



**PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND
ENVIRONMENTAL MANAGEMENT PLAN**

**Great Eastern Highway (H005)
Oyston Road Intersection Improvement and Refractory Road
Culvert Extension**

April 2011

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Revision	Prepared by	Date	Reviewed by	Date
Rev 0	Nigel Rowe Environment Officer	April 2011	Matt Hopper Project Manager	May 2011

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SUMMARY

The project involves upgrading the Great Eastern Highway at Oyston Road (66.63 SLK) and extending a culvert near Refractory Road (75.01 SLK). The Oyston Road intersection improvements will widen the Great Eastern Highway on the north side of the existing alignment to create a turning bulge, making it safer for east bound traffic to turn right into Oyston Road. The culvert extension just west of Refractory Road will allow for a safer shoulder to be constructed as well as the possibility of a future left turn slip lane into Refractory Road

Clearing native vegetation is the main environmental impact of the projects with 0.16 ha to be cleared at Oyston Road and four trees, 0.04 ha, at Refractory Road. This clearing is proposed to be undertaken using Main Roads' clearing permit CPS 818 and is not at variance to any of the 10 clearing principles.

No further clearances, permits or further studies are required.

PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN

Oyston Rd Intersection Improvement & Refractory Rd Culvert Extension

1. BACKGROUND

The widening of Great Eastern Highway at the Oyston Road intersection will create a Type “B” Intersection. Both the Oyston Road and Refractory Road projects are stand alone minor works and are not linked with any other projects.

Following Main Roads’ corporate Environmental Assessment and Approval process, an initial ‘Low Impact Environmental Screening Checklist’ was completed for the proposal. The checklist determined the project required further environmental assessment as the project requires clearing outside of the maintenance zone (item 2 on the checklist). Therefore the preparation of a project specific Preliminary Environmental Impact Assessment (PEIA) and Environmental Management Plan (EMP) are required.

The preliminary environmental assessment will involve a desktop analysis of environmental aspects and impacts, a site investigation, an assessment of native vegetation clearing and consideration of necessary environmental management. The preliminary assessment will determine whether an Environmental Impact Assessment (EIA) is necessary and if referral to State and/or Commonwealth authorities is required.

2. DESCRIPTION OF THE PROJECT

The project involves upgrading the Great Eastern Highway at Oyston Road (66.63 SLK) and extending a culvert just west of Refractory Road (75.01 SLK). The Oyston Road intersection improvements will widen the Great Eastern Highway on the north side of the existing alignment to create a turning bulge, making it safer for east bound traffic to turn right into Oyston Road. The culvert extension near Refractory Road will allow for a safer shoulder to be constructed as well as the possibility of a future left turn slip lane into Refractory Road

2.1 Project Location

The location for the projects are shown on Figure 1 with the boundaries of the study area being 100 m radius from the intersections

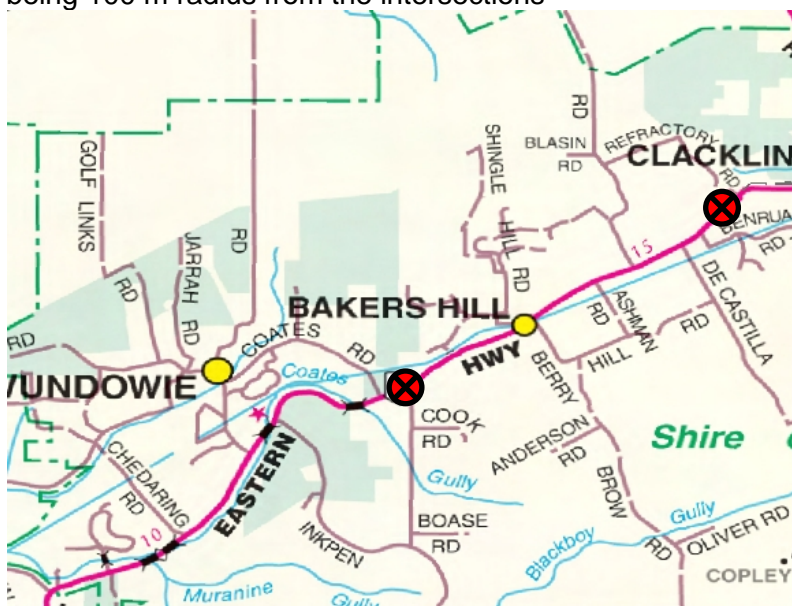


Figure 1 – Project Location and Study Area

3. METHODOLOGY

3.1 Preliminary Desktop Study

A preliminary assessment of the project area and the potential constraints of the proposal was undertaken by reviewing a number of government agency managed databases and viewing GIS shapefiles where necessary.

3.1.1 Threatened Flora, Fauna & Communities, Conservation Reserves and ESAs

Current GIS shapefiles provided to Main Roads by the DEC were examined for known populations of threatened flora, fauna, Threatened Ecological Communities (TECs) or conservation areas located within the vicinity of the works, refer to Appendix B.

3.1.2 Heritage

Non-indigenous heritage was examined utilising the Australian Heritage Places Inventory (<http://www.environment.gov.au/heritage/places/wa/index.html>) and the Heritage Council of Western Australia Places Database (<http://register.heritage.wa.gov.au/>), refer to Appendix C.

3.1.3 Aboriginal Heritage

A search of the Department of Indigenous Affairs' (DIA's) (<http://dia.wa.gov.au/AHIS/>) database was undertaken to determine whether the project area contains any sites of Aboriginal Heritage, refer to Appendix D.

3.1.4 Sensitive Water Resources

A search of the Department of Water's (DoW's) database was undertaken (<http://www.water.wa.gov.au/idelve/dowdataext/index.jsp>) to determine whether the project area contains any sensitive water resources (including Public Drinking Water Source Areas or Water Pollution Control Areas) or adjacent to any significant lakes, rivers, wetlands or located in proclaimed areas, refer to Appendix E.

3.1.5 Wetlands

The locations of any wetlands within the project area was determined using the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) mapping tool, the Department of Environment and Conservation (DEC) "Native Vegetation Map Viewer" mapping tool and viewing current GIS shapefiles, refer to Appendix F.

3.1.6 Weeds

A site inspection was carried out to identify any declared plants or significant weeds in or adjacent to the project area, refer to site photos Appendix J.

3.1.7 Dieback

As the project site receives >400 mm of annual rainfall and is located within the vulnerable areas of the south western parts of Western Australia, a site inspection was carried out to determine the presence of dieback, refer to site photos Appendix J.

3.1.8 Contaminated Sites

A search of the DEC's contaminated sites database was undertaken (<https://secure.dec.wa.gov.au/idelve/css/>) to determine whether the project area contains or is adjacent to any contaminated sites, refer Appendix H.

3.1.9 Acid Sulfate Soils

The project is outside the DEC's acid sulfate soils maps, refer Appendix I, (<https://uat2.landgate.wa.gov.au/bmvf/app/waatlas/>), a site inspection was used to determine the level of risk for the project.

3.1.10 Air Quality

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

3.2 Commonwealth Referral

The decision whether to refer the project to the Commonwealth DSEWPC was based upon whether the project would impact Commonwealth land, or may have a significant impact upon matters of national significance, which are protected under the *EPBC Act*. These are; World Heritage properties, National Heritage places, wetlands of international importance (listed under the Ramsar convention), Commonwealth Marine Areas, migratory species protected under international agreements, nuclear actions, nationally threatened species and ecological communities.

The DSEWPC protected matters search tool was used to determine if the project will impact upon any matters of national significance: (<http://www.environment.gov.au/erin/ert/epbc/index.html>) refer to Appendix G for the results of this search and Section 7 for a discussion on the findings.

3.3 State Referral

The decision whether to refer the project to the State's EPA was based on whether the project would impact on environmental factors significantly enough to require referral under section 38 of the *Environmental Protection Act 1986*.

4. EXISTING ENVIRONMENT

4.1 Description

The vegetation at Oyston Road contains an overstorey mix of Marri, Jarrah and Wandoo with a lower storey of Sheoak and Blackboys. The vegetation at Refractory road is heavily altered with no middle story, an understory of agricultural weeds and an overstorey of Wandoo and Marri. Although the work at Refractory Road is to extend an existing culvert there is no riparian vegetation as this culvert only takes seasonal road runoff from one side of the road to the other.

4.2 Site Investigation

A site visit was carried out by Nigel Rowe on 19 April 2011 to examine the general features of the area. The broad vegetation types in the vicinity of the project area were identified. Other issues that were considered included topography, the impacts on creek lines, property access and if further studies are required for noise and vibration impacts (dilapidation). Site photos were taken and are included in Appendix J.

5. CLEARING OF NATIVE VEGETATION

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

Apart from activities that are exempt under the clearing regulation (Section 5 – Prescribed Clearing), typically all Main Roads clearing will be undertaken using a permit.

The clearing for these projects is proposed to be undertaken using Main Roads' clearing permit CPS 818.

5.1 Details of Vegetation Associations to be Cleared

In order to assess the significance of the vegetation proposed to be cleared for the Oyston Road Intersection Improvement and the Refractory Road Culvert Extension the vegetation type, condition and percent of pre-European Extent remaining has been identified. Table 1 describes the location and condition of vegetation associations within the project area and at road building material extraction sites while Table 2 provides further information regarding each vegetation association's representativeness.

Table 1: Vegetation Description, Condition and Percent Remaining

No.	Description	Start & End SLK	Side of Road (L- left, R - right, RBM -road building materials)	Condition (Keighery 1994)	Pre-European Extent Remaining (%)	Area (ha)
4	Medium woodland; marri & wandoo	75.01	Both	Degraded	30.15	0.04
1006	Medium woodland; jarrah, wandoo & powderbark	66.63	LHS	Good	52.65	0.16
Total Area (ha)						0.2

Table 2: Vegetation Percent Remaining

Pre-European Extent Remaining: Vegetation Association No. 4		
Regional Context	Location	Pre-European Extent Remaining (%)
State-wide	N/A	30.15
Bioregional (IBRA Region)	Jarrah Forest (JF)	30.37
Bioregional (IBRA Sub-Region)	Northern Jarrah Forrest (JF1)	35.15
LGA	Shire of Northam	46.42

Pre-European Extent Remaining: Vegetation Association No. 1006		
Regional Context	Location	Pre-European Extent Remaining (%)
State-wide	N/A	52.65
Bioregional (IBRA Region)	Jarrah Forest (JF)	52.65
Bioregional (IBRA Sub-Region)	Northern Jarrah Forrest (JF1)	52.65
LGA	Shire of Northam	47.83

5.2 Assessment Against Clearing Principles

In assessing whether the project is likely to have a significant impact on the environment, the project was assessed against the ten clearing principles (EP Act 1986 Schedule 5).

The project is not likely to be at variance with the 10 clearing principles.

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.	
ASSESSMENT	Vegetation is in degraded condition and primarily overstorey species to be removed. The surrounding area has a much higher biodiversity than the vegetation proposed to be cleared.
METHODOLOGY & REFERENCES	Site Inspection – nearby Nature Reserve with high biodiversity compared to project site.
Proposal is not likely to be at variance to this 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	Native vegetation on the site is already disturbed and degraded and unlikely to present significant habitat for fauna - No nesting hollows in the trees proposed to be cleared.
METHODOLOGY & REFERENCES	Site inspection.
Proposal is not likely to be at variance to this Principle.	

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	
ASSESSMENT	None present.
METHODOLOGY & REFERENCES	DEC shapefiles and site inspection.
Proposal is not likely to be at variance to this 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	None present.
METHODOLOGY & REFERENCES	DEC shapefiles and site inspection.
Proposal is not likely to be at variance to this 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 Association 4: Medium woodland; marri & wandoo with 30.15 % pre European extent remaining and Vegetation Association 1006: Medium woodland; jarrah, wandoo & powderbark with 52.65 % pre European extent remaining. Vegetation is not a significant remnant and not of a vegetation association that has been extensively cleared.
METHODOLOGY & REFERENCES	Beeston, G.R., Hopkins, A.J.M. and Shepherd, D.P. (2002) – Technical Report 250.
Proposal is not likely to be at variance to this 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	Works are outside of any watercourse areas and not located within any ESA.
METHODOLOGY & REFERENCES	DoW and DEC shapefiles.
Proposal is not likely to be at variance to this Principle.	

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	
ASSESSMENT	Only 0.2 ha is proposed to be cleared with adjacent vegetation to remain, this will not cause appreciable land degradation.
METHODOLOGY & REFERENCES	Site Inspection.
Proposal is not likely to be at variance to this 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 nearest DEC managed land is the Woondowing Nature Reserve 150 m to the west of Oyston Road and the Clackline Nature Reserve 900 m to the North of Refractory Road. These reserves are up slope from the project sites and will not be impacted by the works.
METHODOLOGY & REFERENCES	DEC shapefiles and Site Inspection.
Proposal is not likely to be at variance to this 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	Small amount of clearing not located near any watercourses, no impact to groundwater as no dewatering proposed.
METHODOLOGY & REFERENCES	Site Inspection.
Proposal is not likely to be at variance to this Principle.	

(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	
ASSESSMENT	Small amount of clearing not located near any watercourses, this will not affect flooding.
METHODOLOGY & REFERENCES	Site Inspection.
Proposal is not likely to be at variance to this Principle.	

5.3 Summary of Management Actions

Main Roads attempts to avoid clearing vegetation if possible, where clearing cannot be avoided then this clearing is kept to a minimum. The following actions are proposed to manage and minimise vegetation clearing for the Oyston Rd Intersection Improvement & Refractory Rd Culvert Extension;

- Construction works to be undertaken in summer to reduce the potential for soil erosion impacting adjoining vegetation during heavy rains,
- Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either mulched or respread according to the TDP/Revegetation Plan,
- Implement the Project Revegetation Management Plan and monitor effectiveness of revegetation works and weed control.

The following table summarizes what further assessment and management is required in accordance with MRWA State-wide vegetation Clearing Permit (CPS 818).

Table 3: Summary of Additional Management Actions

Impact of Clearing	Yes/No or NA	Further Action Required
1. Does the assessment indicate that the clearing may be at variance or is at variance with one or more of the principles for clearing?	No	No further action required.
2. Does the assessment indicate that the clearing is at variance with one or more of the principles for clearing?	No	No further action required.
3. Does the assessment indicate that the clearing is at variance with clearing principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding?	No	No further action required.
4. Will the project involve clearing for purposes considered temporary in nature under Condition 13 of CPS818?	No	No further action required.

6. ASSESSMENT OF ASPECTS AND IMPACTS

Table 4: Aspects and Impacts - Oyston Rd Intersection Improvement & Refractory Rd Culvert Extension

Aspect	Evaluation of Potential Impacts
Vegetation – clearing	<p>0.2 ha of native vegetation is proposed to be cleared, the vegetation is described as Vegetation Association 4: Medium woodland; marri & wandoo with 30.15 % pre European extent remaining and Vegetation Association 1006: Medium woodland; jarrah, wandoo & powderbark with 52.65 % pre European extent remaining.</p> <p>The native vegetation proposed to be cleared is well represented regionally as it possesses more than 30% of its pre-European extent.</p> <p>According to Keighery, (1994) the condition of the native vegetation to be cleared is described as Degraded to Good.</p>
Vegetation – TECs/DRF	<p>None present in the proposed works areas. No significant vegetation types or threatened flora have been recorded within the road reserve see assessment to Clearing Principle 'c & d' in Section 5.2.</p> <p>No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).</p>
Vegetation – weeds	<p>There are numerous common weed species that occur throughout the proposed works areas. These species are likely to be widespread within the reserve and general area.</p>
Vegetation – dieback	<p>Site inspection indicates that the area should be treated as dieback free.</p>
Fauna	<p>No significant fauna issues associated with any of the proposed upgrade works. With the generally degraded and exposed nature of the works areas, no significant impacts would be expected on native fauna generally as a result of the proposed works.</p> <p>No Matters of National Environmental Significance as protected under the EPBC Act (1999) will be impacted (see Table 5).</p>
Heritage (non-indigenous)	<p>A search of the Australian Heritage Places Inventory and the Heritage Council of Western Australia on-line databases has indicated that there are no known sites of heritage significance within the vicinity of the project area. Five sites were identified in the Shire of Northam on the Australian Heritage Places Inventory, including the Clackline Nature Reserve however these will not be impacted by the project. Ten sites were identified in the Shire of Northam along the Great Eastern Highway on the Heritage Council of Western Australia Places Database but these will not be impacted by the works.</p> <p>No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).</p>
Aboriginal heritage	<p>A search of the DIA's database identified no known sites of Aboriginal heritage significance within the vicinity of the project area.</p> <p>No further investigations are required for all aspects of the project.</p>
Wetlands	<p>DEC shapefiles show that there are no wetlands within the vicinity of the project area.</p> <p>No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).</p>

Table 4: Aspects and Impacts - Oyston Rd Intersection Improvement & Refractory Rd Culvert Extension

Aspect	Evaluation of Potential Impacts
Surface water/drainage	A search of the DoW's database has confirmed that the proposed works will not disturb or interrupt any natural drainage and surface run-off patterns. Both project sites are located within Proclaimed Surface Water Areas, Oyston Road in the Swan River system and Refractory Road in the Avon River catchment area. There will be no impact to bed and banks and therefore no permits are required.
Groundwater	No dewatering nor drainage modifications are required, hence no change to groundwater level or quality.
Reserves / Conservation areas	There are no conservation areas or reserves that will be impacted by the proposed works, see assessment to Clearing Principle 'h' in Section 5.2.
Air quality	Not relevant to the proposed works. Local air quality assessment is not required for the project since: <ul style="list-style-type: none"> • the predicted traffic flow is less than 15,000 vehicles per day in rural areas; • residential and other sensitive receptors are not within 200 meters of the road centre.
Dust	Likely to be a minor issue during earthworks. No major sensitive receivers adjacent to the proposed works, but excessive dust could impact vegetation. This is likely to be easily managed by standard construction dust management techniques.
Noise and vibration	No major sensitive local receivers. Construction works is not expected to significantly contribute to noise levels at the nearest sensitive receivers, provided works are limited to normal working hours. The requirements of the Shire of Northam must be met in respect of noise management and construction working hours.
Visual amenity	The proposed works will result in minor and short-term visual impacts during construction.
Public safety and risk	Provided traffic management and signage to Main Roads standards is employed, none of the proposed works present any significant hazards to public safety. The proposed works will serve to enhance public safety by improving local road and pedestrian conditions.
Hazardous substances	Not relevant to the proposed works, the project requires no hazardous substances to be used.
Contamination	The works are within the road reserve and no known previous land use activities on or adjacent to the project area have had the potential to create contamination, e.g. petrol station. A search of the DEC's contaminated sites database indicates there are no identified contaminated sites within the project area.
Salinity	There were no visual signs of salinity observed in the project area. Given the nature and scale of the project the impact is considered not relevant.
Acid Sulfate Soils	No further investigations are necessary as the site is outside of the high risk area for ASS and there is no dewatering or excavation below the water table planned.
Statutory Land Use Planning	As the proposed works are entirely within the existing road reserve no planning scheme amendments are required.

Table 5: Commonwealth Aspects and Impacts

Aspect	Evaluation of Potential Impacts
World Heritage properties	The project will not impact any World Heritage properties i.e. Shark Bay
National Heritage places	A search of the Australian Heritage Places Inventory Database located five sites within the vicinity of the project. These sites are a minimum of 900 m from the works and will not be impacted by the project.
Wetlands of international importance (Ramsar)	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located no Ramsar Wetlands within the vicinity of the project.
Nationally threatened species or ecological communities	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located no threatened ecological communities, 6 threatened species and 5 listed marine species within the vicinity of the project. The project activities are unlikely to have a significant impact on these species and the marine species are listed as “over fly” with the vegetation present unlikely to be habitat for these species.
Migratory species protected under international agreements	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located 7 migratory species within the vicinity of the project. The project activities are unlikely to have a significant impact on these species as the vegetation present is unlikely to be habitat for these species.
Commonwealth marine areas	The project will not impact any Commonwealth marine area or marine protected area i.e. Ningaloo Marine Park
Commonwealth lands	The project is not located on and will not impact any Commonwealth lands.
Nuclear Actions	Not relevant to the proposed works.

7. DECISION TO REFER

7.1 Referral to the Department of Sustainability, Environment, Water, Population and Communities

The preliminary impact assessment determined the project does not, will not, or is not likely to have a significant impact on Matters of National Environmental Significance or impact Commonwealth land as outlined in Table 5 of the report. For this reason the project does not require referral to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

7.2 Referral to the Environmental Protection Authority

Due to the small scale of the project, the low significance of its impacts to the surrounding environment and that it is unlikely the project will generate significant public interest, the project does not require referral to the WA Environmental Protection Authority.

8. STAKEHOLDER CONSULTATION

No stakeholders have been consulted regarding the two projects due to the small scale of works and minor environmental impacts.

9. OTHER APPROVALS/PERMITS/LICENCES

No further approvals, permits or licences are required for the Great Eastern Highway, Osyton Road and Refractory Road projects.

10. REFERENCES

Beeston, G.R., Hopkins, A.J.M. and Shepherd, D.P. (2002). Land-use and vegetation in Western Australia. Department of Agriculture, Western Australia, Resource Management Technical Report 250.

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

Appendix A

Low Impact Environmental Screening Checklist

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 2105254 and 2105253

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

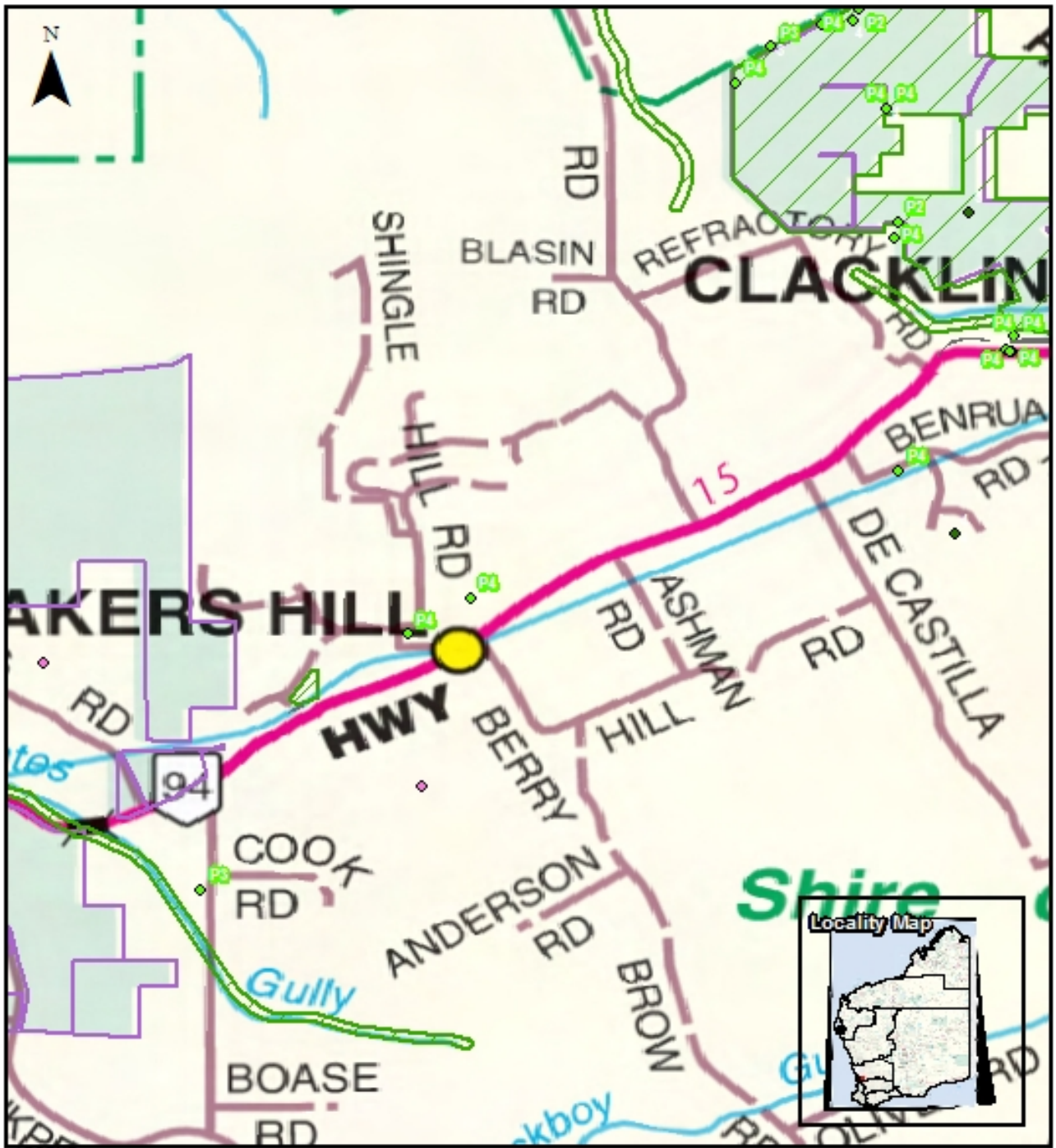
Completed By: *Signature*  *Date* 6/5/2011
Name MATT HOPPER *Title* PROJECT MANAGER

To be reviewed by a Main Roads Environment Officer: *Signature*  *Date* 6/5/2011
Name Nigel Thouse *Title* Environment Officer

Comments: _____

Appendix B

DEC Threatened Flora, Fauna and Conservation Areas GIS Search



<p>LEGEND</p> <ul style="list-style-type: none"> ◆ THFL - WAHerb - MRWA ◆ THFL - MRWA ◆ Threatened Fauna ◆ TEC / PEC Sites TEC / PEC Buffers TEC / PEC Sites & Buffers ESAs DEC Lands 	<p>0 0.45 0.9 1.8 Km</p> <p>MAP INFORMATION Geographic Coordinate System: Geocentric Datum of Australia 1994 - Projection MGA Zone 51</p>	<p>PUBLISHER DETAILS</p> <p>Directorate: Regional Services Branch: Goldfields Esperance Region Author: Simon Waghell (SO) Date Currency: As Supplied</p> <p>Project:</p>
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Appendix C

Australian Heritage Places Inventory and Heritage Council of Western Australia Database Searches

AHPI - Results - Microsoft Internet Explorer provided by MRWA ...

http://www.heritage.gov.au/cgi-bin/ahpi/results.pl?id=&pn=&ad=&lg=Northam+Shire&st=&country=&ss=&ds=&sc=&submit

File Edit View Favorites Tools Help

AHPI - Results

AUSTRALIAN HERITAGE PLACES INVENTORY

[[New Search](#)]

1.	<u>Bardeen Homestead including Outbuildings</u> Dunbarton Rd, Irishtown, WA	LGA: Northam Shire Source: Register of the National Estate
2.	<u>Buckland Homestead and Farm Buildings</u> Buckland Rd, Irishtown, WA	LGA: Northam Shire Source: Register of the National Estate
3.	<u>Clackline Nature Reserve (1978 boundary)</u> Refractory Rd, Clackline, WA	LGA: Northam Shire Source: Register of the National Estate
4.	<u>Clackline Nature Reserve (1993 boundary)</u> Refractory Rd, Clackline, WA	LGA: Northam Shire Source: Register of the National Estate
5.	<u>Egoline Homestead</u> Northam Toodyay Rd, Northam, WA	LGA: Northam Shire Source: Register of the National Estate

Query matched 5 records.

Report produced : 3/5/2011
AHPI URL : <http://www.environment.gov.au/heritage/ahpi/index.html>

Done

Internet 100%


Heritage Council of WA - Places Database : Search Results - Microsoft Internet Explorer provided by MRWA ...

http://register.heritage.wa.gov.au/search_results.html

File Edit View Favorites Tools Help

Heritage Council of WA - Places Database : Search Re...

Site Map | Contact Us | Accessi...



heritage
a future for our past

Search here...
Search WA Government

Home » Places Database » Search Results

Places Database

Heritage Council of WA Home

Quick Search

Advanced Search

Results List

Location Report

Save Data





What Is The State Register?

Other Heritage Lists

Displaying results: [1-10] of 10

Help

hide selected hide unselected

<input type="checkbox"/>	Bakers Hill Hall (1841)	Great Eastern Hwy, Bakers Hill	
<input type="checkbox"/>	Catholic Church, Bakers Hill (10909)	Great Eastern Hwy, Bakers Hill	
<input type="checkbox"/>	Clackline Railway Platform (10911)	off Great Eastern Hwy, Clackline	
<input type="checkbox"/>	Grass Valley Hall (1845)	Great Eastern Hwy, Grass Valley	
<input type="checkbox"/>	Grass Valley Hotel (fmr) (1846)	Great Eastern Hwy, Grass Valley	
<input type="checkbox"/>	Grass Valley Rail Shed (10916)	Great Eastern Hwy, Grass Valley	
<input type="checkbox"/>	Methodist Church (fmr) (1842)	Great Eastern Hwy, Bakers Hill	
<input type="checkbox"/>	Northam Army Camp (6126)	Great Eastern Hwy, Burlong	 [REG 
<input type="checkbox"/>	Northam Racecourse Buildings (3326)	Great Eastern Hwy, Northam	 [ASSESS 
<input type="checkbox"/>	Original Grass Valley Store (1848)	Great Eastern Hwy, Grass Valley	

hide selected hide unselected

Appendix D

Department of Indigenous Affairs Database Search

Sites in a search box - Aboriginal Heritage Inquiry System - Microsoft Internet Explorer provided by MRWA ...

http://dia.wa.gov.au/AHIS/Default.aspx

File Edit View Favorites Tools Help

Connecting... Sites in a search box - A... x

Search | Metadata | Feedback | DIA Home | Getting Started

What do you want to do?

Search for Sites in... : Local Government Area Northam go!

show legend

next map

PERTH Albany

Show on map

- Aboriginal Sites
- Heritage Surveys

refresh more

Map size

- Small
- Medium
- Large

next map

next map

next map

Sites in a search box

0 results

- Clear Results
- Printable - All results (with map)

0 Registered Aboriginal Sites

No results

0 Other Heritage Places

No results

What do you want to do?

[Search](#) | [Metadata](#) | [Feedback](#) | [DIA Home](#) | [Getting Started](#)

Search for Sites in... : Local Government Area Northam



Show on map

Aboriginal Sites

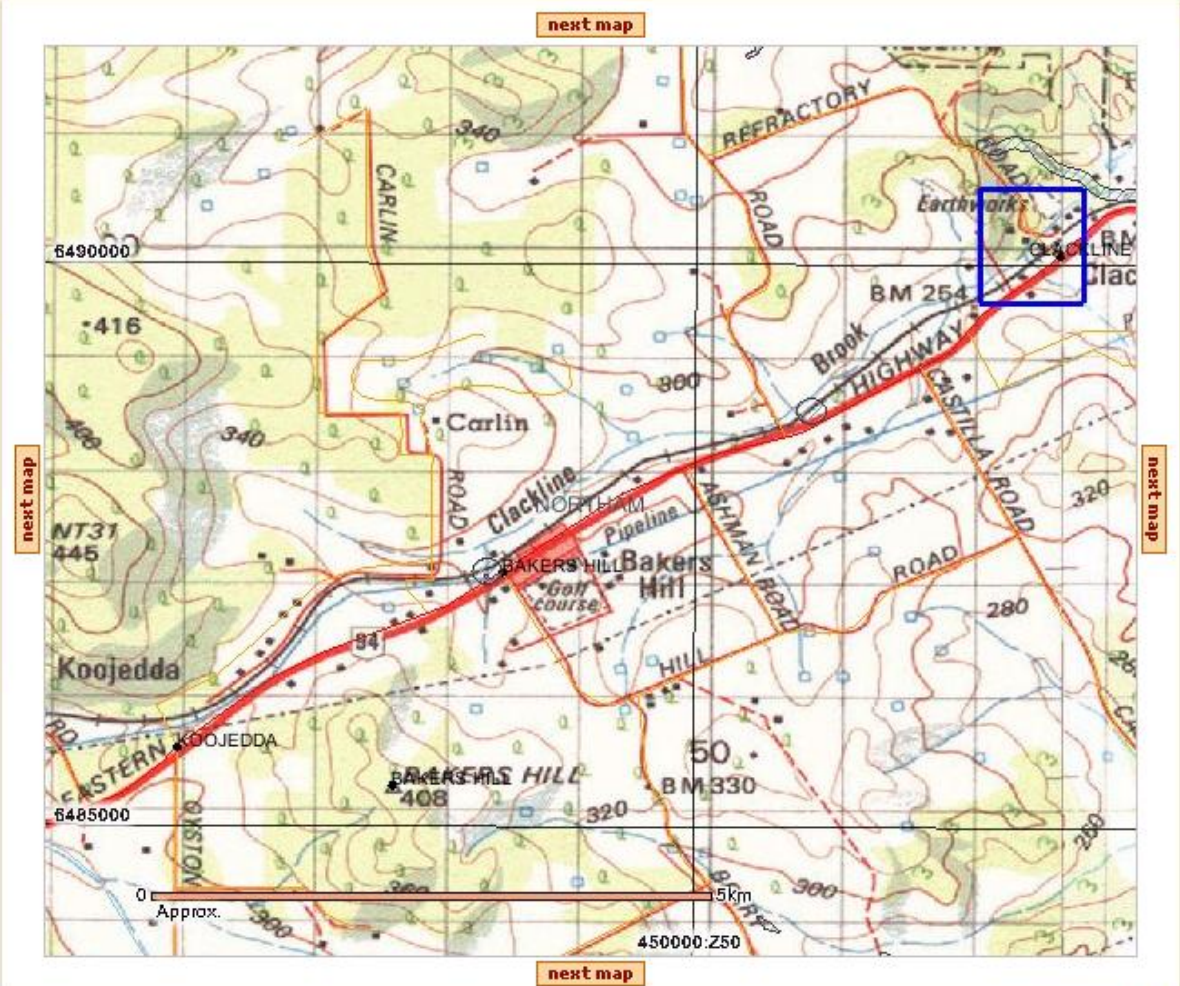
Heritage Surveys

Map size

Small

Medium

Large



Sites in a search box

0 results

Clear Results

Printable - All results (with map)

0 Registered Aboriginal Sites

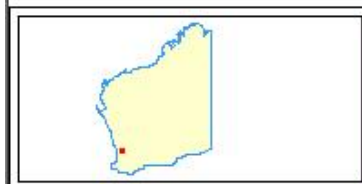
No results

0 Other Heritage Places

No results

Appendix E

DoW Geographic Data Atlas Database Search



- Location
- Boundaries
- Environment
 - FPM Swan River and Tribs - 1
 - RIWI Groundwater Areas
 - Groundwater Subareas
 - RIWI Surface Water Areas
 - RIWI Irrigation Districts
 - RIWI Rivers
 - Metropolitan Water Supply Se
- Public Drinking Water Source
 - Surface Water Allocation Sub
 - Surface Water Allocation Area
 - Waterway Management Areas
 - Water Management Zones
- Geoscientific Information
- Inland Waters
- Transportation



Welcome

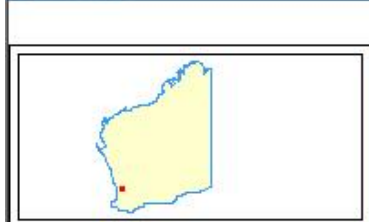
The Geographic Data Atlas is an interactive web mapping tool that allows you to freely view and download DoW geographic data.

Note that some datasets belong to other government agencies and are provided for viewing purposes only. These are identified in the theme selector by an agency acronym (eg: DLI).

All downloads of geographic data are subject to a standard licence agreement for data transfer. Data downloaded is in ESRI shapefile format with symbology and metadata bundled together in a zip file.

[Click here](#) for a quick introduction to using the Geographic Data Atlas mapping interface.

[Click here](#) to contact us or provide feedback on the site.



- Location
- Boundaries
- Environment
 - FPM Swan River and Tribs - 1
 - RIWI Groundwater Areas
 - Groundwater Subareas
 - RIWI Surface Water Areas
 - RIWI Irrigation Districts
 - RIWI Rivers
 - Metropolitan Water Supply Se
 - Public Drinking Water Source
 - Surface Water Allocation Sub
 - Surface Water Allocation Area
 - Waterway Management Areas
 - Water Management Zones
- Geoscientific Information
- Inland Waters
- Transportation



Welcome Search Download Metadata Map Help

Welcome

The Geographic Data Atlas is an interactive web mapping tool that allows you to freely view and download DoW geographic data.

Note that some datasets belong to other government agencies and are provided for viewing purposes only. These are identified in the theme selector by an agency acronym (eg: DLI).

All downloads of geographic data are subject to a standard licence agreement for data transfer. Data downloaded is in ESRI shapefile format with symbology and metadata bundled together in a zip file.

Click [here](#) for a quick introduction to using the Geographic Data Atlas mapping interface.

Click [here](#) to contact us or provide feedback on the site.

Appendix F

DEC Native Vegetation Map Viewer Database Search

Department of Environment and Conservation - Native Vegetation - Microsoft Internet Explorer provided by MRWA ...

http://maps.dec.wa.gov.au/idelve/nv/index.jsp

File Edit View Favorites Tools Help

Department of Environment and Conservation
Land Clearing Permit System...

Department of Environment and Conservation
Our environment, our future

Native Vegetation Map Viewer

Welcome Search Metadata Help

- Planning and Cadastre
- Environment
 - Clearing Regs - ESA
 - Clearing Regs - Schem
 - Clearing Permits
- Inland Waters
 - Rivers - GMD
 - Rivers - DOW
 - Rivers - GA
 - Lakes - GMD
 - Lakes - GA
- Boundaries
- Location
 - Economy
- Transportation
- Society

Zoom in tool. Click and drag a rectangle.

Welcome

Welcome to the Native Vegetation Map Viewer. This site helps you to identify the following:

- The location of environmentally sensitive areas, as declared by a Notice under section 51B of the Environmental Protection Act 1986.
- Areas where low impact mineral and petroleum activities can NOT occur, as defined under Schedule 1 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

Click on the links below for more information on:

- [Environmentally Sensitive Areas](#)
- [Low Impact Mineral and Petroleum Activities](#)
- [Native Vegetation Disclaimer](#)

Click [here](#) for a quick tutorial on using the Native Vegetation Protection map viewer.

Policy & Legislation | Clearing Permits & Public Reports

DEC Home | Copyright | Disclaimer

Department of Environment and Conservation - Native Vegetation - Microsoft Internet Explorer provided by MRWA ...

http://maps.dec.wa.gov.au/idelve/nv/index.jsp

File Edit View Favorites Tools Help

Department of Environment and Conservation Land Clearing Permit System...

Department of Environment and Conservation
Our environment, our future

Native Vegetation Map Viewer

Welcome Search Metadata Help

- Planning and Cadastre
- Environment
 - Clearing Regs - ESA
 - Clearing Regs - Schedules
 - Clearing Permits
- Inland Waters
 - Rivers - GMD
 - Rivers - DOW
 - Rivers - GA
 - Lakes - GMD
 - Lakes - GA
- Boundaries
- Location
 - Economy
- Transportation
- Society

REFRACTORY RD

0 1km 1:10,266

Welcome

Welcome to the Native Vegetation Map Viewer. This site helps you to identify the following:

- The location of environmentally sensitive areas, as declared by a Notice under section 51B of the Environmental Protection Act 1986.
- Areas where low impact mineral and petroleum activities can NOT occur, as defined under Schedule 1 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

Click on the links below for more information on:

- [Environmentally Sensitive Areas](#)
- [Low Impact Mineral and Petroleum Activities](#)
- [Native Vegetation Disclaimer](#)

Click [here](#) for a quick tutorial on using the Native Vegetation Protection map viewer.

Multi-tool. Press and hold a button, dragging mouse to navigate.

[Policy & Legislation](#) | [Clearing Permits & Public Reports](#)
[DEC Home](#) | [Copyright](#) | [Disclaimer](#)

Appendix G

DSEWPC Database Search



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: 03/05/11 16:36:08

[Summary](#)

[Details](#)

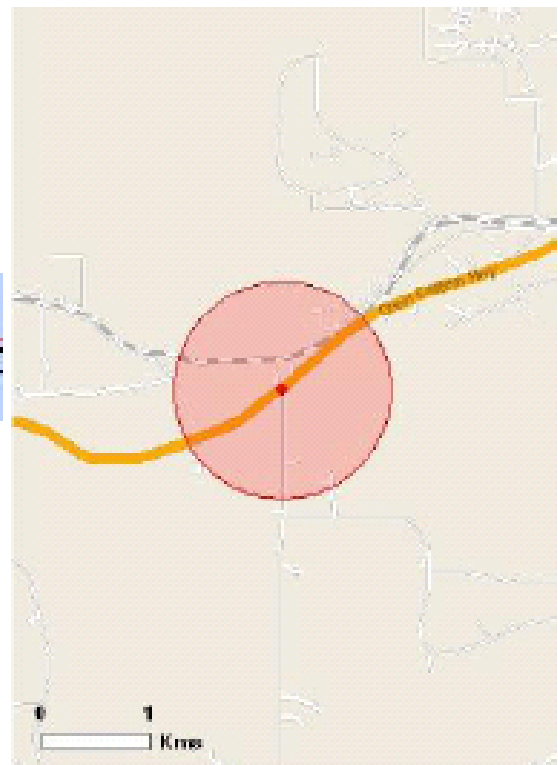
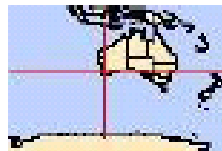
[Matters of NES](#)

[Other matters protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



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

[Coordinates](#)

Buffer: 1Km

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 Communities:	None
Threatened Species:	6
Migratory Species:	7

Other Matters Protected by the EPBC Act

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

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

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
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:	1
Regional Forest Agreements:	1
Invasive Species:	9
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

Threatened Species [\[Resource Information \]](#)

Name	Status	Type of Presence
BIRDS		
Calyptrorhynchus banksii naso Forest Red-tailed Black-Cockatoo [67034]	Vulnerable	Species or species habitat may occur within area
Calyptrorhynchus baudinii Baudin's Black-Cockatoo, Long-billed Black-Cockatoo [769]	Vulnerable	Species or species habitat likely to occur within area
Calyptrorhynchus latirostris Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Breeding likely to occur within area

MAMMALS

Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
---	------------	--

PLANTS

Eucalyptus recta [56430]	Endangered	Species or species habitat likely to occur within area
Verticordia fimbrialepis subsp. fimbrialepis Shy Featherflower [24631]	Endangered	Species or species habitat may 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

Listed Marine Species [\[Resource Information \]](#)

Name	Status	Type of Presence
------	--------	------------------

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

[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

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Woondowing, WA

Regional Forest Agreements [\[Resource Information \]](#)

Note that all areas with completed RFAs have been included.

[South West WA RFA, Western Australia](#)

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 Resources Audit, 2001.

Name	Status	Type of Presence
------	--------	------------------

Mammals

[Felis catus](#)

Cat, House Cat, Domestic Cat [19] Species or species habitat likely to occur within area

[Oryctolagus cuniculus](#)

Rabbit, European Rabbit [128]	Species or species habitat likely to occur within area
Sus scrofa	
Pig [6]	Species or species habitat may occur within area
Vulpes vulpes	
Red Fox, Fox [18]	Species or species habitat may occur within area
Plants	
Asparagus asparagoides	
Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]	Species or species habitat likely to occur within area
Chrysanthemoides monilifera	
Bitou Bush, Boneseed [18983]	Species or species habitat may occur within area
Genista sp. X Genista monspessulana	
Broom [67538]	Species or species habitat may occur within area
Pinus radiata	
Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]	Species or species habitat may occur within area
Rubus fruticosus aggregate	
Blackberry, European Blackberry [68406]	Species or species habitat likely to 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

116.43048 -31.76402

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](#)

Appendix H

DEC Contaminated Sites Database Search

- Coastline
- WA
- WA Detailed
- Boundaries
- LGA
- Suburbs
- Contaminated Sites
- Transportation
- State Roads
- Roads major
- Roads local
- Society
- Major Towns
- Minor Towns

Map navigation controls: Home, Zoom In, Zoom Out, Previous View, Next View, Full Screen, Print, Refresh, Close.

Scale: 0 1km 1:13,554

[New Search](#) [Find Suburb/Town](#) [Metadata](#) [Map Help](#)

Search for Known Contaminated Sites

[Switch to Advanced Search](#)

Search Criteria

Street/Lot No.:

Street Name:

Suburb/Town:

Title (Volume/Folio):

Crown Land Reserve No.:

Please enter *at least one* of the following:
 Street Name, Suburb/Town, Title or Crown Land Reserve Number.

Coastline

WA

WA Detailed

Boundaries

LGA

Suburbs

Contaminated Sites

Transportation

State Roads

Roads major

Roads local

Society

Major Towns

Minor Towns

[New Search](#) [Find Suburb/Town](#) [Metadata](#) [Map Help](#)

Search for Known Contaminated Sites

Search Criteria [Switch to Advanced Search](#)

Street/Lot No.:

Street Name:

Suburb/Town:

Title (Volume/Folio):

Crown Land Reserve No.:

Please enter *at least one of the following*:
 Street Name, Suburb/Town, Title or Crown Land Reserve Number.

Appendix I

Acid Sulfate Soils Mapping

WA Atlas

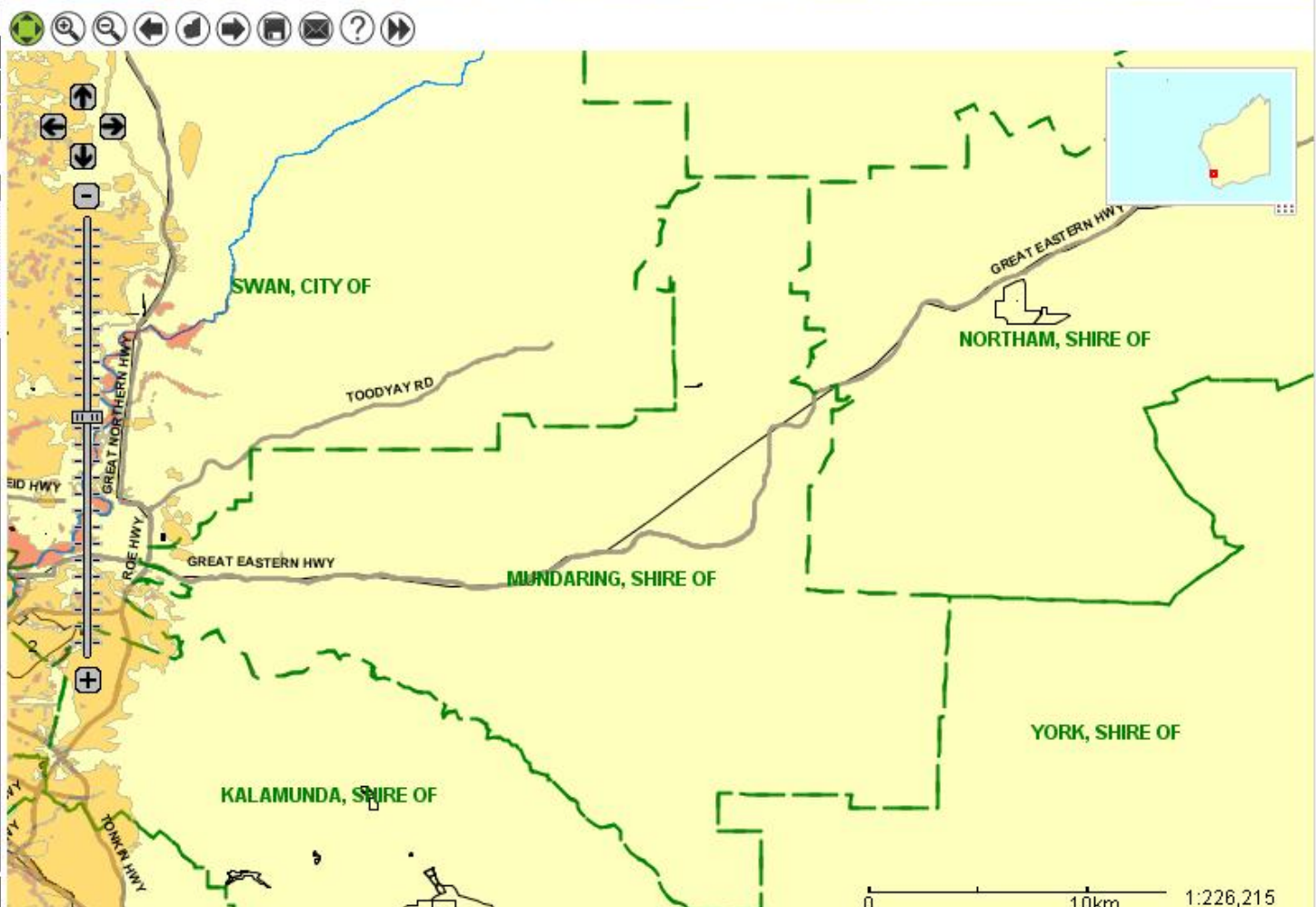
Shared Land Information Platform

Layer Selector

Layer

- Overview Roads (LGATE-052)
- Overview Rivers (LGATE-053)
- Overview Towns (LGATE-054)
- Hydro (Polygon) (LGATE-016) (29-10-2008 15:33:59)
- Cadastre (Address) (LGATE-002)
- Roads (LGATE-012)
- Railway Lines (LGATE-036) (30-10-2008 15:32:47)
- Local Government Authority (LGA) Boundaries (LGATE-006)
- Localities (LGATE-008)
- Points of Interest (LGATE-028)
- Acid Sulphate Soil Risk Map, Swan Coastal Plain (DEC-001) (25-01-2010 15:16:09)

Add Layers



Appendix J

Site Photos



Great Eastern Highway facing west, Oyston Road on the left with clearing on the right.



Trees to be removed for culvert extension at Refractory Road

Appendix K

Environmental Management Plan

ENVIRONMENTAL MANAGEMENT PLAN

OYSTON RD INTERSECTION IMPROVEMENT & REFRACTORY RD CULVERT EXTENSION

Introduction

This Environmental Management Plan (EMP) has been developed for the project area following the completion of the Preliminary Environmental Impact Assessment (PEIA) report. The aim of this EMP is to minimise the environmental impacts associated with the proposed works as well as to identify areas of responsibilities required for the implementation of management strategies.

This EMP addresses specific issues that were identified during the PEIA. The project management measures identified within this EMP are in addition to the standard environmental management contract specifications used for Category 2 projects. Main Roads' standard environmental contract specifications (Specifications 203, 204, 301, 302 and 304) are to be adhered to where appropriate.

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

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

Communication Plan

Environmental issues specific to the project will be communicated as follows:

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

External Communication and Complaints

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

Monitoring

After project completion and project handover, the Asset manager should develop a monitoring program to monitor for those aspects that have been identified as requiring monitoring.

Contingency Measures

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

Auditing

Due to the scale and nature of the project, there is no requirement for auditing the implementation of the EMP as the environmental risks are small.

ENVIRONMENTAL MANAGEMENT PLAN

Timing	Topic	Objective	Action	Responsible Party	Advice
All phases of Construction	Vegetation Clearing - Record-keeping	All projects should maintain the required records relating to clearing native vegetation under the purpose permit.	Clearing: <ul style="list-style-type: none"> a copy of the PEIA & EMP (Minor projects) for small projects; a map showing the location where the clearing occurred, recorded with a <i>single coordinate (as clearing is below 0.5 ha)</i>; the size of the area cleared (in hectares); and the dates on which the clearing was done. 	Project Manager	DEC
Pre - Construction	Visual Amenity	Ensure that road blends into environment.	Develop design documentation to meet project requirements as identified in the visual impact assessment.	Project Manager	Main Roads
Pre - Construction	Revegetation and Landscape planning	To revegetate site.	Prepare a Project Revegetation Plan. Revegetation will occur along Great Eastern Highway not related to this project however the topsoil and mulch from this clearing will be used in this revegetation.	Project Manager	Main Roads
Pre-Construction	Vegetation Clearing	Ensure that the overall objectives of the alignment and construction works are compatible with maintaining and, where possible, enhancing the biological integrity of the surrounding environment and minimising vegetation loss and degradation; and Ensure the retention of as many habitat trees, shrubs and vegetated corridors for fauna as possible, particularly where associated with riparian zones.	Selection of designs/locations that minimise adverse impacts on the biological environment.	Project Manager	Main Roads
			Construction works to be undertaken in summer to reduce the potential for soil erosion and drainage line siltation due to vegetation removal and heavy rains.	Project Manager	Main Roads
			Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used mulched and used for the 2011 Great Eastern Highway rehabilitation works.	Contractor	Main Roads
Pre-Construction	Surface Drainage	Maintain the hydrological regime that exists prior to the construction of the proposal.	Stormwater drainage shall not be altered, the culvert extension will not impact surface drainage..	Project Manager	DEC
Construction	Noise, Vibration and Dust	Ensure that the construction of the proposal does not become a nuisance to the public.	Access to private property and appropriate traffic management measures should be planned and implemented prior to the construction of works.	Contractor	Main Roads
			Pedestrian public access should be planned and implemented prior to the construction of works.	Contractor	Main Roads
			Any complaints regarding dust will be attended to as soon as possible.	Contractor/Project Manager	Main Roads
			Where it is found that trucks leaving the site are carrying excessive material onto sealed surfaces, these areas will be swept to reduce dust generation and maintain traffic safety.	Contractor	Main Roads

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	Topic	Objective	Action	Responsible Party	Advice
Construction	Pollution and Litter	Ensure that the construction of the proposal is managed to a standard that minimises any adverse impacts on the environment.	The designated servicing area will be bunded to contain any spills or leaks and shall not be located in an area adjacent to any drainage areas or watercourses or will drain into a temporary sump.	Contractor	Main Roads
			Temporary storage of bitumen, asphalt, concrete or aggregate should only occur at designated depots or controlled hardstands. Precoating of aggregate will only occur in approved areas.	Contractor	Main Roads
			Emergency cleanup procedures shall be implemented in the case of any spillage. These will include control of spilled material and removal of contaminated soil to an approved site. The contractor shall ensure appropriate equipment is available at all times and shall notify the Superintendent's Representative of a spill.	Contractor	Main Roads
			All waste oil will be collected for recycling and any empty fuel/oil containers, used filters and waste hydraulic parts to be collected and stored in an allocated area then removed to an approved site.	Contractor	Main Roads
			The project areas, including hardstand areas, will be kept in a tidy manner at all times.	Contractor	Main Roads
Construction	Fire	Ensure that the fire risk associated with the construction of the proposal is minimised.	No fires shall be lit within the project area.	Contractor	Main Roads
			Machinery will be fitted with approved spark arresting mufflers.	Contractor	Main Roads
			A water tanker/fire fighter unit will be on site at all times.	Contractor	Main Roads
Construction	Fauna	Avoid unnecessary impacts to fauna and damage to fauna habitat.	Fauna are not to be fed or intentionally harmed.	Contractor	Main Roads
			No pets or firearms permitted on site.	Contractor	Main Roads
			The WILDCARE Helpline is to be contacted, 9474 9055, in the event of sick, injured or orphaned native wildlife on the site.	Contractor	Main Roads
Construction	Site Management	Ensure that the site is managed to ensure that construction of the proposal will have minimal impact upon the surrounding environment.	Site office and materials storage areas will be located on previously disturbed/ designated area.	Contractor	Main Roads
Construction	Rehabilitation	Rehabilitate the project area to meet project commitments.	Implement the contract specifications for rehabilitation of the site.	Contractor	Main Roads
			All waste materials from the development are to be completely removed from the site upon completion of the project. Final clean-up shall be to the satisfaction of the Project Manager and the Site Superintendent.	Contractor	Main Roads