CLIENTS | PEOPLE | PERFORMANCE

# Main Roads Western Australia

## Report for Eyre Highway at 304.7 SLK Baxter Heavy Vehicle Rest Area

### Preliminary Environmental Impact Assessment and Environmental Management Plan

March 2011

INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

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## Appendices

# 1. Introduction

Main Roads Western Australia – Goldfields-Esperance Region (MRWA) propose to construct a heavy vehicle rest area between Balladonia and Caiguna on the southern side of Eyre Highway at 304.7 SLK (Appendix A, Figure 1). The rest area will be constructed by realigning and upgrading an existing light vehicle parking bay to accommodate road trains (Appendix A, Figure 2).

In accordance with Main Roads corporate environmental assessment and approvals process, a Low Impact Environmental Screening Checklist was completed (Appendix B). The Preliminary Environmental Impact Assessment was required as the works involve:

- Clearing of native vegetation outside the maintenance zone; and
- Clearing of native vegetation that is older than 10 years old within the maintenance zone

This report intends to fulfil this requirement. This report also intends to fulfil the requirements of Main Roads State-wide Project Purpose Clearing Permit (CPS 818/5) which is proposed for use for the project.

MRWA proposes to revegetate the parking bay adjacent to the southern side of Eyre Highway and any disused areas within the western light vehicle parking area.

Note: Material required for the pavement will be imported from an existing stockpile that is located on the southern side of Eyre Highway at 249.6 SLK approximately 50 km east of Balladonia. No assessment of the gravel source area is required given that no new clearing or ground disturbance is necessary. Access tracks are already in place and are of an acceptable standard.

## 1.1 Project Location

The project is located within the Shire of Dundas – refer to Appendix A, Figure 1 for a map displaying the location of the project.

# 2. Assessment Methodology

## 2.1 Preliminary Desktop Study

A preliminary assessment of the project and its potential constraints has been undertaken by reviewing a number of government agency managed databases. Appendix C contains a number of government database generated reports. The following sections provide a summary of the methodology used for each potential environmental aspect associated with the project.

### 2.1.1 Threatened Flora, Fauna and Communities

The presence of Threatened Flora and Fauna and Threatened and Priority Ecological Communities (TECs & PECs) was determined by a search of the Department of Environment and Conservation (DEC) NatureMap (for threatened flora and fauna) and TEC and PEC databases.

### 2.1.2 Environmentally Sensitive Areas (ESAs) and Conservation Reserves

DEC's Native Vegetation Map Viewer was used to determine the location of any ESAs and Conservation Reserves (http://www.dec.wa.gov.au/content/view/2920/1572/1/1/).

### 2.1.3 Vegetation Type, Extent and Status

Vegetation types and associations were determined by examining the Shared Land Information Platform (SLIP) Natural Resource Management (NRM) database (http://spatial.agric.wa.gov.au/slip/). The native vegetation association extent and status represented in the survey areas is drawn from Shepherd, *et al*. (2002).

### 2.1.4 Air Quality

The need for a local air quality assessment was determined using the criteria outlined in the MRWA environmental guideline, Air Quality (http://intranet/online/branches/environment/word/guide_air_quality.doc).

### 2.1.5 European Heritage

European heritage was examined by searching the Australian Heritage Places Inventory (http://www.heritage.gov.au), Heritage Council of Western Australia database (http://register.heritage.wa.gov.au/).

### 2.1.6 Aboriginal Heritage

A search of the Department of Indigenous Affairs' (DIA) database (http://www.dia.wa.gov.au/Site-Search/Aboriginal-Heritage-Inquiry-System.aspx) was undertaken to determine whether the project area contains or is located adjacent to any Aboriginal Heritage sites.

### 2.1.7 Wetlands

The location of wetlands within the project area was determined by examining DEC's Wetland Base (http://spatial.agric.wa.gov.au/wetlands/).

### 2.1.8 Sensitive Water Resources

The Department of Water's (DoW) Geographic Data Atlas (http://www.water.wa.gov.au/Tools/Maps+and+atlases/Geographic+data+atlas/default.aspx) was examined to determine whether the project area supported, or was adjacent to, any significant lakes, rivers, wetlands or proclaimed areas including public drinking water source areas (PDWSAs).

### 2.1.9 Contaminated Sites

The presence of contaminated sites in the project area was determined by examining DEC's contaminated sites database (http://www.dec.wa.gov.au/content/view/5627/2295/).

### 2.1.10 Acid Sulphate Soils

A search of the Australian Soil Resources Information System (ASRIS) website (http://www.asris.csiro.au/mapping/viewer.htm) was conducted to determine the probability of the occurrence of acid sulphate soils within the project area.

### 2.1.11 Weeds

Weeds where only considered a potential issue for the project if any Weeds of National Significance (WONS) or Declared Plants pursuant to the *Agriculture and Related Resources Protection Act* 1976 were recorded in the project area during the site visit.

### 2.1.12 Dieback

Dieback was only considered a potential issue for the project if both the mean annual rainfall of the area is >400 mm, and if the project area resides below the 26$^{th}$ parallel.

## 2.2 Statutory Referral Decisions

The decision whether to refer the project to the Commonwealth's Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) was based upon whether the project would impact upon matters of national environmental significance (refer to Appendix C– DSEWPC's EPBC Act Protected Matters Database search). These matters of national environmental significance are assessed for impact in Section 4.

The decision whether to refer the project to the WA Environmental Protection Authority (EPA) was based upon whether the project would be a "significant proposal" as defined by the *Environmental Protection Act 1986*. As a result, all potential environmental aspects relating to the project have been examined for their level of significance (refer Section 4).

## 2.3 Site Investigation

A site visit was carried out by Main Roads Environment Officer Simon Weighell on the 26 January 2011 to examine the general features of the area. Site photos were taken and are included in Appendix D.

# 3. Existing Environment

Information relating to the existing environment of the project area has been summarised in Table 1 below. This information has been compiled through both desktop assessments and the site visit.

**Table 1 Existing environment information**

| Factor | Value | |
|---|---|---|
| Vegetation Association | 214 | |
| Vegetation Association Description* | Mosaic: Medium woodland; goldfield eucalypts / Succulent steppe with open low woodland; myoporum over saltbush | |
| Current Extent (ha) | Vegetation Extent and Status | |
| | *Pre-European Extent (ha) in Nullarbor IBRA region* | *Current Extent (ha) in Nullarbor IBRA region* |
| | 488902.536 | 488902.536 |
| % Pre-European Extent Remaining | *100.00%* | *100.00%* |
| Topography / Soil Classification^ | Low hilly to hilly terrain that occupies a zone flanking unit. It comprises valleys that are frequently narrow and have short fairly steep pediments, along with breakaways, mesas, and occasional granite tors. Included also are undulating areas representing elements of unit : chief soils are hard acidic yellow mottled soils (Dy3.81) along with sandy acidic yellow mottled soils (Dy5.41) and (Dy5.81), all of which contain moderate to large amounts of ironstone gravels in their surface horizons. Ironstone gravels (KS-Uc4.2) occur on the ridge crests and on the fine gravel deposits of the gently undulating parts of the unit, along with leached sands (Uc2.21). | |
| Climate# | *Closest Meteorological Station with representative data:* Balladonia<br>*Avg. Annual rainfall:* 261.7 mm<br>*Avg. Max Temp ranges*: 17.6 $^0$C (Jul) to 31.1 $^0$C (Jan)<br>*Avg. Min Temp ranges*: 4.8 $^0$C (Jul) to 14.8 $^0$C (Feb) | |
| Surrounding Land Use | Pastoral | |
| Weed prevalence | Low | |

^ Source: Main Roads GIS File located at \\Kalsrv01\skyview\additional_datasets\WA_soils\ASS legend.xls

# Source: Bureau of Meteorology (2010)

# 4. Assessment of Aspects and Impacts

A summary of all potential environmental aspects associated with the project and their subsequent assessment for environmental impact is given in Table 2. Environmental constraints mapping is contained in Figure 3, Appendix A.

Please note: The Project area is defined as that area identified as proposed clearing areas in Appendix A, Figure 2.

**Table 2 Aspects and Impacts**

| Aspect | Evaluation of Potential Impacts |
|---|---|
| Air quality | Likely to be a minor issue during earth works only (due to generation of dust). Implementation of the project is not expected to cause significant increases in traffic volumes in the area meaning that long term air quality levels are not expected to change. No major sensitive receivers adjacent to the project area. No significant impacts expected. |
| Dust | Likely to be a minor issue during earth works. No major sensitive receivers adjacent to the project area. No significant impacts expected. |
| Fauna | The following nationally (DSEWPC) protected species and/or their habitat have been identified as potentially occurring within the project area (refer to Appendix C for further information):<br>◗ White-bellied Sea-Eagle *(Haliaeetus leucogaster)*<br>◗ Slender-billed Thornbill (western) *(Acanthiza iredalei iredalei)*<br>◗ Rainbow Bee-eater *(Merops ornatus)*<br>◗ Great Egret, White Egret *(Ardea alba)*<br>◗ Fork-tailed Swift *(Apus pacificus)*<br>◗ Cattle Egret (*Ardea ibis*)<br>Given the relatively small amount of clearing involved, and the large areas of intact native vegetation surrounding the project areas, no significant impacts are expected to any species of fauna. Most species should be able to relocate to adjacent habitat with the numbers of individual casualties caused by clearing activities considered highly unlikely to be significant. No active nesting sites were observed in the proposed clearing area when carrying out the site visit. The proposed clearing method involves felling of trees before reducing (cutting up) and re-spreading in adjacent areas. This should assist in maintaining some of the habitat value offered by the proposed clearing area. |

| Aspect | Evaluation of Potential Impacts |
|---|---|
| Vegetation – clearing | *Vegetation clearing*<br>A maximum of 11.0 ha of clearing of native vegetation is required to complete the proposed works (for clearing boundaries please refer to Figure 2 of Appendix A).<br>Clearing can be broken down as follows:<br>◗ Outer clearing boundary – 11.0 ha<br>◗ Indicative clearing area – 2.5 ha<br>Please note: Material required for the pavement will be imported from an existing stockpile that is located on the southern side of Eyre Highway at 249.6 SLK approximately 50 km east of Balladonia. No assessment of the gravel source area is required given that no new clearing or ground disturbance is necessary. Access tracks are already in place and are of an acceptable standard.<br>*Vegetation condition*<br>The condition of native vegetation in the project area range from degraded to very good (using the Keighery scale (Keighery, 1994)). Vegetation was noted to be degraded in and around the parking bay present at the site. Vegetation condition improved to very good as the distance from the parking bay increased.<br>Vegetation within the study area (as mapped by Beard) is considered to be of *Least Concern* in terms of its regional extent with no apparent reduction in area recorded from its pre-European extent (>50% pre-European extent exists and subject to little or no degradation over a majority of this area.)<br>The native vegetation to be cleared does not occur within an ESA and no ESAs are located within 10km of the project areas. One schedule 1 area exists approximately 3 km to the north west of the project area (Appendix C). |
| Significant Flora / Ecological Communities | According to various database searches, there are no records of TECs, PECs, Declared Rare Flora (DRF) or Priority Flora (PF) located within the proposed clearing area. The following PF were located within 40 km of the project site:<br>◗ *Eremophila parvifolia subsp. parvifolia* (P4)<br>◗ *Eucalyptus histophylla* (P3)<br>The database searches did not identify any PECs or TECs within 50km of the proposed clearing areas.<br>No significant impacts to any significant flora or ecological communities are expected. |
| Vegetation – weeds | Weed prevalence within the proposed clearing areas is considered low but standard weed hygiene measures should still be applied in order to limit the risk of any further weed spread (Appendix E). No WoNS or Declared Plants pursuant to the *Agriculture and Related Resources Protection Act* 1976 were identified in or near the project areas during the site visit. |
| Vegetation – dieback | Dieback is not considered a potential issue for the project given that the project areas receive less than 400 mm of average annual rainfall (nearest meteorological station is Balladonia with an average annual rainfall of 261.7 mm). |

| Aspect | Evaluation of Potential Impacts |
|---|---|
| Reserves / Conservation areas | The closest reserves / conservation areas to the project areas is the Nuytsland Nature Reserve (approximately 42 km to the south). Indirect impacts to these areas (e.g. breaking of habitat linkages etc.) are considered highly unlikely due to the condition of the surrounding environment. No significant impacts are expected. |
| Heritage (European) | No potential significant European heritage sites were identified during the site visit nor are any sites listed in the relevant government databases.<br>No significant impacts are therefore expected. |
| Aboriginal heritage | A search of DIA's database revealed that no known sites of Aboriginal heritage significance are located within 10 km of the project area. No archaeological or ethnographic surveys are therefore considered necessary. No significant impacts are expected. |
| Native Title | Given the fact that works are confined to the road reserve and are relatively minor in nature, no actions in regards to native title are considered necessary. |
| Surface water/drainage | During the site visit, no drainage or surface run-off patterns were identified. As a result, the project is considered highly unlikely to significantly disturb or interrupt any surface water flows. |
| Wetlands | No wetlands are located within 10 km of the project area. As a result, no significant impacts are expected. |
| Groundwater | Given that no dewatering or significant drainage modifications are required, no significant changes to the current groundwater level or quality are expected. Any water required for construction purposes is likely to be minimal and will be the responsibility of the contractor delivering the works to obtain. |
| Noise and vibration | No major sensitive local receivers. The works are not expected to significantly contribute to noise levels at the nearest receivers. |
| Visual amenity | No significant impacts to visual amenity are expected. |
| Hazardous substances | Not considered relevant to the proposed works. |
| Contamination | Given the relatively superficial nature of the required earthworks, there appears to be a low risk of any significant contamination issues. No significant impacts are expected. |
| Salinity | Although water required for construction activities is likely to come from a saline groundwater resource, significant impacts are not considered likely given the small amount of water required (<1,000kL), and the proposed areas of application (road surface).<br>The proposed clearing is not considered likely to result in any significant salinity issues given the fact that the surrounding landscape is not highly cleared. |
| Acid Sulphate Soils | According to a search of ASRIS, the occurrence of acid sulphate soils is considered to be "extremely low." Furthermore, no dewatering or excavation below the water table is planned and therefore the risk of exposing or exacerbating acid sulphate soils is considered to be low. No significant impacts are expected. |

| Aspect | Evaluation of Potential Impacts |
|---|---|
| Environmentally Significant Landforms | No environmentally significant landforms were identified within 10 km of the project areas when carrying out the site visits. No significant impacts are expected. |
| Statutory Land Use Planning / Adjacent Land Use | Expansion of the existing road reserve is not required. No significant impacts to surrounding land uses are expected. |

# 5. Clearing of Native Vegetation

Native vegetation for this project will be cleared using Main Roads State-wide Project Purpose Clearing Permit (CPS 818/5). Native vegetation describes all indigenous aquatic and terrestrial vegetation (living or dead). The term does not include vegetation that was intentionally sown, planted or propagated unless it was required under a statutory condition.

## 5.1 Avoiding, Minimising and Reducing the Impact of Clearing

In accordance with Condition 6 of CPS 818/5, the following measures are proposed in an effort to avoid, minimise and reduce the impact of clearing associated with the project:

- All efforts to be made during clearing activities to avoid any unnecessary impacts to native vegetation (e.g. marking of clearing lines, parking of machinery in already cleared areas etc.).
- Cleared vegetation to be cut up and respread in redundant cleared area in order to help prevent weed establishment and land degradation as well as to provide habitat and encourage natural regeneration of the redundant areas.

## 5.2 Assessment against the Clearing Principles

In accordance with condition 9 of CPS 818/5, the project has been assessed against the DEC's 10 clearing principles. The assessment has indicated that the project is not likely to be at variance with any of the clearing principles.

**Table 3 Assessment against the 10 clearing principles**

| **Principle (a)** | **Native vegetation should not be cleared if it comprises a high level of biological diversity.** |
|---|---|
| Assessment | The proposed clearing area is not be considered to contain a high level of biological diversity given its small size and the extensive areas of native vegetation in very good or better condition that exists in the area adjacent to the project area. No priority flora or priority ecological communities were identified in the proposed clearing areas as a result of a desktop assessment of these areas. The chance of the area supporting priority flora or a potential PEC is therefore considered remote. |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

| **Principle (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.** |
|---|---|
| Assessment | Given the relatively small amount of clearing proposed and that the surrounding environment is virtually intact with its original vegetation, no significant impacts to native fauna or its habitat are expected. No active nesting sites were observed in the proposed clearing area when carrying out the site visit. |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

| Principle (c) | Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora. |
|---|---|
| Assessment | No rare flora was identified within the proposed clearing areas as a result of a desktop assessment. The assessment did not identify any records of DRF within 40 km of the proposed clearing areas. It is therefore considered highly unlikely that any rare flora will be impacted by the proposed works. |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

| 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. |
|---|---|
| Assessment | No TECs were identified within the proposed clearing areas as a result of a desktop assessment. The assessment did not identify any TECs within 50 km of the proposed clearing areas. It is therefore considered highly unlikely that any TECs will be impacted by the proposed works. |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

| Principle (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. |
|---|---|
| Assessment | Vegetation within and adjacent to the study area is considered to be of *Least Concern*, with approximately 100% remaining of the known Vegetation Associations in the Nullarbor IBRA region. The project area is not considered to contain fragmented vegetation.<br>Vegetation within the study area is not considered to contain communities required to maintain ecosystem services (e.g. hydrological processes). |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

| Principle (f) | Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland. |
|---|---|
| Assessment | No defined wetlands or water courses are located within the clearing boundaries, nor within 10 km of the project area.<br>No groundwater dependent ecosystems occur within or adjacent to the project area |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

| Principle (g) | Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation. |
|---|---|
| Assessment | The upgrade of the parking bay to a heavy vehicle rest area will likely increase the use of the site but any associated impacts are considered unlikely to be significant (edge effect impacts already exist with only minor increases in litter and weed spread potential expected).<br><br>Erosion from wind or water is considered to be low. Much of the surrounding land surface is well vegetated. The clearing of native vegetation is not expected to alter the quality or quantity of water run-off in or adjacent to the project area. Waterlogging and changes to nutrient levels are not expected to be altered by the clearing of vegetation in the project area.<br><br>The clearing of vegetation is not considered to alter soil acidity in or adjacent to the project area.<br><br>The clearing of vegetation is not considered to significantly alter the hydrological balance and cause a change in the salinity either on- or off-site. |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

| 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. |
|---|---|
| Assessment | The project area is not adjacent to, or in the vicinity of a conservation reserve or protected area. The closest conservation area is Nuytsland Nature Reserve, which is situated approximately 42 km to the south.<br><br>The project area occurs in a region where the vegetation extent is of *Least Concern*. Little fragmentation of vegetation has occurred.<br><br>The project area occurs in a region where the vegetation has not been significantly altered. The project area does not provide a buffer or outlier to a conservation area. Ecological linkages and corridors are not considered to be significantly altered by any proposed clearing activities in the project area |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

| 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. |
|---|---|
| Assessment | The project area does not occur within a proclaimed Public Drink Water Supply Area.<br><br>The clearing of vegetation is not considered to cause an alteration to the quality of groundwater in or adjacent to the project area.<br><br>No groundwater dependent ecosystems occur in or adjacent to the project area.<br><br>The clearing of vegetation is not considered to cause an alteration to the quality of surface waters in or adjacent to the project area. |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

| Principle (j) | Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding. |
|---|---|
| Assessment | No significant change to the hydrology of the area is expected given the climate and topography of the local area, and relatively superficial nature of the works. Natural surface water flow patterns will not be obstructed by the clearing meaning it is highly unlikely that the works will cause or exacerbate the incidence of flooding in the area. The extra area of impermeable seal at the heavy vehicle rest area is not considered big enough to create localised flooding issues. |
| Conclusion | *The proposal is not likely to be at variance with this clearing principle.* |

## 5.3 Project Specific Requirements Relating to CPS 818/5

Given that the project does not involve any clearing for temporary works, a revegetation plan is not required in accordance with the conditions of CPS 818/5. Rehabilitation of redundant cleared areas will be conducted using a direct topsoil return method.

No offsets or management strategies are required given that no variance with any of the ten clearing principles is considered likely to exist.

# 6. Stakeholder consultation

Given the minor nature of the project, no stakeholder consultation is considered necessary.

# 7. Environmental Management Plan

An Environmental Management Plan (EMP) has been developed for the project (Appendix E) taking into account the assessments carried out above. The main aim of this EMP is to provide a management plan to assist in minimising the environmental impacts of the activities associated with the proposed works, and to identify who is responsible for the implementation of any subsequent management strategies. This EMP is predominantly for the Main Roads Project Manager's reference and provides basic requirements for any Contractor produced EMP (subject to any conditions outlined in the actual Contract). It may however be used to complement the contractor's EMP.

The EMP will only address site-specific issues that were identified during the PEIA. The areas that require special management will be addressed in terms of:

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

# 8. Monitoring

No environmental monitoring is considered necessary given the small scale of the project.

# 9. Auditing

Audits against the EMP may be carried out depending on regional priorities and perceived risk. On-ground checking post-construction will be carried out as a minimum by the Main Roads Goldfields-Esperance Region Environment Officer.

# 10. Decision to Refer

Given the small scale of the project, the low significance of its impacts to the surrounding environment, and the environmental management measures proposed, it is recommended that the project does not require referral to the EPA. It is also recommended that the project does not require referral to the DSEWPC as no items of national environmental significance were identified as likely to be significantly impacted by the proposed works.

# 11. References


BoM (2010). *Climate Statistics for Australian Locations*. (Online) http://www.bom.gov.au/climate/averages/tables/cw_011017.shtml l. Accessed 10/03/2011.

Environmental Protection Agency (2009) *Guide to EIA Environmental Principles, Factors and Objectives*. (Online) http://www.epa.wa.gov.au/docs/1920_6%20EIA%20Guide%20Env%20Principles-Factors-Objectives_1-11-04.pdf. Accessed 16/03/2011

Keighery, B.J. (1994). *Bushland Plant Survey: a Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc.) Nedlands, Western Australia.

Shepherd, D.P., Beeston, G.R., and A.J.M. Hopkins (2002). *Native Vegetation in Western Australia – Extent, Type and Status*. Resource Management Technical Report 249, Department of Agriculture, Western Australia.

Appendix A

# Figures

Figure 1 – Project Location

Figure 2 – Site Layout/ Clearing Boundaries

Figure 3 – Environmental Constraints


1:1,000,000 (at A4)

0 5 10 20 30 40

Kilometers

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Grid: Map Grid of Australia 1994, Zone 51

N

LEGEND

Project Location

CLIENTS | PEOPLE | PERFORMANCE

Main Roads WA
Baxter Heavy Vehicle Rest Area
PEIA and EMP

Project Location

| | |
|---|---|
| Job Number | 61-26802 |
| Revision | 0 |
| Date | 16 MAR 2011 |

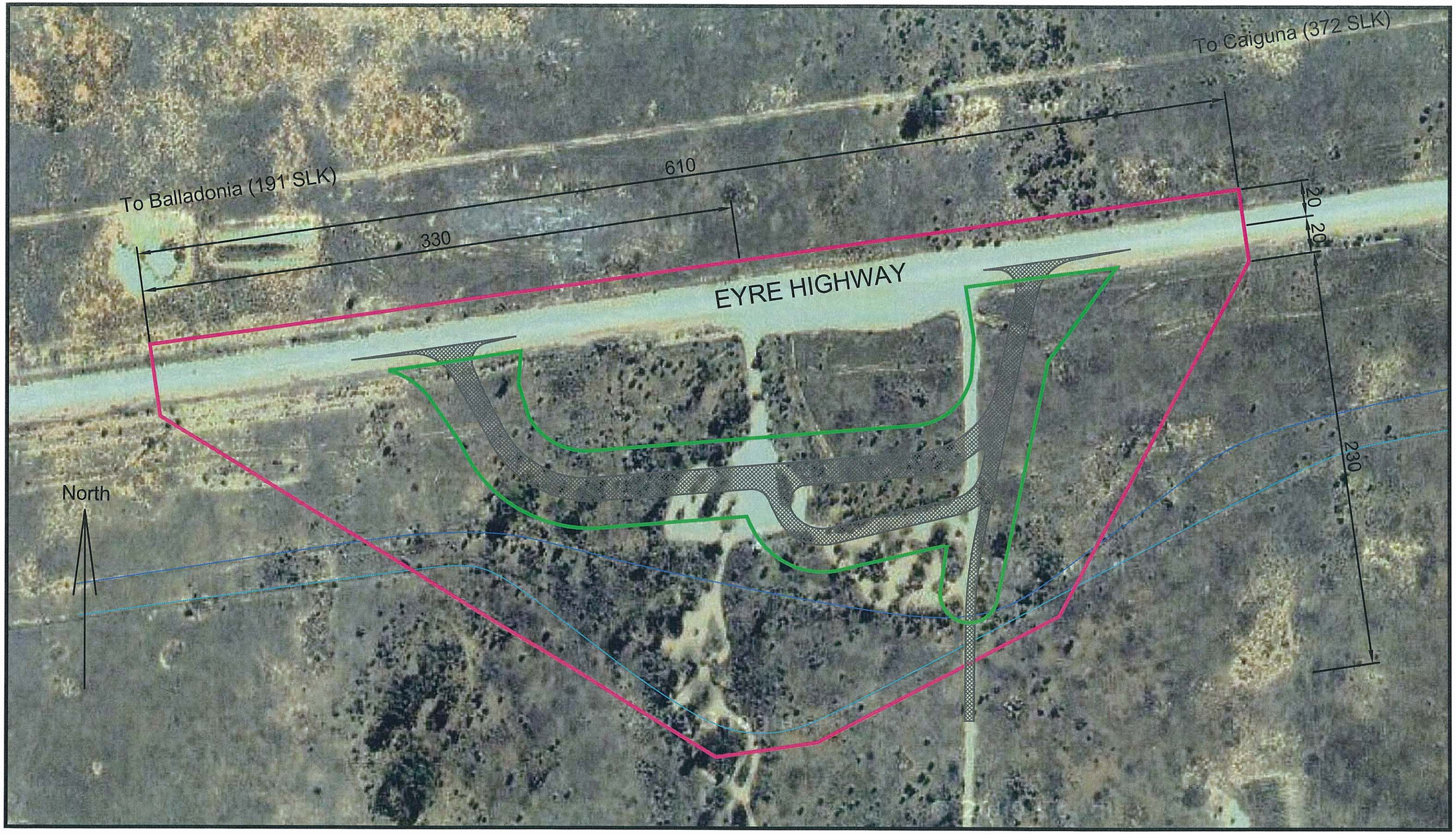
Figure 1

G:\61\26802\GIS\Maps\MXD\61-26802-001.mxd

239 Adelaide Terrace Perth WA 6004 Australia T 61 8 6222 8222 F 61 8 6222 8555 E permail@ghd.com.au W www.ghd.com.au



Data source: GHD: project location, 2011; Landgate: Travellers_Atlas_2004_Geodetic, 2004. Created by: C Skalski




mainroads WESTERN AUSTRALIA

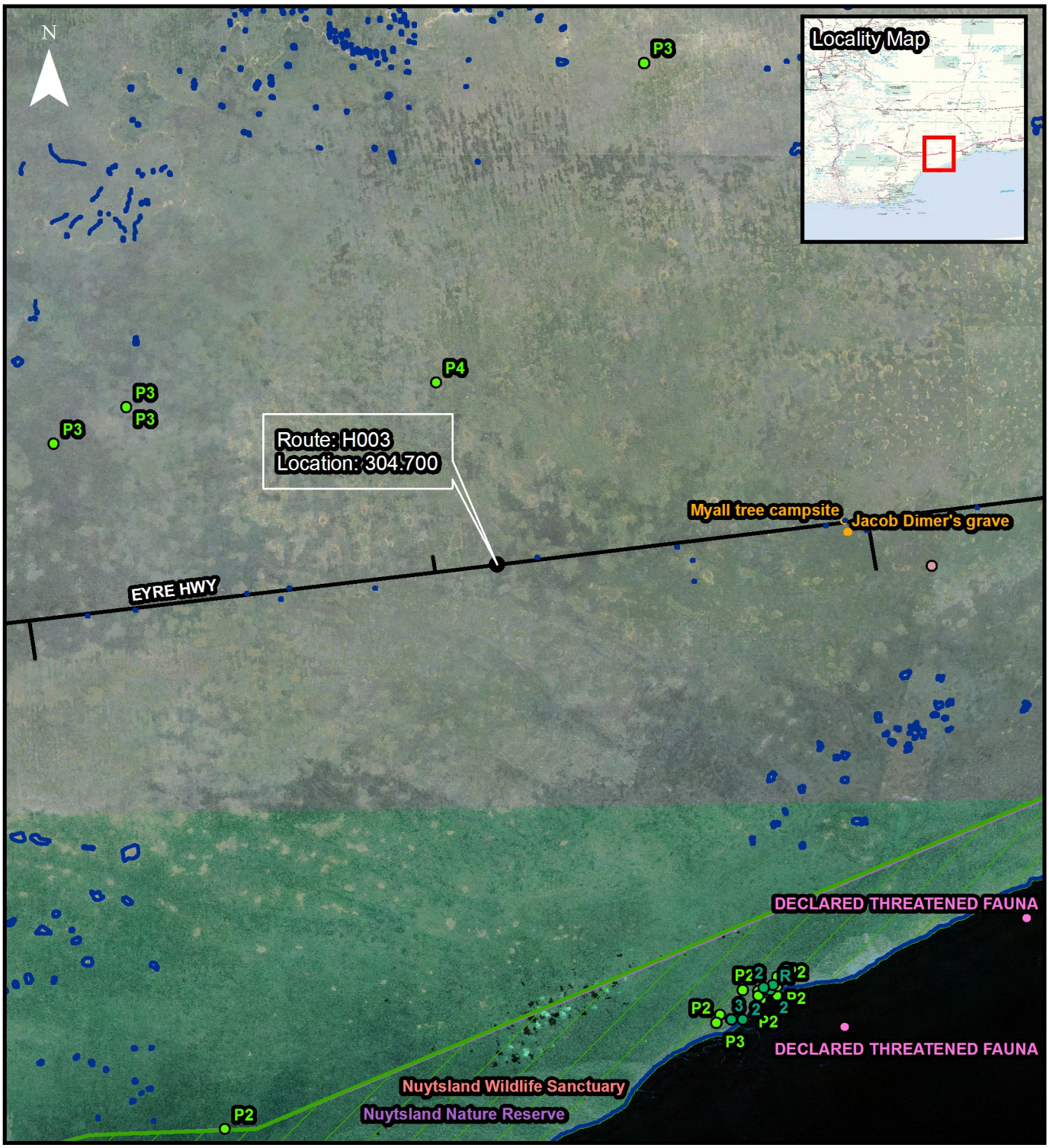
# Eyre Highway at 304.7 SLK
# Baxter Heavy Vehicle Rest Area

Scale 1,2,000 @ A3

LEGEND

- Outer Clearing Boundary (11.0ha)
- Indicative Clearing Area (2.5ha)
- Proposed Heavy Vehicle Rest Area (1.0ha)

Figure 2




**LEGEND**

- THFL - DEFL
- THFL - WAHerb
- Threatened Fauna
- TECs / PECs
- Bores
- Waterpoints
- Waterholes
- Springs
- Hydrology
- RAMSAR Sites
- Proclaimed Surface Water Areas
- PDWSAs
- ESAs
- DEC Tenure
- <30% Vegetation Associations
- Dieback
- Aboriginal Heritage
- European Heritage
- SLK Network

0 5 10 20 Km

mainroads WESTERN AUSTRALIA

MAP INFORMATION
Geographic Coordinate System: Geocentric Datum of Australia 1994 - Projection MGA Zone 51

PUBLISHER DETAILS

Directorate: Regional Services
Branch: Goldfields Esperance Region
Author: Simon Weighell (EO)
Data Currency: As Supplied

Project: \\Kalsrv01\projects\H003-Eyre HWY\Baxter Heavy Vehicle Rest Area\Environment\GIS Files\Environmental Constraints Map - Baxter Heavy Vehicle Rest Area.mxd

# Environmental Constraints Map - Baxter Heavy Vehicle Rest Area

Figure 3

Appendix B

# Low Impact Environmental Screening Checklist

FILE 10/7210

Form No. 6707/001/01

## Checklist - Low Impact Screening Checklist

The Low Impact Screening Checklist is part of the environmental assessment and approval process, refer to in Figure 2 in the Main Roads environmental guideline Environment Assessment and Approvals. It should be noted that the checklist does not address Aboriginal heritage issues. Please refer to Main Roads guideline *Aboriginal Heritage* for the heritage assessment process.

All projects are to be screened to identify those that are Low Impact.

Projects that have "No" to **all** items are classed as Low Impact and should be implemented using standard contract clauses in the Tender Document Process.
Projects that have "Yes" to **any** item will require further environmental assessment and will be implemented using an Environmental Management Plan.
Tick "Yes" or "No" for every item.

***Project Name:*** **Eyre Highway at 304.70 SLK – Baxter Heavy Vehicle Rest Area**

| *ITEM NO.* | *ITEM* | *Y* | *N* |
|---|---|---|---|
| 1 | New road or road reserve to be created or expansion of existing road reserve. | | ✓ |
| 2 | Works require clearing of native vegetation outside the maintenance zone. | ✓ | |
| 3 | Works require clearing of native vegetation that is older than 10 years old within the maintenance zone. - clearing of trees in existing parking bay maintenance zone. | ✓ | |
| 4 | Works to occur outside normal working hours. | | ✓ |
| 5 | Passes over, adjoins or drains directly into a wetland or sensitive watercourse. | | ✓ |
| 6 | Local natural drainage regime / hydrology will be changed. | | ✓ |
| 7 | Dewatering, or new water bore required. | | ✓ |
| 8 | Known potential source of hazardous materials within or adjoining project area. e.g. Acid Sulphate Soils, existing petrol station, industrial site or waste disposal site (landfill) | | ✓ |
| 9 | Buildings will require demolition- existing toilet to be resited and replaced with newer type | ✓ | |

***Completed By:***

*Signature* _____ *Date* **14 December 2010**

*Name* **Bram van Berkel** *Title* **Senior Project Manager**

***To be reviewed by the Main Roads Environment Officer***

*Signature* S. Weighell *Date* 15/12/10

*Name* **Simon Weighell** *Title* ENVIRONMENT OFFICER

***Comments:*** Refer to attached preconstruction photos and concept drawing.
The proposed works is to accommodate a Heavy Vehicle Rest Area within the Baxter Rest Area.
Things of note are

- The existing park bay in the south east corner is to remain as a light vehicle park area
- The heavy vehicle rest area extends across the front
- The heavy vehicle area formation width = 12.0m wide and the seal width = 10.0m wide
- A replacement environmental toilet and new black water waste disposal point will be sited on the western side of the light vehicle bay.
- Shelters, tables, benches and bar-b-ques will be installed at throughout both rest areas



Clearing Permit & EMP required.

Appendix C

# Government Agency Managed Databases Search Results

# Aboriginal Heritage Inquiry System

Aboriginal Sites Database

## Search Criteria

0 sites in a search box. The box is formed by these diagonally opposed corner points:

| MGA Zone 51 | |
|---|---|
| Northing | Easting |
| 6413388 | 662310 |
| 6413389 | 662310 |

## Disclaimer

Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist. Consultation with Aboriginal communities is on-going to identify additional sites. The AHA protects all Aboriginal sites in Western Australia whether or not they are registered.

## Copyright



## Legend

### Restriction

| | |
|---|---|
| N | No restriction |
| M | Male access only |
| F | Female access |

### Access

| | |
|---|---|
| C | Closed |
| O | Open |
| V | Vulnerable |

### Coordinate Accuracy

Accuracy is shown as a code in brackets following the site coordinates.

| | |
|---|---|
| [Reliable] | The spatial information recorded in the site file is deemed to be reliable, due to methods of capture. |
| [Unreliable] | The spatial information recorded in the site file is deemed to be unreliable due to errors of spatial data capture and/or quality of spatial information reported. |

### Status

| L - Lodged | → | IA - Information Assessed | → | ACMC Decision Made |
|---|---|---|---|---|
| Information lodged, awaiting assessment | | Information Awaiting ACMC Decision Assessment Only | | R - Registered Site<br>I - Insufficient information<br>S - Stored Data |

*Explanation of Assessment

Sites lodged with the Department are assessed under the direction of the Registrar of Aboriginal Sites. These are not the final assessment.

Final assessment and decisions will be determined by the Aboriginal Cultural Material Committee (ACMC).

## Spatial Accuracy

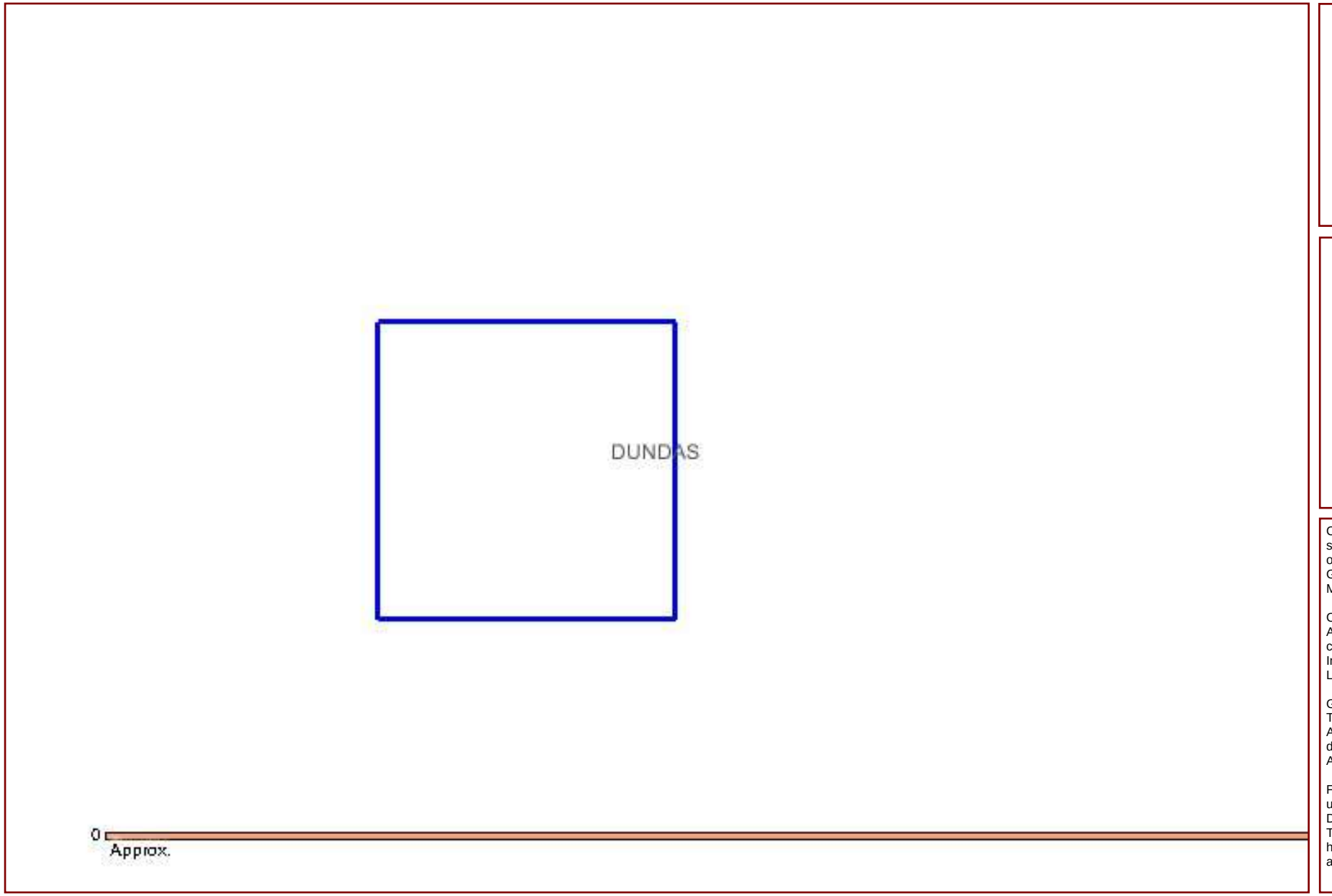
Index coordinates are indicative locations and may not necessarily represent the centre of sites, especially for sites with an access code “closed” or “vulnerable”. Map coordinates (Lat/Long) and (Easting/Northing) are based on the GDA 94 datum. The Easting / Northing map grid can be across one or more zones. The zone is indicated for each Easting on the map, i.e. '5000000:Z50' means Easting=5000000, Zone=50.

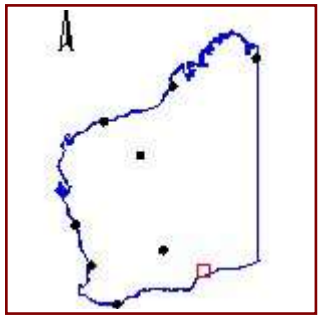
## Sites Shown on Maps

Site boundaries may not appear on maps at low zoom levels

# List of Registered Aboriginal Sites with Map

No results



## Legend

Selected Heritage Sites

Registered Sites

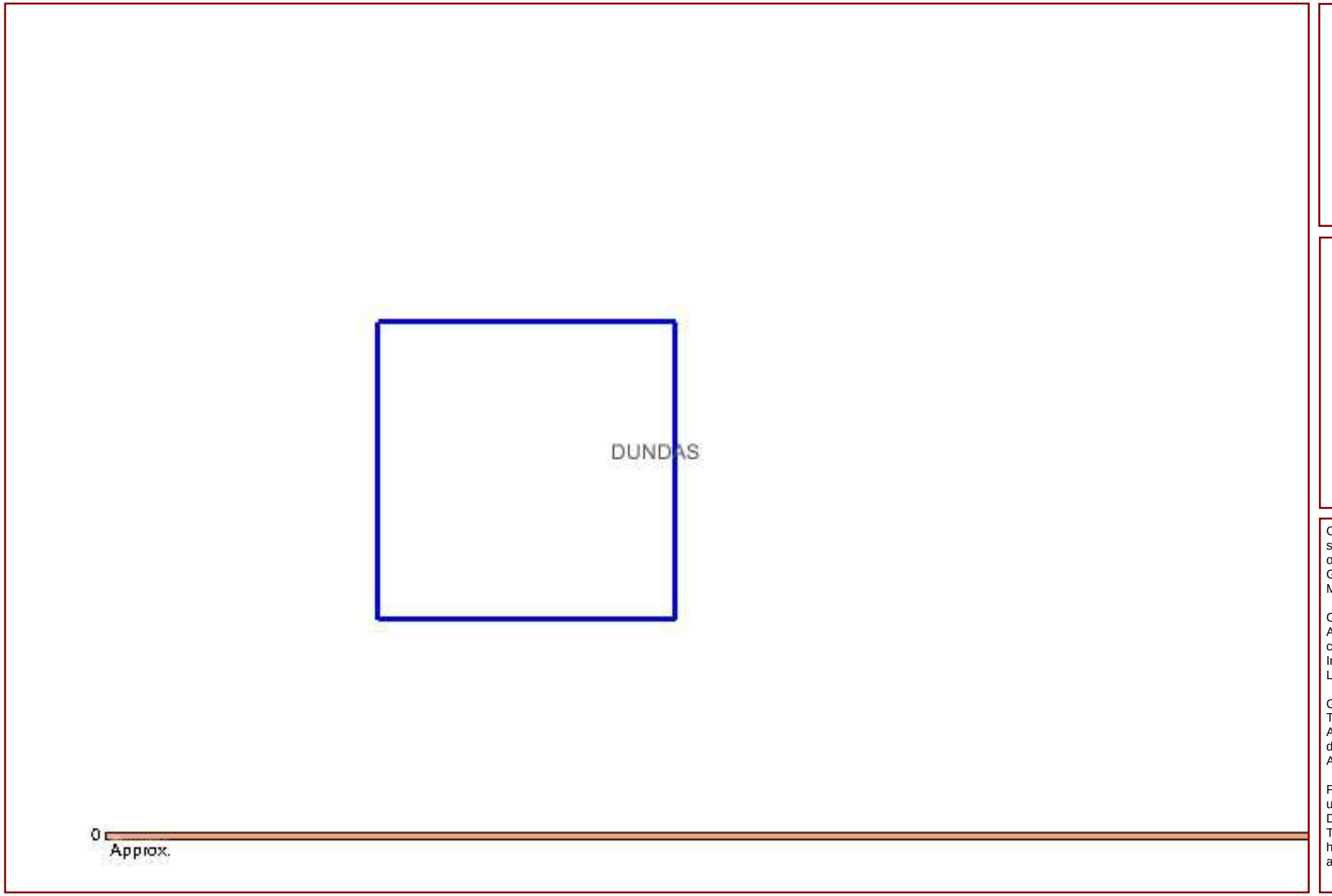
Town

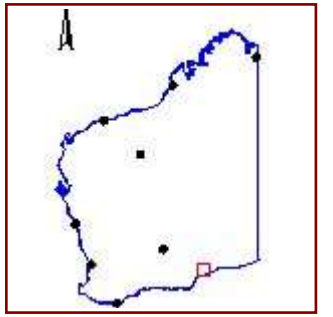
Map Area

Search Area

# List of Other Heritage Places with Map

No results



## Legend

Selected Heritage Sites

Other Heritage Places

Town

Map Area

Search Area

# Map Showing Registered Aboriginal Sites and Other Heritage Places

# EPBC Act Protected Matters Report: Coordinates

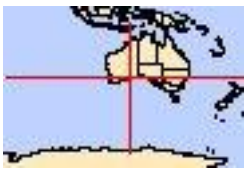
This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

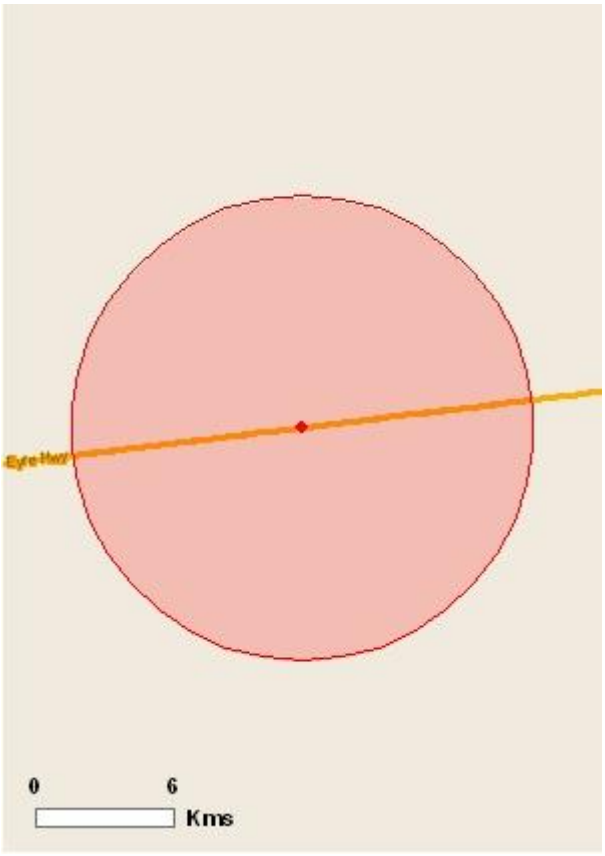
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

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

Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

**Report created: 16/03/11 14:19:33**






This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010



Coordinates
Buffer: 10Km

# 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 Wetlands): | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Areas: | None |
| Threatened Ecological Communitites: | None |
| Threatened Species: | 1 |
| Migratory Species: | 7 |

## Other Matters Protected by the EPBC Act

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

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

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

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

| | |
|---|---|
| Commonwealth Lands: | 1 |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 5 |

| | |
|---|---|
| Whales and Other Cetaceans: | None |
| Critical Habitats: | None |
| Commonwealth Reserves: | None |

## Report Summary for Extra Information

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

| | |
|---|---|
| Place on the RNE: | None |
| State and Territory Reserves: | None |
| Regional Forest Agreements: | None |
| Invasive Species: | 6 |
| Nationally Important Wetlands: | None |

# Details

## Matters of National Environmental Significance

| **Threatened Species** | | **[ Resource Information ]** |
|---|---|---|
| Name | Status | Type of Presence |
| **BIRDS** | | |
| Acanthiza iredalei iredalei | | |
| Slender-billed Thornbill (western) [25967] | Vulnerable | Species or species habitat likely to occur within area |

| **Migratory Species** | | **[ Resource Information ]** |
|---|---|---|
| Name | Status | Type of Presence |
| **Migratory Marine Birds** | | |
| Apus pacificus | | |
| Fork-tailed Swift [678] | | Species or species habitat may occur within area |
| Ardea alba | | |
| Great Egret, White Egret [59541] | | Species or species habitat may occur within area |
| Ardea ibis | | |
| Cattle Egret [59542] | | Species or species habitat may occur within area |
| **Migratory Terrestrial Species** | | |
| Haliaeetus leucogaster | | |
| White-bellied Sea-Eagle [943] | | Species or species habitat likely to occur within area |
| Merops ornatus | | |
| Rainbow Bee-eater [670] | | Species or species habitat may occur within area |
| **Migratory Wetlands Species** | | |
| Ardea alba | | |
| Great Egret, White Egret [59541] | | Species or species habitat may occur within area |
| Ardea ibis | | |
| Cattle Egret [59542] | | Species or species habitat may occur within area |

## Other Matters Protected by the EPBC Act

## Commonwealth Lands [ Resource Information ]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land -

## Listed Marine Species [ Resource Information ]

| Name | Status | Type of Presence |
|---|---|---|
| **Birds** | | |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat may occur within area |
| Ardea alba<br>Great Egret, White Egret [59541] | | Species or species habitat may occur within area |
| Ardea ibis<br>Cattle Egret [59542] | | Species or species habitat may occur within area |
| Haliaeetus leucogaster<br>White-bellied Sea-Eagle [943] | | Species or species habitat likely to occur within area |
| Merops ornatus<br>Rainbow Bee-eater [670] | | Species or species habitat may occur within area |

# Extra Information

## Invasive Species [ Resource Information ]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

| Name | Status | Type of Presence |
|---|---|---|
| **Mammals** | | |
| Capra hircus<br>Goat [2] | | Species or species habitat likely to occur within area |
| Felis catus<br>Cat, House Cat, Domestic Cat [19] | | Species or species habitat likely to occur within area |
| Oryctolagus cuniculus<br>Rabbit, European Rabbit [128] | | Species or species habitat likely to occur within area |
| Vulpes vulpes<br>Red Fox, Fox [18] | | Species or species habitat likely to occur within area |
| **Plants** | | |
| Carrichtera annua<br>Ward's Weed [9511] | | Species or species habitat likely to occur within area |
| Lycium ferocissimum<br>African Boxthorn, Boxthorn [19235] | | Species or species habitat may occur within area |

# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

## Coordinates

124.78797 -32.35607

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania

-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Other groups and individuals

Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.



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+61 2 6274 1111 ABN

# NatureMap Species Report

*Created By Guest user on 28/03/2011*

**Method** 'By Circle'
**Centre** 124°46' 31" E,32°21' 33" S
**Buffer** 40km

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 1. | 3282 | *Acacia cyclops (Coastal Wattle)* | | | |
| 2. | 3440 | *Acacia merrallii* | | | |
| 3. | 3473 | *Acacia oswaldii (Miljee)* | | | |
| 4. | 24559 | *Acanthagenys rufogularis (Spiny-cheeked Honeyeater)* | | | |
| 5. | 24260 | *Acanthiza apicalis (Broad-tailed Thornbill (Inland Thornbill))* | | | |
| 6. | 24261 | *Acanthiza chrysorrhoa (Yellow-rumped Thornbill)* | | | |
| 7. | 24265 | *Acanthiza uropygialis (Chestnut-rumped Thornbill)* | | | |
| 8. | 6297 | *Acrotriche patula* | | | |
| 9. | 25544 | *Aegotheles cristatus (Australian Owlet-nightjar)* | | | |
| 10. | 24860 | *Amphibolurus norrisi* | | | |
| 11. | 7825 | *Angianthus conocephalus* | | | |
| 12. | 24561 | *Anthochaera carunculata (Red Wattlebird)* | | | |
| 13. | -1612 | *Anthus novaeseelandiae* | | | |
| 14. | 25528 | *Aphelocephala leucopsis (Southern Whiteface)* | | | |
| 15. | 25554 | *Apus pacificus (Fork-tailed Swift)* | | | |
| 16. | 24285 | *Aquila audax (Wedge-tailed Eagle)* | | | |
| 17. | 24610 | *Ardeotis australis (Australian Bustard)* | | P4 | |
| 18. | 25566 | *Artamus cinereus (Black-faced Woodswallow)* | | | |
| 19. | 24353 | *Artamus cyanopterus (Dusky Woodswallow)* | | | |
| 20. | 11435 | *Atriplex acutibractea subsp. acutibractea* | | | |
| 21. | 11516 | *Atriplex nummularia subsp. spathulata (Old Man Saltbush)* | | | |
| 22. | 2481 | *Atriplex vesicaria (Bladder Saltbush)* | | | |
| 23. | 17239 | *Austrostipa exilis* | | | |
| 24. | 17246 | *Austrostipa nitida* | | | |
| 25. | 32315 | *Barbula calycina* | | | |
| 26. | -1633 | *Barnardius zonarius* | | | |
| 27. | 4598 | *Beyeria lechenaultii (Pale Turpentine Bush)* | | | |
| 28. | 25798 | *Billardiera fusiformis (Australian Bluebell)* | | | |
| 29. | 3722 | *Bossiaea walkeri* | | | |
| 30. | -1590 | *Cacomantis pallidus* | | | |
| 31. | 15370 | *Caladenia microchila* | | | |
| 32. | 24269 | *Calamanthus campestris (Rufous Fieldwren)* | | | |
| 33. | 5483 | *Calytrix tetragona (Common Fringe-myrtle)* | | | |
| 34. | 3008 | *Carrichtera annua (Ward's Weed)* | Y | | |
| 35. | 7915 | *Centaurea calcitrapa (Star Thistle)* | Y | | |
| 36. | 24186 | *Chalinolobus gouldii (Gould's Wattled Bat)* | | | |
| 37. | -1634 | *Charadrius australis* | | | |
| 38. | 25233 | *Christinus alexanderi* | | | |
| 39. | 24980 | *Christinus marmoratus (Marbled Gecko)* | | | |
| 40. | 24833 | *Cincloramphus cruralis (Brown Songlark)* | | | |
| 41. | 24834 | *Cincloramphus mathewsi (Rufous Songlark)* | | | |
| 42. | 25675 | *Colluricincla harmonica (Grey Shrike-thrush)* | | | |
| 43. | 24361 | *Coracina maxima (Ground Cuckoo-shrike)* | | | |
| 44. | 25568 | *Coracina novaehollandiae (Black-faced Cuckoo-shrike)* | | | |
| 45. | 24416 | *Corvus bennetti (Little Crow)* | | | |
| 46. | 25592 | *Corvus coronoides (Australian Raven)* | | | |
| 47. | -1666 | *Corvus sp.* | | | |
| 48. | 24420 | *Cracticus nigrogularis (Pied Butcherbird)* | | | |
| 49. | 25595 | *Cracticus tibicen (Australian Magpie)* | | | |
| 50. | 25596 | *Cracticus torquatus (Grey Butcherbird)* | | | |
| 51. | 7949 | *Cratystylis conocephala (Greybush)* | | | |
| 52. | 24884 | *Ctenophorus pictus (Painted Dragon)* | | | |
| 53. | 25059 | *Ctenotus orientalis* | | | |
| 54. | 24995 | *Delma australis* | | | |
| 55. | 32346 | *Didymodon torquatus* | | | |
| 56. | 7961 | *Dittrichia graveolens (Stinkwort)* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| | | | Y | | |
| 57. | 24470 | *Dromaius novaehollandiae (Emu)* | | | |
| 58. | -1600 | *Elanus axillaris* | | | |
| 59. | 12064 | *Enchylaena tomentosa var. tomentosa (Barrier Saltbush)* | | | |
| 60. | -1569 | *Eolophus roseicapillus* | | | |
| 61. | 24567 | *Epthianura albifrons (White-fronted Chat)* | | | |
| 62. | 24570 | *Epthianura tricolor (Crimson Chat)* | | | |
| 63. | 7180 | *Eremophila alternifolia (Poverty Bush)* | | | |
| 64. | 7195 | *Eremophila dempsteri* | | | |
| 65. | 14593 | *Eremophila parvifolia subsp. parvifolia* | | P4 | |
| 66. | 7267 | *Eremophila scoparia (Broom Bush ()* | | | |
| 67. | 10757 | *Eucalyptus brachycalyx (Gilja)* | | | |
| 68. | 5648 | *Eucalyptus flocktoniae (Merrit)* | | | |
| 69. | 14277 | *Eucalyptus fraseri subsp. fraseri* | | | |
| 70. | 5662 | *Eucalyptus gracilis (Yorrell)* | | | |
| 71. | 12888 | *Eucalyptus histophylla* | | P3 | |
| 72. | 5726 | *Eucalyptus oleosa (Giant Mallee)* | | | |
| 73. | 20308 | *Eucalyptus oleosa subsp. ampliata* | | | |
| 74. | 18293 | *Eucalyptus urna* | | | |
| 75. | 5801 | *Eucalyptus yalatensis (Yalata Mallee)* | | | |
| 76. | 10977 | *Exocarpos aphyllus (Leafless Ballart)* | | | |
| 77. | 25621 | *Falco berigora (Brown Falcon)* | | | |
| 78. | 25622 | *Falco cenchroides (Australian Kestrel)* | | | |
| 79. | 25624 | *Falco peregrinus (Peregrine Falcon)* | | S | |
| 80. | 24959 | *Gehyra variegata* | | | |
| 81. | 4481 | *Geijera linearifolia (Oilbush)* | | | |
| 82. | 32377 | *Gemmabryum eremaeum* | | | |
| 83. | 24443 | *Grallina cyanoleuca (Magpie-lark)* | | | |
| 84. | 2802 | *Gunniopsis calcarea* | | | |
| 85. | 24295 | *Haliastur sphenurus (Whistling Kite)* | | | |
| 86. | 25114 | *Hemiergis initialis subsp. brookeri* | | | |
| 87. | 25734 | *Himantopus himantopus (Black-winged Stilt)* | | | |
| 88. | 24491 | *Hirundo neoxena (Welcome Swallow)* | | | |
| 89. | 25638 | *Larus pacificus (Pacific Gull)* | | | |
| 90. | 16810 | *Lasiopetalum behrii* | | | |
| 91. | 3018 | *Lepidium africanum (Rubble Peppercress)* | Y | | |
| 92. | 25132 | *Lerista dorsalis* | | | |
| 93. | 25162 | *Lerista picturata* | | | |
| 94. | 24577 | *Lichenostomus ornatus (Yellow-plumed Honeyeater)* | | | |
| 95. | 24581 | *Lichenostomus virescens (Singing Honeyeater)* | | | |
| 96. | 25661 | *Lichmera indistincta (Brown Honeyeater)* | | | |
| 97. | 24132 | *Macropus fuliginosus (Western Grey Kangaroo)* | | | |
| 98. | 2542 | *Maireana erioclada* | | | |
| 99. | 2561 | *Maireana radiata* | | | |
| 100. | 2568 | *Maireana trichoptera (Downy Bluebush)* | | | |
| 101. | 25652 | *Malurus leucopterus (White-winged Fairy-wren)* | | | |
| 102. | 24583 | *Manorina flavigula (Yellow-throated Miner)* | | | |
| 103. | 5922 | *Melaleuca lanceolata (Rottnest Teatree)* | | | |
| 104. | 5957 | *Melaleuca quadrifaria* | | | |
| 105. | 25184 | *Menetia greyii* | | | |
| 106. | 25693 | *Microeca fascinans (Jacky Winter)* | | | |
| 107. | 8107 | *Minuria cunninghamii (Bush Minuria)* | | | |
| 108. | 25188 | *Morethia adelaidensis* | | | |
| 109. | 25190 | *Morethia butleri* | | | |
| 110. | 25192 | *Morethia obscura* | | | |
| 111. | 24223 | *Mus musculus (House Mouse)* | Y | | |
| 112. | 18259 | *Myoporum platycarpum subsp. platycarpum* | | | |
| 113. | 30941 | *Nephrurus milii (Barking Gecko)* | | | |
| 114. | 6975 | *Nicotiana goodspeedii* | | | |
| 115. | 19023 | *Olearia incana* | | | |
| 116. | 8140 | *Olearia muelleri (Goldfields Daisy)* | | | |
| 117. | 8144 | *Olearia picridifolia* | | | |
| 118. | 8146 | *Olearia ramosissima (Much-branched Daisy Bush)* | | | |
| 119. | 24618 | *Oreoica gutturalis (Crested Bellbird)* | | | |
| 120. | 25253 | *Parasuta gouldii* | | | |
| 121. | 25682 | *Pardalotus striatus (Striated Pardalote)* | | | |
| 122. | 24409 | *Phaps chalcoptera (Common Bronzewing)* | | | |
| 123. | 24596 | *Phylidonyris novaehollandiae (New Holland Honeyeater)* | | | |
| 124. | 10825 | *Pimelea micrantha* | | | |
| 125. | 24751 | *Platycercus zonarius subsp. zonarius* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 126. | 8180 | *Podolepis rugata (Pleated Podolepis)* | | | |
| 127. | 24683 | *Pomatostomus superciliosus (White-browed Babbler)* | | | |
| 128. | 36137 | *Pseudocrossidium crinitum* | | | |
| 129. | 25259 | *Pseudonaja affinis subsp. affinis (Dugite)* | | | |
| 130. | 1689 | *Pterostylis mutica (Midget Greenhood)* | | | |
| 131. | 25614 | *Rhipidura leucophrys (Willie Wagtail)* | | | |
| 132. | 2599 | *Sclerolaena brevifolia* | | | |
| 133. | 2633 | *Sclerolaena uniflora (Two-spined Saltbush)* | | | |
| 134. | 25534 | *Sericornis frontalis (White-browed Scrubwren)* | | | |
| 135. | 30948 | *Smicrornis brevirostris (Weebill)* | | | |
| 136. | 25597 | *Strepera versicolor (Grey Currawong)* | | | |
| 137. | 24931 | *Strophurus intermedius* | | | |
| 138. | 31492 | *Tecticornia disarticulata* | | | |
| 139. | -1621 | *Thinornis rubricollis* | | | |
| 140. | 25203 | *Tiliqua occipitalis (Western Bluetongue)* | | | |
| 141. | -5058 | *Tortula willisiana var. willisiana* | | | |
| 142. | 30815 | *Tympanocryptis houstoni (Nullabor Earless Dragon)* | | | |
| 143. | 25577 | *Vanellus miles (Masked Lapwing)* | | | |
| 144. | 24386 | *Vanellus tricolor (Banded Lapwing)* | | | |
| 145. | 8269 | *Vittadinia nullarborensis* | | | |
| 146. | 24040 | *Vulpes vulpes (Red Fox)* | Y | | |
| 147. | -8121 | *Wahlenbergia sp.* | | | |
| 148. | 9247 | *Westringia rigida (Stiff Westringia)* | | | |
| 149. | 25765 | *Zosterops lateralis (Grey-breasted White-eye (Silvereye))* | | | |
| 150. | 4386 | *Zygophyllum aurantiacum (Shrubby Twinleaf)* | | | |
| 151. | 4394 | *Zygophyllum ovatum (Dwarf Twinleaf)* | | | |

**Conservation Codes**
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

Appendix D

# Site Photos


Western enterance to existing rest area


Bay at front of existing rest area


Eastern entrance to existing rest area


Bay at front of existing rest area (2)


South-east bay of existing rest area (1) – facing west


South-eat bay of existing rest area (2) – facing west


West bay of existing rest area facing north-east


West bay of existing rest area facing east


West bay of existing rest area facing west – area of proposed clearing


West bay of existing rest area facing east – area of proposed clearing (1)


West bay of existing rest area facing east – area of proposed clearing (2)


Area between entrances facing south from front bay


Facing south towards area of proposed clearing for new eastern entrance


Facing south towards area of proposed clearing for new western entrance


Facing south towards area of proposed clearing for new western entrance (2)

Appendix E

# Environmental Management Plan

**Table 4 Environmental Management Plan**

| Timing | Topic | Objective | Action(s) | Responsible Party | Advice |
|---|---|---|---|---|---|
| All phases of construction | Induction / Start-up meeting / Progress meetings | Create awareness in all personnel of the Main Roads Environmental Policy as well as the environmental aspects associated with the project. | Main Roads Environmental Policy to be communicated to all personnel.<br><br>All personnel to be informed of the environmental aspects associated with the project prior to undertaking any works.<br><br>Attendance / participation records for inductions / meetings to be kept. Such records must demonstrate adequate communication of environmental policies and aspects. | Contractor | Main Roads |
| All phases of construction | Vegetation Clearing - Record-keeping | All projects should maintain the required records relating to clearing native vegetation under CPS 818/5. | Record:<br>◗ a copy of the PEIA,<br>◗ a map showing the location where the clearing occurred, recorded in an ESRI Shapefile,<br>◗ the size of the area cleared (in hectares), and<br>◗ the dates on which the clearing was done. | Main Roads Project Manager | DEC |
| All phases of construction | Weed Management | Ensure that the risk of weed spread or establishment is minimised as far as is practically possible. | Contractor is to ensure that all equipment brought on to site is free of soil and vegetative material. Weed infested material is to be cleaned from equipment prior to traversing areas of good or better quality native vegetation and prior to leaving the work site.<br><br>No weed infested material (e.g. spoil) to be stockpiled / moved adjacent to or within areas of good or better quality native vegetation. | Contractor | Main Roads |

| Timing | Topic | Objective | Action(s) | Responsible Party | Advice |
|---|---|---|---|---|---|
| | | | No weed infested material / spoil to be removed to land other than that vested within Main Roads without approval from the landowner / manager, Main Roads Project Manager and Main Roads Environment Officer (unless removed to an approved Shire waste disposal facility – e.g. rubbish tip). | | |
| | | | Movement of soil will be avoided in wet conditions. | | |
| | | | If imported soils and materials are to be used, they will be certified weed free. | | |
| | | | Any Declared Plant species located in the area will be controlled in accordance with Sections 49 and 51 of the *Agriculture and Related Resources Protection Act 1976.* | | |
| All phases of construction | Aboriginal & European Heritage | "To ensure that changes to the biophysical environment do not adversely affect historical and cultural associations and comply with relevant heritage legislation" (EPA, 2009). | If during Project works, the Contractor uncovers any materials that could be considered significant to Aboriginal people, Main Roads will immediately cease works within 50 m of the material and notify Department of Indigenous Affairs immediately. | Contractor – ceasing of works<br>Main Roads Project Manager – obtaining of approvals | Main Roads / DIA |
| | | | If during Project works, the Contractor uncovers any human skeletal material, work shall cease within 20 m of the material and it shall be reported to the Police as soon as possible. | Contractor | Main Roads |
| All phases of construction | Pollution and Litter | Ensure that the works are managed to a standard that minimises pollution or the risk of pollution occurring. | The designated servicing area is to be bunded to contain any spills or leaks or it will drain into a temporary sump. It is not to be located in an area adjacent to drainage areas or watercourses / wetlands. | Contractor | Main Roads |

| Timing | Topic | Objective | Action(s) | Responsible Party | Advice |
|---|---|---|---|---|---|
| | | | Emergency cleanup procedures shall be implemented in the case of any spillage. These are to include the control of spilled material and removal of contaminated soil to an approved Shire waste disposal facility. Appropriate equipment is to be available on site at all times in the case of a spill. | | |
| | | | No light vehicles will be serviced or refuelled within 50 m of a watercourse. | | |
| | | | All waste oil is to be collected for disposal / recycling and any empty fuel / oil containers, used filters and waste hydraulic parts are to be collected and stored in an allocated area before being removed to an approved Shire waste disposal / recycling facility. | | |
| | | | The project areas, including hardstand areas, are to be kept in a tidy manner at all times. No littering is to be tolerated and an adequate number of rubbish bins are to be provided on site at all times. | | |
| All phases of construction | Flora and Fauna | "To maintain the abundance, diversity, geographic distribution and productivity of flora at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge" (EPA, 2009). | Care is to be taken when clearing in order to avoid death of / injury to any native fauna. Any death of / injury to native fauna is to be reported to the Main Roads Project Manager immediately and the appropriate actions taken (e.g. contact DEC, RSPCA or Veterinarian). | Both | Main Roads / DEC |
| | | | Where possible, nests or nesting sites are to be avoided or relocated. | | |
| Construction | Clearing | To reduce the impact of project related clearing on the surrounding environment | Main Roads will seek to have the project clearing approved under the Main Roads State-wide Purpose Clearing Permit (CPS 818/5). | Main Roads | Main Roads |

| Timing | Topic | Objective | Action(s) | Responsible Party | Advice |
|---|---|---|---|---|---|
| | | | The areas to be cleared will be minimised by preferentially using areas of existing disturbance, including existing access tracks and former material pit areas. | Contractor | |
| | | | Areas to be cleared will be pegged prior to commencing earthworks. | | |
| | | | No vegetation outside the designated areas will be removed during earthworks, construction or operation. | | |
| | | | Earthmoving equipment will be cleaned of soil and vegetation prior to entering and leaving the area to be cleared. | | |
| | | | Access tracks, vehicle parking and temporary materials storage will be located on existing cleared areas which incur minimum loss of trees and shrubs. | | |
| | | | Material cleared will be utilised in rehabilitation works where practicable. | | |
| | | | Cleared vegetation will be used in site rehabilitation and erosion control via mulching, chipping or brush cover. Larger logs will be left on-site to provide additional habitat. | | |
| | | | Cleared vegetation will not be burnt on-site. | | |
| | | | Stripped topsoil will be salvaged for use in site rehabilitation where possible. | | |
| | | | Materials and topsoil stockpiles will be located so as not to restrict or interfere with existing site drainage. | | |

| Timing | Topic | Objective | Action(s) | Responsible Party | Advice |
|---|---|---|---|---|---|
| Construction | Noise, Vibration and Dust | To protect the amenity of road-users and construction staff from noise, vibration and dust impacts resulting from activities associated with the project area. | All equipment will be regularly maintained and serviced, including exhaust systems. | Both | Main Roads |
| | | | A speed limit of 20 km/hr will be enforced on the site. | | |
| | | | Smooth driving will be enforced, vehicles will not be permitted to accelerate quickly. . | | |
| | | | Any complaints regarding dust, noise or vibration are to be attended to and dealt with as soon as possible. | | |
| | | | Dust from movement of vehicles will be managed at all times. This will include wetting down, road sweeping, and the implementation of suitable speed limits. | Contractor | Main Roads |
| Construction | Fire | Ensure that the fire risk associated with the construction of the project is minimised. | No fires shall be lit within the project area and standard fire prevention methods (e.g. spark arresting mufflers) are to be employed at all times. | Contractor | Main Roads |
| | | | Fire response equipment to be present and readily available on site at all times. | | |
| | | | All machinery will be shut down during periods of extreme fire hazard as advised by the DEC or Main Roads or the Shire of Dundas | | |
| | | | All machinery to be fitted with fire extinguishers. | | |
| | | | Smoking on site will be controlled and all cigarettes will be disposed of in an appropriate vessel. | | |

| Timing | Topic | Objective | Action(s) | Responsible Party | Advice |
|---|---|---|---|---|---|
| Construction | Environmental Incidents | Ensure that any environmental incidents that occur during works do not have a significant or long term impact on the environment. | Implement corrective and preventive actions in liaison with an environmental specialist and Main Roads Manager Environment where necessary. | Both | Main Roads |
| | | Ensure that the details of any environmental incidents are recorded in accordance with corporate requirements. | Complete and submit environmental incident report forms in accordance with the Main Roads corporate procedure *6707/042 Environmental Incident Reporting and Investigation*. Environmental Incident report forms are available on the Main Roads Internet site at http://www.mainroads.wa.gov.au/UnderstandingRoads/Environment/Pages/incident_report.aspx | | |
| Construction | Soil & Erosion Management | Ensure that soil is managed in a way that prevents future land degradation and erosion. | Stripped topsoil that is not infested with weeds is to be stockpiled separately and re-used on site in an appropriate manner (e.g. respread over batters). | Contractor | Main Roads |
| | | | Cleared areas to be landscaped in a way that prevents future erosion. | | |
| Construction | Ground and Surface Water Management | "To maintain the quantity of water so that existing and potential environmental values, including ecosystem maintenance, are protected" (EPA, 2009). | Water required for project activities to be sourced legally and used in a sustainable manner. | Contractor | Main Roads |
| | | | Where possible, road drainage is to be directed away from natural watercourses and wetlands. | | |
| | | | Water extraction activities to be carried out in a way which prevents the potential for contamination of the water source (e.g. bunding of pumping equipment). | | |
| Post-Construction | Clean-up | Ensure that the project area is left clean and tidy. | All waste materials from the development are to be completely removed from the site and disposed of at an approved Shire waste disposal facility upon completion of works. | Contractor | Main Roads |

| Timing | Topic | Objective | Action(s) | Responsible Party | Advice |
|---|---|---|---|---|---|
| | | | All remaining road building materials (e.g. gravel, aggregate) to be removed from the site upon completion of works to an approved stockpile site. | Both | Main Roads |
| Post-Construction | Rehabilitation | To ensure, as far as practicable, that rehabilitation achieves a stable and functioning landform which is consistent with the surrounding landscape and other environmental values. | Any compacted ground will be ripped or scarified where revegetation is required. | Contractor | Main Roads/ DEC |
| | | | Cleared topsoil (top 100 mm) and vegetation will be respread over disturbed/ redundant areas which are not apart of the final rest bay design. | | |
| | | | If imported soils and materials are required, they will be certified weed free. | | |
| | | | All rubbish, materials heaps or other debris will be removed. | | |

Note: “Both” refers to both the Main Roads Project Manager and Contractor.

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