation's Threatened Ecological Communities (TEC's) database indicates that no TEC's occur within or surrounding the Search area.

3.3.2 Declared Rare and Priority Flora Species

The Department of Environment Conservation (DEC) was consulted to determine the presence of any Declared Rare or Priority Flora species over the search area. No Declared Rare or Priority Flora are recorded within the project boundarys. Two Priority Flora are recorded in the search area within 1km of the site. Priority flora are mapped on Figure 1. Table 4 indicates the results of the search and Table 5 provides a description of the conservation codes.

Table 4 DEC Declared Rare and Priority Flora Species within Search area

Species Name	Classification Code
Grevillea phillipsiana	Priority 1
Eucalyptus brockwayi	Priority 3

Source: Department of Environment and Conservation, 2007

Table 5 Conservation Codes and Descriptions

Code	Description
R: Declared Rare Flora - Extant Taxa	Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.
X: Declared Rare Flora - Presumed Extinct Taxa	Taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such.
1: Priority One - Poorly known Taxa	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.
2: Priority Two - Poorly Known Taxa	Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey
3: Priority Three - Poorly Known Taxa	Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but are in need of further survey.
4: Priority Four - Rare Taxa	Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

Source: Department of Environment and Conservation, 2006

Recommendation 3

A targeted flora survey should be conducted in order to confirm or eliminate the presence of priority plants *Eucalyptus brockwayi* and *Grevillea philipsiana.* Both priority species can be recognised year-round.

3.3.3 Clearing of Native Vegetation

It is estimated that approximately 0.4 ha of native vegetation will be required to be removed in the Project area.

Any clearing of native vegetation will require a permit under Part V of the *Environmental Protection Act (1986)*, except where exemptions apply under Schedule 6 of the Act or are prescribed in the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, and not in an Environmentally Sensitive Area (ESA).

Clearing applications are assessed against Ten Principles outlined in Schedule 5 of the *Environmental Protection Amendment Act 2003*. These principles aim to ensure that all potential impacts resulting from the removal of native vegetation can be assessed in an integrated way.

An examination of the Ten Clearing Principles associated with the project is shown in Table 6.

Table 6 Assessment against the Ten Clearing Principles.

Principle Number	Principle	Assessment	Outcome
(a)	Native vegetation should not be cleared if it comprises a high level of biological diversity	The Southern Goldfields region within which the areas of interest lie is not listed as a National Biodiversity Hotspot. Photos of the vegetation to be cleared provided by Main Roads show an understory to be present. Vegetation with both an over and understory will contain higher levels of biodiversity. Unless surveys have already been performed in a similar area to the project site a flora survey would need to be performed to gain a reliable estimate of biodiversity.	The proposal is unlikely to be at variance with the Principle.
(b)	Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	An EPBC Protected Matters search of Native Fauna reported both the Malleefowl and the Slender-billed Thornbill may be present within 5km of the site. It is probable that the nearby Lake Cowan would provide a significant habitat for this vulnerable fauna Though it is not possible to eliminate the possibility of significant fauna occurring in the project area without a fauna survey, the small area being cleared and the intact uniformity of the surrounding vegetation makes it unlikely that the vegetation to be cleared is significant for fauna indigenous to Western Australia.	The proposal is unlikely to be at variance with the principle
(c)	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	A desktop assessment has identified that the area to be cleared does not contain any Declared Rare Flora or Priority Flora. It should be noted however that Priority flora is located in the near vicinity and a flora assessment is recommended.	The proposal may be at variance with the Principle.
(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.	There are no known records of TECS within, or in the vicinity, of the study area.	The proposal is unlikely to be at variance with the Principle.

Principle Number	Principle	Assessment	Outcome
(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.	The extent and status of vegetation identified for the study area by Shepherd has indicated that: 99.7% of the pre-European extent is remaining in the IBRA region of Coolgardie. Indicating the vegetation type is widespread and largely intact, as compared to the pre-European vegetation area extent	The proposal is unlikely to be at variance with the Principle.
(f)	Native vegetation should not be cleared if it is growing in or in association with a watercourse or wetland.	There are no wetlands or watercourse within the study area. The nearest water body is 3 km South and East. A non-perennial drainage line crosses beneath the intersection. When water is present drainage to vegetation will be inhibited if appropriate management measures are not formulated	The proposal is unlikely to be at variance with the Principle.
(g)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The clearing of native vegetation may cause slight alterations to the adjacent lands. Runoff, sedimentation, and erosion may increase slightly but will be very unlikely to cause appreciable land degredation.	The proposal is unlikely to be at variance with the Principle.
(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.	No conservation areas were identified during the desktop assessment	The proposal is unlikely to be at variance with the principle
(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.	The clearing of native vegetation has a low potential to cause deterioration in the quality of surface and underground waters, as clearing is limited to 0.4ha and appropriate management plans may mitigate any potential impacts.	The proposal is unlikely to be at variance with the Principle

Principle Number	Principle	Assessment	Outcome
(i)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the intensity of flooding.	The clearing of native vegetation may cause, or exacerbate the incidence or intensity of flooding due to increased runoff in localised areas. However, this is considered to be a low risk due to clearing being limited to 0.4ha. .	The proposal is unlikely to be at variance with the Principle.

Based upon the currently available information, it is possible that the proposed works are at variance with the DEC's 10 Clearing Principles. This initial assessment may differ however when more information is obtained through a field flora assessment of the Project area.

3.4 Weed Management

The occurrence and extent of weeds within the project area are likely to be low given the projects isolated location however with any clearing of native vegetation there is potential for spread of weeds. Through out-competing, weeds threaten the survival of many native plants and animals, having an effect on biodiversity.

Recommendation 4

If weeds are located within the search area, weed management stratagys should be applied during construction to prevent spread. Weeds should also be monitored post construction to ensure they're adequately controlled.

3.5 Fauna

A search of the *Commonwealth's Environment Protection and Biodiversity Conservation Act 1999* (EPBC*)* Protection Matters Database identified 2 Threatened species and 1 Listed Marine Species that may occur in within a 5 km radius of the Project area. These are listed in Table 7.

Table 7 *EPBC Act* Threatened and Listed Marine Species in the Project, basecourse pit and borrow pit areas

Species	Classification
Slender-billed Thornbill (western)	Threatened Species: Vulnerable
Malleefowl	Threatened Species: Vulnerable
Rainbow Bee-eater	Listed Marine Species: Species or species habitat may occur within the area

Source: Commonwealth Department of Environment and Water Resources, 2007

The Slender-billed Thornbill may occur in shrubland areas of saltmarsh, feeding on invertebrates (Northern Territory Department of Natural Resources, Environment and Art, 2002). It is likely that the nearby salt lake - Lake Cowan would provide a significant area of potential habitat for the species. As the vegetation of the project area has not yet been surveyed for salt marsh species the possibility of Slender-billed Thornbill occurrence in the Project area cannot be eliminated.

The Malleefowl may occur in Mallee and other dry scrubs of the south of the state. The Malleefowl dedicates up to 11 months per year building and maintaining its nest that comprises a large incubation mound of soil, leaves and twigs. The mounds can be as large as 22 metres in circumference and over 1 metre high (Department of Environment 2006). The size and nature of the nests make them easy to find. Clearing

may have an impact on the mallee population if a nest was observed in the area to be cleared. However it is unlikely that Mallefowl would nest adjacent to the existing road.

The distributions of the Rainbow Bee-eater are widespread across the continent (Slater, *et al* 2003) and it is not perceived that the removal of 0.4 ha of vegetation will have a significant impact on these populations.

Recommendation 5

Fauna is unlikely to be an issue within the project area. During construction, site personnel should be made aware of the potential fauna in the project area.

3.6 Reserves and Conservation areas

There are no reserves or conservations within the search area. Landgate shows a small reserve area within 5 km of the site. It can be deduced from other search databases that it is not a nature reserve however no more details on the type of reserve could be found.

3.7 Australian Cultural Heritage

3.7.1 Non-indigenous Heritage

A search of the Australian Heritage Database and the EPBC Protection Matters database did not identify any non-indigenous Australian heritage sites that may be impacted by the proposed works.

3.7.2 Indigenous Australian Heritage

The Aboriginal Site Register is held under the State's *Aboriginal Heritage Act 1972*. It protects places and objects customarily used by, or traditional to, the original inhabitants of Australia.

Where an activity disturbs an Aboriginal site or object an application for permission to disturb those sites will need to be submitted under Section 18 of the *Aboriginal Heritage Act (1972).* Where a site of previously unknown Aboriginal heritage is to be disturbed, it is advised that a detailed anthropological and archaeological heritage survey is undertaken to find if there are any sites or objects of significance in that area, as it is an offence to disturb all Aboriginal Heritage sites, even those not contained on the Aboriginal Heritage Site Register. In the event that Aboriginal archaeological or ethnographic sites are discovered during construction, there will be a need to meet the requirements of the *Aboriginal Heritage Act (1972).*

GIS mapping of information provided by the Department of Indigenous Affairs (DIA) indicates that the following known Aboriginal heritage site is located within 1 km of the project area (Figure 1).

» Site Name: Munjuni

» Site Type: Ceremonial, Mythological

» Additional Info: Water Source

» Aboriginal Heritage Inquiry System

A search of the Department of Indigenous Affairs Aboriginal Heritage Inquiry System records this site over 10km from the project area and co-ordinates are not available. This inconsistency indicates that the position of the site is unreliable.

In addition, it should be noted that a search under the DIA database does not comprise of a full assessment under the *Aboriginal Heritage Act* (1972). This would require consultation with Aboriginal people with knowledge of the area (usually, but not necessarily Native Title Claimants), and an archaeological survey.

Under the *Aboriginal Heritage Act* (1972), it is an offence to disturb an Aboriginal heritage site whether it is registered or not. The proponent should be made aware of this in any decision making with respect to whether they should proceed to a full Aboriginal site assessment.

Recommendation 6

The positioning of Aboriginal heritage site Munjuni is unreliable. An archaeological and ethnographic assessment is recommended to confirm that this site is not within or adjacent to the project area.

3.7.3 Native Title

Information provided by the National Native Title Tribunal indicates that one Native Title Claim may exist over the search area, although the boundaries of this Native Title are unclear:

Claim	Federal Court File no.	Registered/Not Registered	Status
Ngadju	WAD6020/98	Registered	Active

Although Native Title Claims may exist over the search area, it has been extinguished over these areas under section 15 of the *Native Title Act* (1993) as “the act extinguishes the native title in relation to the land or waters on which the public work concerned (on completion of its construction or establishment) was or is situated”.

Recommendation 7

Based upon this information, it is advised that as a matter of courtesy, Main Roads WA consult the Native Title Claimants on the work to be conducted.

3.8 Land Use

The land in the search area appears to be undeveloped native vegetation.

The Department of Industry and Resources (DoIR) 'Tengraph' database indicates that mining tenements are present in the project site and the surrounding areas. The mining tenement corresponding to the project site is (M 6300046) Central Norseman Gold Corp Ltd.

Recommendation 8

It is advised that the relevant mining tenement holders and the DoIR is contacted prior to proposed works.

3.9 Environmentally Sensitive Areas

A search of the Department of Environment and Conservation's Native Vegetation Viewer did not indicate that any Environmentally Sensitive Areas (ESAs) are within, or adjacent to, the project area.

3.10 Construction Phase Impacts

Potential environmental and social impacts likely to require consideration during the construction phase of the Project include:

- clearing;
- weeds;
- traffic safety and access;
- fire management;
- pollution management; and
- rubbish disposal.

These issues will be managed through the implementation of a construction phase Environmental Management Plan (CEMP) and/or Main Roads WA standard contractual documentation.

4. Consultation

No public consultation was undertaken, in accordance with the Main Roads WA project brief. However, consultations were undertaken with the following Western Australian government regulatory authorities. Copies of Correspondence received are included in Appendix B

Department of Environment and Conservation

Mr Wayne Astill –Industry Regulation Regional Leader (Goldfields Region)

It was advised that if road structure upgrades were to occur surface drainage be considered. In particular that energy dissipation devices be used around culverts to minimise soil erosion. The proposed project does not include road structure upgrades.

Ms Emma Adams – Conservation Officer

The DEC reported no objections with regard to Declared Rare Flora or Priority flora. They state that DRF and several priority species do occur to the east of this proposed clearing, but they are a significant distance from this site and the proposed clearing poses no threat to their population or surrounding critical habitat.

However, this PEIA identified two Priority Flora Species at three locations in close proximity to the project area (refer to Figure 2). GHD's Ecological Group believe that a field flora assessment should be undertaken to minimise risk of impacting Declared Rare or Priority Flora Species.

5. Environmental Approvals

5.1 Commonwealth Approvals

No environmental impacts identified during the preparation of this PEIA warrant referral of the project to the Commonwealth under the provisions of the *Environmental Protection and Biodiversity Conservation Act (1999).*

5.2 Government of Western Australia

The DEC is responsible for administering the *Environmental Protection Act (1986)*. This PEIA indicates that environmental and social impacts of the proposed works are likely to be minimal and as such, formal assessment by DEC and EPA is considered not to be required.

5.2.1 Clearing Regulations

Based upon available information it is possible an area specific clearing permit under the *Environmental Protection (Clearing of Native Vegetation) Regulations (2004)* may need to be issued by the DEC prior to the commencement of any clearing in the Project area.

A targeted flora survey will need to be conducted to determine the presence/absence of priority flora in the project area. If the flora survey records no priority flora then the proposal is unlikely to be at variance with the Ten Clearing Principles.

6. Conclusion and Recommendations

The desktop assessment and review undertaken as part of this PEIA indicates that there is a minimum level of potential environmental impacts associated with the intersection upgrade at Coolgardie Esperance Highway and Norseman Hyden Road.

GHD advises Main Roads WA of the following recommendations to ensure that the proposed works occur with least possible impact on the immediate and surrounding areas.

Recommendation 1

No laydown areas should be placed within 50m of the drainage line in order to reduce the risk of pollution from potential spills.

Recommendation 2

If the proposed plans alter and dewatering will be needed Main Roads WA should consider the potential saline quality of the groundwater and disposal options.

Recommendation 3

A targeted flora survey should be conducted in order to confirm or eliminate the presence of priority plants *Eucalyptus brockwayi* and *Grevillea philipsiana.* Both priority species can be recognised year-round.

Recommendation 4

If weeds are located within the search area, weed management stratagys should be applied during construction to prevent spread. Weeds should also be monitored post construction to ensure they're adequately controlled.

Recommendation 5

Fauna is unlikely to be an issue within the project area. During construction, site personnel should be made aware of the potential fauna in the project area.

Recommendation 6

The positioning of Aboriginal heritage site Munjuni is unreliable. Further enquiries are recommended to confirm that this site is not within or adjacent to the project area.

Recommendation 7

Based upon this information, it is advised that as a matter of courtesy, Main Roads WA consult the Native Title Claimants on the work to be conducted.

Recommendation 8

It is advised that the relevant mining tenement holders and the DoIR be contacted prior to proposed works.

7. References

Australian Government Bureau of Meteorology (2006) *Climatic Averages of Australian Sites: Averages for Norseman* [online] Available at*:* *http://www.bom.gov.au/climate/averages/tables/cw_012065.shtml* , Accessed 15/03/2007

Department of Environment and Heritage (2006) *Examples of Biodiversity Hotspots* [online] Available at: http://www.deh.gov.au/biodiversity/hotspots/examples.html#national, Accessed 15/03/2007

Northern Territory Government Department of Natural Resources, Environment and the Arts (2002) *Threatened species of the Northern Territory: Slender-billed Thornbill (western)* [online] Available at: http://www.nt.gov.au/nreta/wildlife/threatened/pdf/slender_billed_thornbill_ex.pdf#search=%22Slender-billed%20Thornbill%20(western)%22; Accessed 15/03/2007.

Slater, Slater & Slater, (2003) *The Slater Field Guide to Australian Birds*, Reed New Holland, Australia.

Department of Environment and Conservation (2006) *Florabase* [online] Available at: http://florabase.calm.wa.gov.au/browse/flora?f=345&level=s&id=7916 Accessed 15/03/2007.

Shepherd (2005) *Vegetation Extent* (draft), (unpublished).

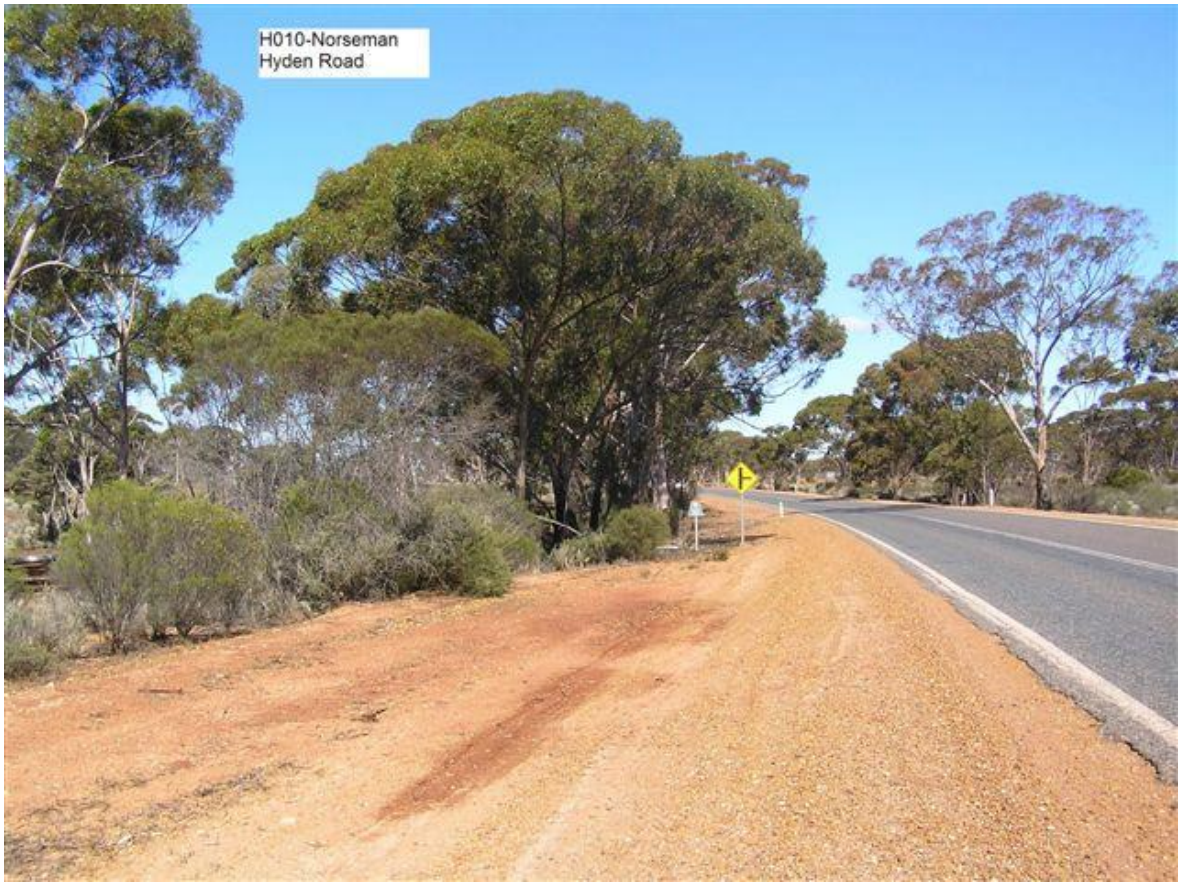
Department of Environment (2006) *Australian Threatened Species: Mallefowl Leipoa ocellata* Available at: http://www.environment.gov.au/biodiversity/threatened/publications/pubs/tsd06malleefowl.pdf Accessed 17/03/2007

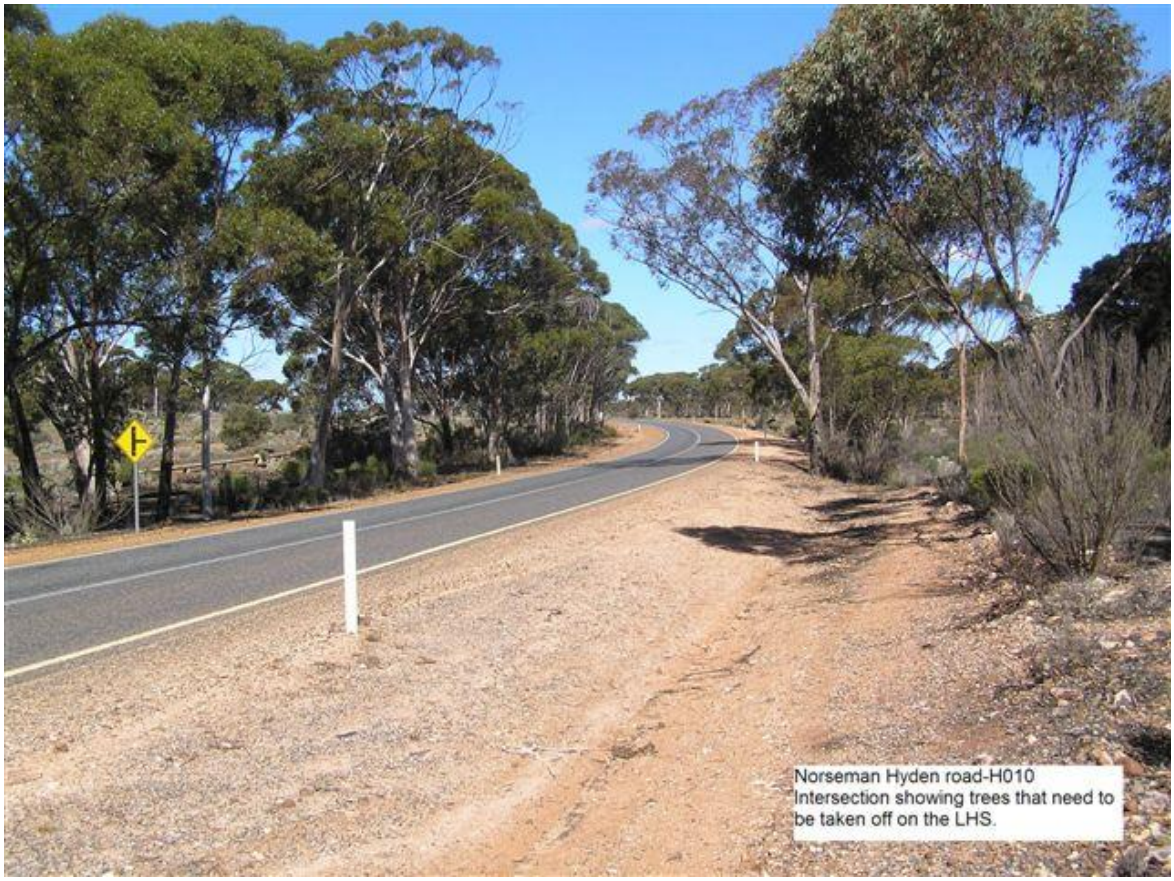
Department of Industry and Resources (2007) Geological Survey of Western Australia

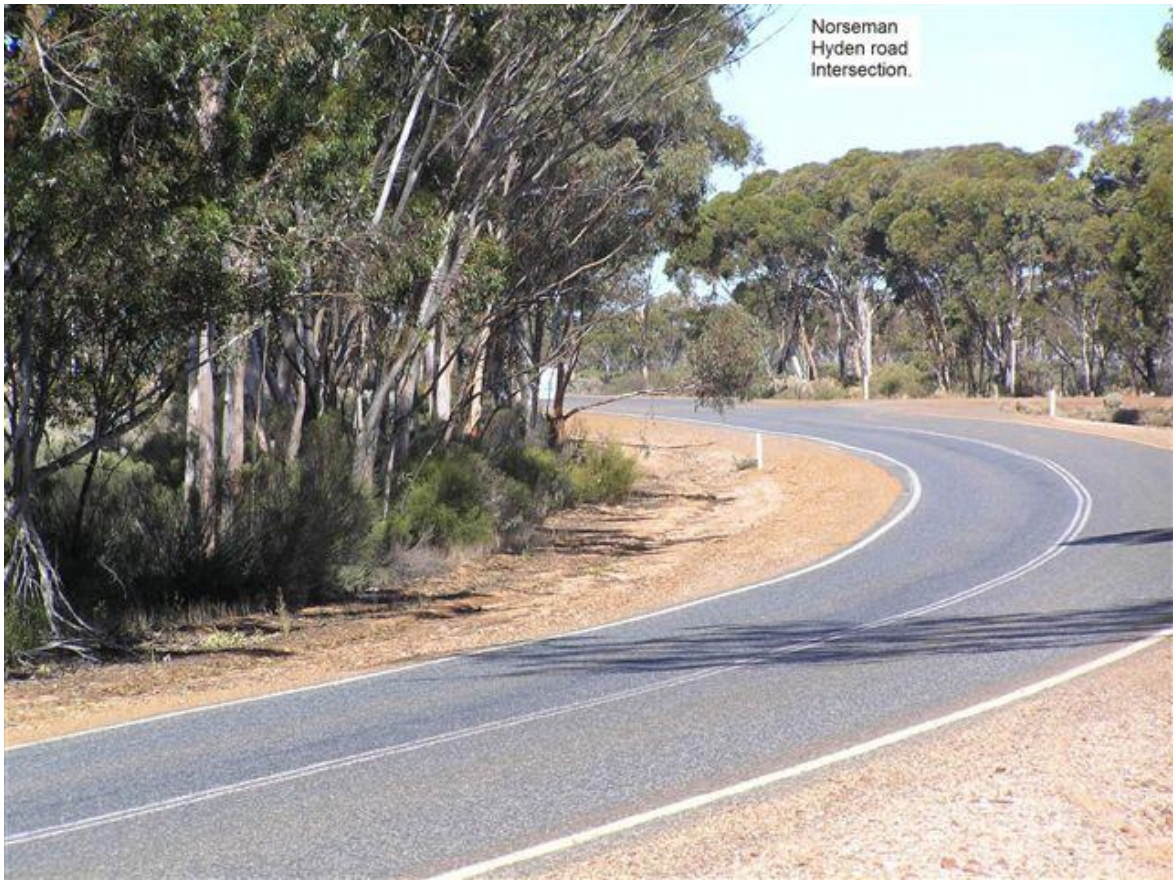
Geological survey of Western Australia, *Norseman sheet, Sheet SI S1-2*, 1:250,000

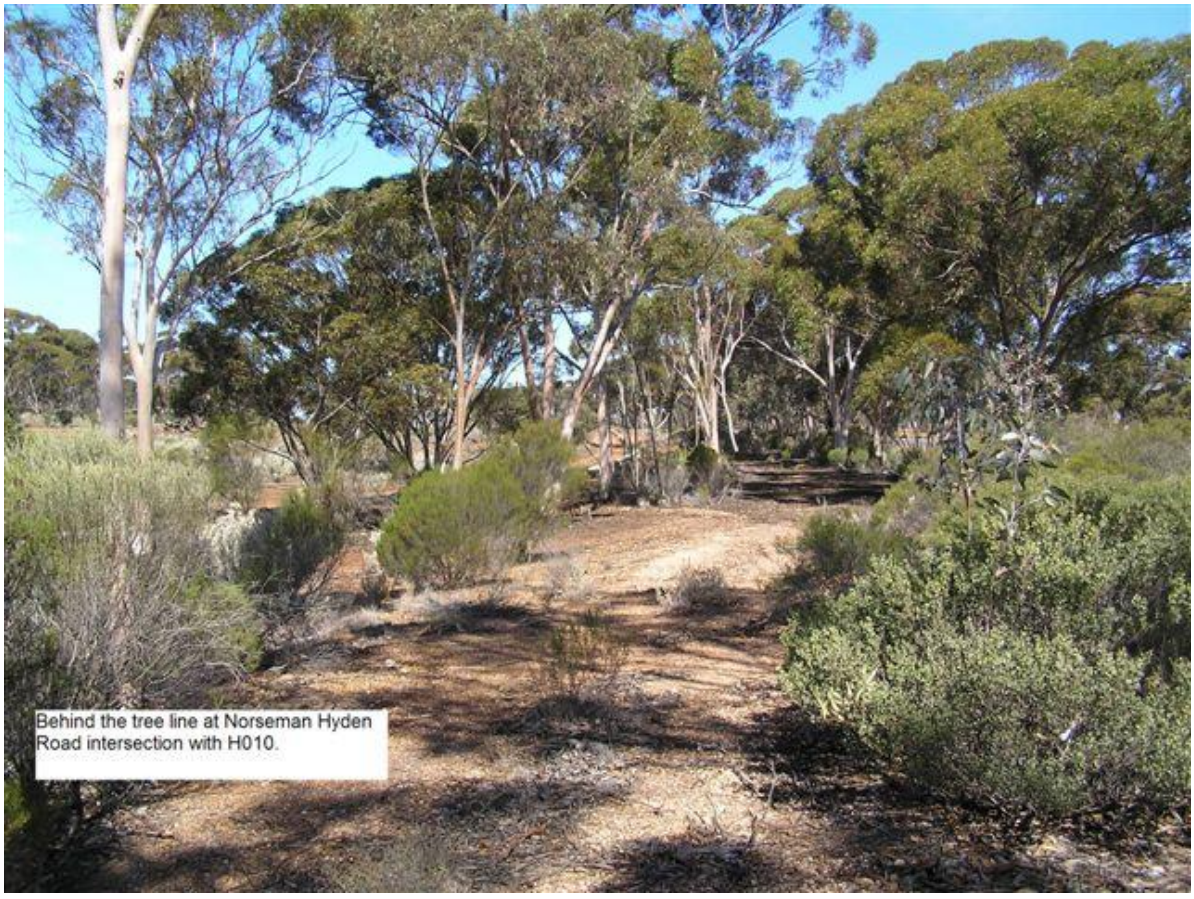
Appendix A

Project Area Photographs


H010-Norseman
Hyden Road


Norseman Hyden road-H010
Intersection showing trees that need to
be taken off on the LHS.


Norseman
Hyden road
Intersection.


Behind the tree line at Norseman Hyden
Road intersection with H010.


Intersection of H010 &
Norseman Hyden Rd


Norseman Hyden Road

Appendix B

Correspondence

"JOHNSTON Joann \(GEnv\)" <joann.johnston@mainroads.wa.gov.au>
07/03/2007 01:21 PM

To <anagle@ghd.com.au>
cc
bcc
Subject FW: Results of TEC/PEC Search - Coolgardie Esperance Hwy Norseman (MR)

History: This message has been replied to and forwarded.

Andrew,
Advice below from Mia Morley, Emma Adams and Wayne Astill from DEC for Norseman-Hyden Road.

I am waiting for oe more from Ben regarding potential significant flora in the area.

Joann Johnston
Grad. Environment
Goldfields-Esperance Region

Don Aitken Centre
PH: 9323 4323
FAX: 92214007
RM: 822

Joann,

Pls see the email from Emma Adams below. Could you contact her directly and ensure that the area is confirmed.

As I understand it there are no road structure upgrades as part of this work. If there was, we would also request that surface drainage be considered. In particular that energy dissipation devices be used around culverts to minimise soil erosion.

WA

Wayne Astill
A/ Industry Regulation Regional Leader – Goldfields
Department of Environment and Conservation
Also representing Department of Water
377 Hannan St, Kalgoorlie, WA 6430
Phone: 9026 2225
Fax: 9021 3529
Mobile: 0400 866 434

Hi Joann,

Thanks for the updated information regarding the area to be cleared. Whilst the area is considerably larger than 30m x 10m originally proposed, I have no objections with regard to Declared Rare Flora or priority flora. As I mentioned previously, DRF and several priority species do occur to the east of this proposed clearing, but they are a significant distance from this site and the proposed clearing poses no threat to their population or surrounding critical habitat. There are also no threats to TEC's from this proposed clearing.

Cheers

Emma Adams

Conservation Officer
Department of Environment and Conservation
Esperance WA 6450
Ph. 9083 2113 Mob. 0428 104 209
Email: Emma.Adams@dec.wa.gov.au

From: Morley, Mia [mailto:Mia.Morley@dec.wa.gov.au]
Sent: Wednesday, 7 March 2007 9:48 AM
To: JOHNSTON Joann (GEnv)
Subject: Results of TEC/PEC Search - Coolgardie Esperance Hwy Norseman (MR)

Hi Joann,

I refer to your request of 6th March 2007 for information on threatened and priority ecological communities occurring within the search boundary provided.

A search was undertaken for this area of the Department's Threatened Ecological Communities database. Please note that there are no known occurrences of threatened ecological communities recorded within this boundary.

Attached also are the conditions under which this information has been supplied. The information supplied should be regarded as an indication only of the threatened ecological communities that may be present.

It would be appreciated if any occurrences of threatened and priority ecological communities encountered by you in the area could be reported to this Department to ensure their ongoing management.

Please go to *Flora, Fauna and Ecological Community Data Searches* for information on flora, fauna and TEC Search requirements.

Regards

Mia

Mia Morley
Ecologist - TEC Database
Species and Communities Branch
Department of Environment and Conservation
Email: Mia.Morley@dec.wa.gov.au
Phone: 9423 2116
Fax: 9334 0300

From: JOHNSTON Joann (GEnv) [mailto:joann.johnston@mainroads.wa.gov.au]
Sent: Tuesday, 6 March 2007 12:48 PM
To: Lullfitz, Ben
Subject: TEC, DRF and Priority flora search - Coolgardie Esperance Hwy Norseman

Hi Ben,
I'm conducting a desktop EIA for an intersection upgrade project.
Could you please advise of any potential TEC, DRF or Priority flora that may occur in this area?
The intersection is located approximately 10kms north of Norseman on the Coolgardie to Esperance Highway (sealed) with the unsealed Norseman Hyden Road.
The Norseman Hyden Road is not depicted on the map below (it is in the travellers Atlas map 83) the location of the intersection is highlighted in orange.

Regards,

Joann Johnston

Graduate Environment
Goldfields-Esperance Region
Department of Main Roads Western Australia

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Document Status

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