

STRATEGIC MATERIAL AREA  
NORTH WEST COASTAL HIGHWAY  
SLK 145.6

Preliminary Environmental Impact Assessment and  
Environmental Management Plan

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## Table of Contents

<b>1</b>	<b>INTRODUCTION</b>	<b>4</b>
<b>2</b>	<b>PROJECT DESCRIPTION</b>	<b>4</b>
<b>3</b>	<b>PROJECT LOCATION</b>	<b>5</b>
<b>4</b>	<b>METHODOLOGY</b>	<b>8</b>
4.1	PRELIMINARY DESKTOP STUDY	8
4.1.1	WETLANDS	8
4.1.2	THREATENED FLORA, FAUNA AND COMMUNITIES, CONSERVATION RESERVES	8
4.1.3	AIR QUALITY	8
4.1.4	HERITAGE	8
4.1.5	ABORIGINAL HERITAGE	8
4.1.6	SENSITIVE WATER RESOURCES	8
4.1.7	CONTAMINATED SITES	8
4.1.8	ACID SULFATE SOILS	8
4.1.9	WEEDS	8
4.1.10	DIEBACK	8
<b>5</b>	<b>COMMONWEALTH REFERRAL</b>	<b>9</b>
5.1	SITE INVESTIGATION	9
<b>6</b>	<b>EXISTING ENVIRONMENT</b>	<b>9</b>
6.1	DESCRIPTION	9
6.2	SITE INVESTIGATION	10
<b>7</b>	<b>CLEARING OF NATIVE VEGETATION</b>	<b>11</b>
7.1	ASSESSMENT AGAINST CLEARING PRINCIPLES	11
7.2	ENVIRONMENTALLY SENSITIVE AREA (ESA)	11
<b>8</b>	<b>ASSESSMENT OF ASPECTS AND IMPACTS</b>	<b>12</b>
<b>9</b>	<b>DECISION TO REFER</b>	<b>13</b>
<b>10</b>	<b>STAKEHOLDER CONSULTATION</b>	<b>13</b>
<b>11</b>	<b>ENVIRONMENTAL MANAGEMENT PLAN</b>	<b>14</b>
11.1	COMMUNICATION PLAN	14
11.1.1	EXTERNAL COMMUNICATION AND COMPLAINTS	14
<b>12</b>	<b>MONITORING</b>	<b>14</b>
<b>13</b>	<b>CONTINGENCY MEASURES</b>	<b>15</b>
<b>14</b>	<b>AUDITING</b>	<b>15</b>
<b>15</b>	<b>REFERENCES</b>	<b>15</b>

## FIGURES INDEX

- Figure 1      Location of Proposed Strategic Material Area on North West Coastal Highway SLK 145.6  
Figure 2      Proposed Strategic Material Area on North West Coastal Highway SLK 145.6

## APPENDICES

- A              Low Impact Environmental Screening Checklist  
B              Site Photos  
C              DEC's Threatened Flora and Fauna Database Searches  
D              Non-Indigenous Heritage Searches  
E              Indigenous Heritage Search  
F              WAPC's Acid Sulfate Soils Mapping  
G              Department of the Environment and Heritage Database Search  
H              Main Roads WA – Revegetation Plan for Pastoral Areas  
I              Vegetation Clearing Assessment Report

# **PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN (MINOR PROJECTS)**

## **STRATEGIC MATERIAL AREA NORTH WEST COASTAL HIGHWAY 145.6 SLK**

### **1 INTRODUCTION**

Main Roads Gascoyne Region (Main Roads) over a number of years has slowly been exhausting material stock piles required for road construction and maintenance. Main Roads is currently in the process of developing a region wide strategic plan to identify potential future material sites. The identification of material sites will help the region locate required road building material for road construction and maintenance as well as for use during emergency situations that may arise after events such as cyclones.

As part of this region wide strategic material plan, Main Roads has identified a potential material site along North West Coastal Highway, SLK 145.6 (Figure 1).

This report details the environmental impact assessment conducted on Strategic Material Area SLK 145.6, which:

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

As per Main Roads' Environmental Assessment and Approval process, the Low Impact Environmental Screening Checklist has been completed for the proposal, refer to Appendix A.

### **2 PROJECT DESCRIPTION**

Over the past few years, the number of material stock piles required for much needed road construction and maintenance works along Main Roads' road networks have slowly been exhausted. Main Roads' Gascoyne Region is currently developing a region wide 20 year strategic plan that identifies potential future material areas.

Main Roads proposes to construct a strategic material sites along North West Coastal Highway at SLK 145.6 (Figure 1).

This potential material area was identified as part of the region wide strategic material plan and is located within Eurardy Station. The proposed strategic material sites will be used to supply road building material for construction and maintenance works including emergency activities that may arise after events such as cyclones.

As this proposed material area make up part of this 20 year strategic plan, the area will be systematically cleared and revegetated in relatively small areas (for example 1 or 2ha) as material is required. In this way, only small proportions of the material site will be cleared at any one time, with revegetation occurring as soon as the cleared areas are no longer required.

Due to the increase in mining tenement applications, Main Roads is seeking to create reserves over these areas under the *Mining Act 1978*, for the purpose of gravel extraction. The aim of this reservation process is to secure areas of importance to Main Roads and to avoid land use conflicts with future mining leases.

This strategic material area will be used for the maintenance of North West Coastal Highway, with the aim of providing safe road conditions for the travelling public. Given the anticipated activities requiring the use of this material area, it is expected that only a minimal amount of the proposed area identified at each site will need to be cleared for the purpose of material extraction.

The main reason for the identification of such large areas is to allow for material investigation to take place to identify the best quality material at each site. Material investigation works require minimal clearing and are non-intrusive, resulting in the majority of the sites remaining uncleared.

### **3 PROJECT LOCATION**

The strategic material area is located approximately 1km off North West Coastal Highway on the eastern side.

Strategic material area SLK 145.6 is located within the Eurardy Station, approximately 30km north of the Murchison River. This strategic material area is currently vested to Main Roads through Section 19 approvals for material excavation activities, in accordance with the *Mining Act 1978*.

The access tracks into the pit are in good condition and will easily allow the movement of machinery in and out of the project area.

It is proposed that clearing endorsements be obtained for the entire strategic material area along North West Coastal Highway. Obtaining environmental clearances for the entire area identified will allow Main Roads Gascoyne Region to reserve these areas for the extraction of material outside of mining tenements and will allow material investigations to be conducted throughout the entire identified zones.

The location and boundaries of the study area are shown in Figures 1-2.

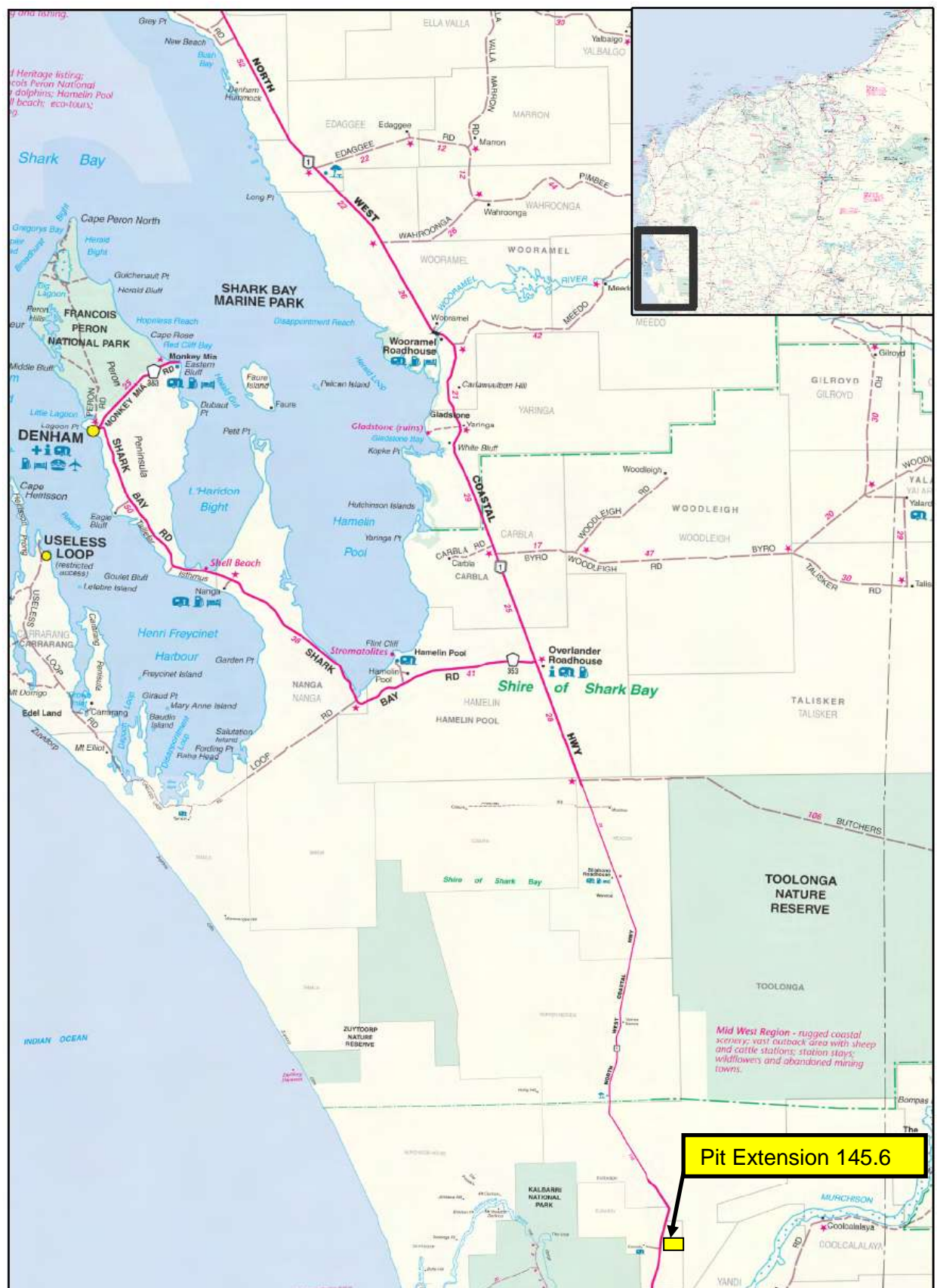


Figure 1: Location of Proposed Strategic Material Area on North West Coastal Highway  
SLK 145.6



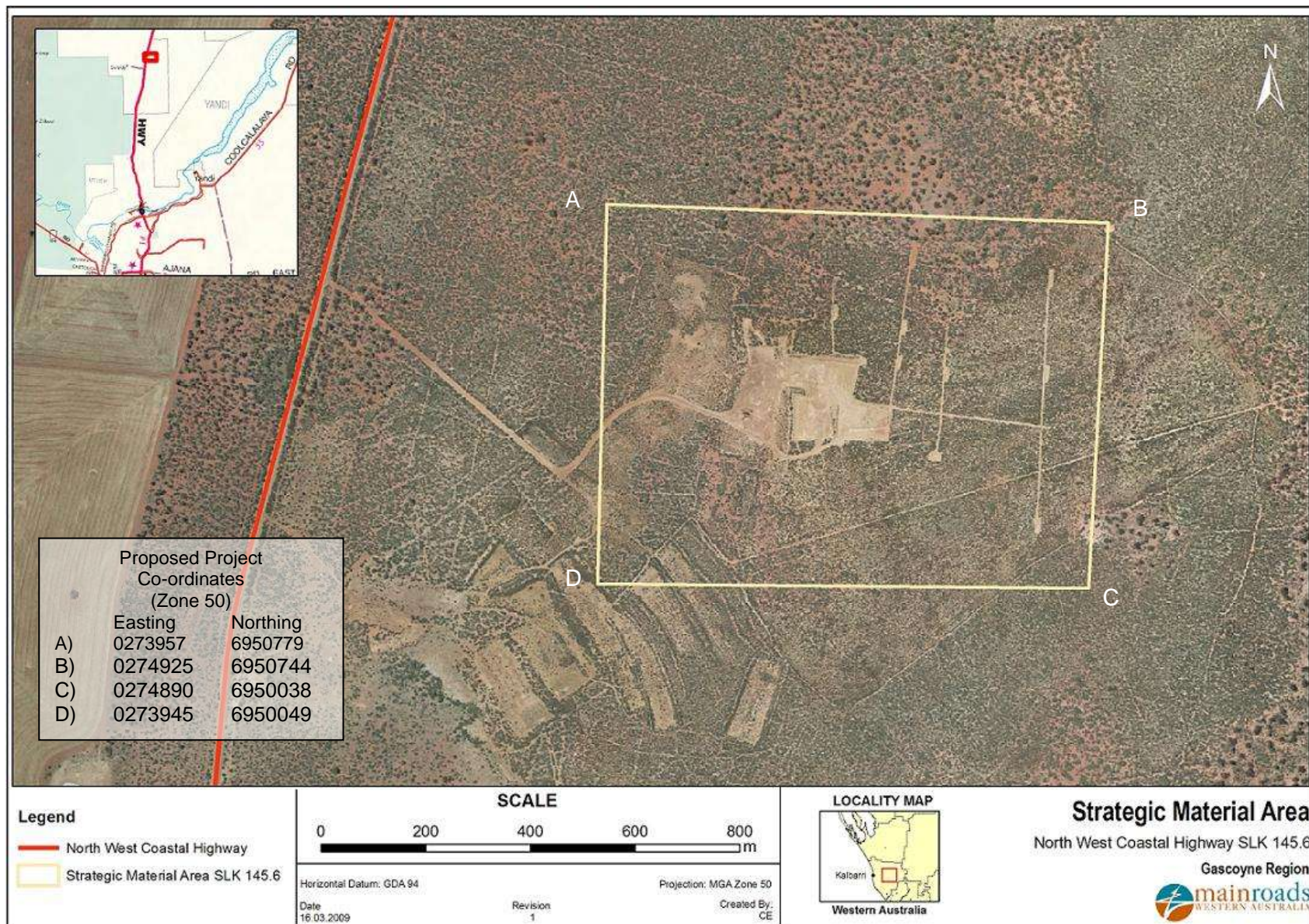


Figure 2: Proposed Strategic Material Area on North West Coastal Highway SLK 145.6

## **4 METHODOLOGY**

### **4.1 Preliminary Desktop Study**

A preliminary assessment of the project area and its potential constraints was undertaken by reviewing a number of government agency managed databases (and consulting where necessary).

#### **4.1.1 Wetlands**

The locations of wetlands within the project area was determined using the Commonwealth Department of the Environmental and Heritage (DEH) mapping tool and Department of Environment and Conservation (DEC) Geographic Data Atlas mapping tool (<http://maps.dec.wa.gov.au/idelve/doedataext/>).

#### **4.1.2 Threatened Flora, Fauna and Communities, Conservation Reserves**

DEC's database was searched for known populations of threatened flora, fauna and Threatened Ecological Communities (TECs) and conservation reserves, refer to Appendix C.

#### **4.1.3 Air Quality**

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

#### **4.1.4 Heritage**

Non-indigenous heritage was examined utilising the Australian Heritage Places Inventory (<http://www.heritage.gov.au>), Heritage Council of Western Australia (<http://register.heritage.wa.gov.au/>) and the Shire's of Carnarvon and Ashburton Municipal Heritage Inventory, refer to Appendix D.

#### **4.1.5 Aboriginal Heritage**

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

#### **4.1.6 Sensitive Water Resources**

The Commonwealth Department of the Environmental and Heritage (DEH) mapping tool and Department of Environment and Conservation (DEC) Geographic Data Atlas mapping tool was used to determine whether the project area supported, or was adjacent to, any significant lakes, rivers or wetlands or proclaimed areas.

#### **4.1.7 Contaminated Sites**

The reserve has been in Main Roads continual control; therefore no further work will be necessary/required.

#### **4.1.8 Acid Sulfate Soils**

The Western Australian Planning Commission's (WAPC's) acid sulfate soils maps were reviewed and the self assessment done (<http://www.wapc.wa.gov.au/Publications/213.aspx>) to determine what level of risk the project area is exposed to, refer to Appendix F.

#### **4.1.9 Weeds**

An onsite investigation of the project areas was undertaken to determine whether there are any known populations of declared plants or significant weeds in or adjacent to the project area.

#### **4.1.10 Dieback**

Project receives <400 mm of rain so determined not to be an issue.



## 5 COMMONWEALTH REFERRAL

The decision whether to refer the project to the Commonwealth's DEH was based upon whether the project would impact upon matters of national significance, e.g. World Heritage properties, protected wetlands and migratory species, Commonwealth marine areas, threatened species or communities or nuclear actions (refer to the Commonwealth webpage [www.deh.gov.au/epbc/assessmentsapprovals/index.html](http://www.deh.gov.au/epbc/assessmentsapprovals/index.html) for further information and the search tool page at <http://www.deh.gov.au/erin/ert/epbc/imap/map.html>), refer to Appendix G.

### 5.1 Site Investigation

A site visit was carried out by Robbie Mallard (BGC Contractor) and Crystelle Evangelista (Environment Officer) on 22/04/08 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 the potential for noise and vibration impacts (dilapidation).

Site photos were taken and are included in Appendix B.

## 6 EXISTING ENVIRONMENT

### 6.1 Description

Strategic Material Area SLK 145.6 occurs within vegetation association No. 365 which is described as Shrublands; bowgada & jam scrub with scattered York gum & red mallee (Shepherd, *et.al.* 2002). According to Native Vegetation Association Data (DEC; 2007), this vegetation association is well represented in the region with 92.97% remaining. The condition of the vegetation is best described as good to excellent, with small areas being completely degraded due to previous material extraction.

The following lists of species were observed at the proposed material pits:

Botanical Name:	Common Name:	Conservation Status:
<i>Acacia coolgardiensis</i>	Spinifex Wattle	Not threatened
<i>Acacia neurophylla</i> var. <i>erugata</i>	Nil	Not threatened
<i>Acacia ramulosa</i> var. <i>ramulosa</i>	Horse Mulga	Not threatened
<i>Baeckea pentagonantha</i>	Nil	Not threatened
<i>Dampiera incana</i> var. <i>fuscescens</i>	Hoary Dampiera	Not threatened
<i>Ecdeiocolea monostachya</i>	Nil	Not threatened
<i>Keraudrenia velutina</i> subsp. <i>velutina</i>	Nil	Not threatened
<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>	Guinea-flower	Not threatened
<i>Lepidosperma tenue</i>	Nil	Not threatened
<i>Philotheca kalbarriensis</i>	Nil	Priority 2
<i>Ptilotus polystachyus</i>	Green Mulla Mulla	Not threatened
<i>Thryptomene ninghanensis</i>	Nil	Priority 1

## 6.2 Site Investigation

Site Investigation	Description/Comment
<i>Total area (ha) of <u>native vegetation</u> to be cleared</i>	The proposed material area is part of a 20 year strategic plan and will be systematically cleared and revegetated in relatively small areas (e.g. 1 or 2 ha) as material is required.  Total Area of Strategic Material Pit = 67.65 ha
<i>Total area (ha) of other vegetation, including regrowth, landscape areas, to be cleared</i>	Nil
<i>Weeds present</i>	Proposed project area is relatively weed free
<i>Drainage areas or wetlands present</i>	None
<i>Adjacent land uses</i>	Pastoral, Conservation

## **7 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 regulations, such as clearing vegetation that is less than 10 years old for maintenance, typically all Main Roads clearing will be undertaken using its Statewide Project Purpose Permit.

### **7.1 Assessment against Clearing Principles**

In assessing whether the project is likely to have a significant impact on the environment, the project has been assessed against the DEC's 10 principles of clearing, refer to Appendix I.

The project will be at variance with the DEC's 10 clearing principles (a).

### **7.2 Environmentally Sensitive Area (ESA)**

<b>Clearing within an Environmentally Sensitive Area (ESA)</b>	<b>Yes/ No</b>	<b>Comments</b>
Does the area to be cleared occur within an ESA where the vegetation is in good or better condition?	No	

## 8 ASSESSMENT OF ASPECTS AND IMPACTS

**Table 1: Aspects and Impacts – Material Pit Extensions – 145.6SLK - NWCH**

Aspect	Evaluation of Potential Impacts
Air quality	Not relevant to the proposed works. Local air quality assessment is not required for the project area since: <ul style="list-style-type: none"> <li>the predicted traffic flow is less than 15,000 vehicles per day in rural areas; and</li> <li>residential and other sensitive receptors are not within 200 meters of the road centre</li> </ul>
Dust	Likely to be a minor issue during earthworks. No sensitive receptors near the work sites.
Fauna	DEC website search resulted in the Malleefowl, Shield-backed Trapdoor Spider, Major Mitchell's Cockatoo, Western Spiny-tailed Skink and Lined Skink as possibly occurring within the project areas. Given the small area of clearing and the mobile nature of the species found within the area, no impacts are expected  The EPBC Act Protected Matters Report resulted in the Western Spiny-tailed Skink is likely to occur with the area. Given the type of vegetation that exists and the mobile nature of the species, works will not impact upon this species.
Vegetation – clearing	<ul style="list-style-type: none"> <li>The proposed material area is part of a 20 year strategic plan and will be systematically cleared and revegetated in relatively small areas (e.g. 1 or 2 ha) as material is required;</li> <li>The projects will involve temporary clearing and so will require a revegetation plan;</li> <li>The condition of the native vegetation to be cleared is very good to excellent;</li> <li>The native vegetation to be cleared is well represented regionally;</li> <li>The native vegetation to be cleared does not occur within an ESA; and</li> <li>The native vegetation to be cleared will be done so using the purpose permit.</li> </ul>
Vegetation – TEC/DRF	<p>Consultation with DEC confirms that there are no TEC's within the project area and the proposal will not have a significant impact upon this environmental aspect. A DEC database search indicated that priority flora species are located within the vicinity of Strategic Material Area 145.6 SLK.</p> <p>A minor flora survey was conducted in July 08 and two priority species were identified within the vicinity of the project area. During the flora survey two priority flora species were identified to occur within the project area and the surroundings.</p> <p>The two priority flora species that were identified were:</p> <ul style="list-style-type: none"> <li>Thryptomene ninghanensis (Priority 1)</li> <li>Philothea kalbarriensis (Priority 2)</li> </ul> <p>No Declared Rare Flora was recorded to occur within the vicinity of the project area.</p> <p>No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted.</p> <p>It is proposed that a more extensive targeted flora survey be undertaken to determine the extent of the priority flora populations within the project area and its surrounds.</p>
Vegetation – weeds	There was minimal weed species observed within the project area and surrounding environment. It is recommended that extensive weed management strategies are outlined in the EMP to minimise the introduction of weed species into the project area and surrounding environments.
Vegetation – dieback	Not an issue given the project area receives less than 400 mm of average annual rainfall and is above the 26° parallel.
Reserves / Conservation areas	<p>The Kalbarri National Park is located 6-10km from the proposed project areas.</p> <p>Given the location of the proposed project area on the opposite site of the Highway to the National Park and the relatively small amount of clearing proposed to be undertaken, the proposed project will not impact on the environmental aspects of the National Park.</p>

**Table 1: Aspects and Impacts – Material Pit Extensions – 145.6SLK - NWCH**

<b>Aspect</b>	<b>Evaluation of Potential Impacts</b>
Heritage (non-indigenous)	A search of the Australian Heritage Places Inventory, Heritage Council of Western Australia and the Shire of Carnarvon's Municipal Heritage Inventory on-line databases has indicated that there are no heritage significance listed sites present in the currently proposed works areas.
Aboriginal heritage	A search of DIA database identified no known sites of Aboriginal heritage significance within the vicinity of the project areas at SLK 145.6.  Further consultation with the Native Title Claimant Group will be undertaken in order to minimise impacts to any unregistered heritage sites.
Surface water/drainage	On-site visit confirmed that the proposed works will not disturb or interrupt any natural drainage and surface run-off patterns.
Wetlands	There are no wetlands within the vicinity of the project areas.
Groundwater	No dewatering nor drainage modifications are required, hence no change to groundwater level or quality.
Noise and vibration	There are no sensitive local receivers near the project areas.
Visual amenity	The proposed works will result in minor and short-term visual impacts during construction. Suitable site completion treatments, including rehabilitation, will result in an improvement in local visual amenity.
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.
Hazardous substances	Not relevant to the proposed works.
Contamination	Given the relatively superficial nature of the required earthworks, there appears to be no risk of any significant contamination issues.
Salinity	Given the nature and scale of the project the impact is not relevant.
Acid Sulfate Soils	The WAPC's self-assessment (Planning Bulletin 64) indicates that no further soil investigation is required for the project.
Statutory Land Use Planning	As the proposed works are entirely within the land that has been vested to Main Roads, no further amendments would be required to the Local Government Planning Scheme or Region Scheme.

## 9 DECISION TO REFER

Given the scale of the project, the low significance of its impacts to the surrounding environment and the environmental management measures proposed, the project does not require referral to the WA Environmental Protection Authority or the Commonwealth Department of the Environment and Heritage.

## 10 STAKEHOLDER CONSULTATION

<b>Name</b>	<b>Agency</b>	<b>Date</b>	<b>Comments</b>
Bridgette Long (Flora) Kellie Mantle (Fauna)	DEC DEC	28/04/07 02/05/08	



## 11 ENVIRONMENTAL MANAGEMENT PLAN

This section of the report (the EMP) has been developed for the project area following the completion of the above sections. The main 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 identify who is responsible for the implementation of the management strategies.

This EMP will only address the actions already listed as well as any site-specific issues that were identified during the PEIA. The project specific management measures identified within this EMP are in addition to the standard specifications used for Category 2 projects. The environmental management measures/conditions in Main Road's Specifications 203, 204, 301, 302 and 304 are still to be followed where applicable.

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

- 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.

### 11.1 Communication Plan

Environmental issues specific to the project will be communicated as:

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

#### 11.1.1 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.

## 12 MONITORING

After project completion, revegetated areas will be inspected every six months for the first two years to ensure weed spread or establishment has not occurred and to measure the effectiveness of revegetation works.

Monitoring of the weeds identified in the project area will comprise the use of input criteria listed below.

Criterion	Target	After three months	After one year	After three years
Mean weed foliage cover (%).	<20	<20	<20	<20

## 13 CONTINGENCY MEASURES

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

## 14 AUDITING

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

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## 12 ENVIRONMENTAL MANAGEMENT PLAN

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
1.	Induction	Pre-Construction	Inform all personnel of the management actions required of them	Develop and implement a communication plan including response to complaints, liaising/reporting to government agencies, engagement with the community and others when work is performed.  Ensure all personnel are aware of relevant environmental and heritage requirements specific to this project	Project Manager	MRWA	
	Monitoring/ Inspection	Construction	To ensure all personnel are aware of relevant environmental and heritage requirements	All personnel involved with project works shall attend a site induction that will outline environment and heritage requirement.  All induction sheets shall be kept on file for future reference and auditing requirements.			
2.	Environmental Incidents	Construction	Ensure all related records of environmental incidents are maintained	Main Roads Corporate Procedure – 6707/042 Environmental Guideline – Environmental Incident Reporting and Investigation shall be used to report, record and investigate environmental incidents.  All of the environmental incidents should be recorded for auditing and reporting purposes.  See Section 2.5 for more information	Project Manager  Environment Officer  Surveillance Officers		Main Roads environmental guideline: <i>Environmental Incident Reporting and Investigation 6707/042</i>
3.	Traffic Risk Management	Pre-construction/ Construction	Minimise public risk to as low as reasonably achievable to comply with relevant standards.	A Traffic Management Plan will be developed and implemented for the period of this proposal.	Project Manager/ Contractor	MRWA	

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
4.	Site Management	Pre-construction/ Construction	Ensure that the site is managed to ensure that construction of the proposal will have minimal impact upon the public and surrounding environment.	<p>Hard stand areas will be located on designated area in discussion with a Main Roads' Environment Officer. Storage areas and hard stand area will not be relocated during project time frame without consulting a Main Roads' Environment Officer. The dumping of materials anywhere outside of the hardstand areas will be registered as an environmental incident.</p> <p>Specific areas shall be designated for the storage, maintenance and refuelling of machinery/vehicles in discussion with a Main Roads' Environment Officer. These areas are to be situated on an impermeable surface layer (gravel sheeted as a minimum) not in close proximity to any watercourse/drainage.</p> <p>Maintain good housekeeping practices during construction to prevent litter.</p> <p>Rehabilitate temporary cleared areas as soon as practical in accordance with Main Roads' Revegetation Plan for Pastoral Areas which has been approved by DEC.</p>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Contractor</p> <p>Environment Officer</p>	MRWA	
	Monitoring/ Inspection	Construction	Ensure the management of site is continued throughout the course of the project.	<p>Location of hard stand areas will be identified prior to the commencement of onsite activities in consultation between Project Manager and a Main Roads' Environment Officer. Further discussions of hard stand area locations will be conducted as required throughout the project time frame.</p> <p>Site inspections will occur throughout the duration of works to ensure environmental or heritage aspects are not impacted.</p> <p>All environmental incidents will be investigated by a Main Roads' Environmental Officer or Project Manager, who will ensure that all remedial actions are completed.</p>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Environment Officer</p>	MRWA	



No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
5.	Dust Management	Construction	Minimise the impact of dust on surrounding environments	<p>A complaints handling system shall be set up in order to rapidly handle any complaints received.</p> <p>Avoid earthmoving activities in high winds.</p> <p>Appropriate dust suppression actions will be used to prevent dust lift.</p> <p>Areas of temporary clearing or disturbance are to be rehabilitated as soon as practical.</p> <p>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.</p>	<p>Project Manager</p> <p>Surveillance Officers</p>	MRWA	
	Monitoring/ Inspection	Construction	Ensure the impact of dust on surrounding environments is kept to a minimum.	Site inspections shall be conducted at regular intervals throughout the project time frame to ensure dust management practices are maintained and minimise impacts to surrounding environmental aspects.	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Environment Officer</p>		
6.	Fire Control and Response	Construction	Reduce the risk of fire ignition from construction activities	<p>Note: this plan covers the risk of impacts of fire from project activities on the environment. Fire fighting procedures and evacuation will be covered in the Emergency Response Plan.</p> <p>In case of fire call 000. Kalbarri Fire and Rescue Service Phone No. is (08) 9937 2022</p> <p>If a wildfire occurs inform adjacent landholders and Department of Environment and Conservation</p> <p>Induction to include evacuation procedures, location of fire response equipment and emergency contacts</p>	<p>MRWA</p> <p>Contractors</p> <p>Surveillance Officers</p>	MRWA	<p>Government legislation:</p> <p><i>Bush Fires Act 1954</i></p>

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
				<p>Works procedures for 'hot works' to include:</p> <ul style="list-style-type: none"> <li>- Clear area around works (no flammable materials)</li> <li>- Fire trailer to be located at site of hot works</li> </ul> <p>Visual inspection of project area for ignition sources and high fuel loads should occur prior to work.</p> <p>No fires shall be lit within the project area.</p>			
	Monitoring/ Inspection	Construction	Ensure the fire risk from construction activities is kept to a minimum	<p>All personnel shall be made aware of fire control requirements during inductions.</p> <p>Undertake regular site inspections to identify potential fire risks and remove any hazards.</p>	<p>Project Manager</p> <p>Surveillance Officers</p>	MRWA	
7.	Noise Management	Construction	Reduce the impact of noise on local sensitive noise receptors during construction and operation	<p>Comply with <i>Environmental Protection (Noise) Regulations 1997</i>.</p> <p>Restrict working hours to 0700 to 1900 Monday to Saturday in the vicinity of sensitive noise receptors (within 1km)</p> <ul style="list-style-type: none"> <li>- No construction activities are to occur prior to 0700</li> </ul> <p>Works on Sunday will be restricted to 0900 to 1900 in the vicinity of sensitive noise receptors (within 1km)</p> <p>Prior to 0700, preparation may occur on site, but must not include:</p> <ul style="list-style-type: none"> <li>- Operation of mobile plant</li> <li>- Power tools, hoists and other power equipment</li> <li>- Impact noise including hammering, boring or drilling</li> <li>- Radios</li> </ul>	<p>Project Manager</p> <p>Surveillance Officers</p>	<p>MRWA</p> <p>DEC</p>	<p>Government legislation:</p> <p><i>Environmental Protection (Noise) Regulations 1997</i></p> <p><i>AS 2496-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites</i></p>

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
				<p>Construction works will be carried out in accordance with AS 2496-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites</p> <p>The equipment used will be the quietest reasonably available</p> <p>Noise and dust complaints procedures will be developed to deal with any complaints</p> <p>All stakeholders should be informed of works prior to construction</p>			
	Monitoring/ Inspection	Construction	Ensure noise generated from construction activities does not become a nuisance to local sensitive receivers	Ensure work personnel are made aware of any noise related issues, including noise regulations.	<p>Project Manager</p> <p>Surveillance Officers</p>	MRWA	
8.	Waste Management	Pre-construction / Construction	Ensure that construction activities area managed to a standard that minimises any adverse impacts on the environment.	<p>All storage and handling of fuels, oils and other hazardous material in the project area is to be done in accordance with all legislative requirements and OSH safety procedures.</p> <p>Dumping or temporary storage of all material or aggregate should only occur at designated depots or controlled hardstands.</p> <p>Appropriate spill equipment should be available at all times.</p> <p>All spills will be recorded as an environmental incident and an environmental incident report filled out.</p> <p>Emergency cleanup procedures shall be implemented in the case of any spillage. These will include control of spilled material and removal</p>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Contractor</p> <p>Environment Officer</p>	<p>MRWA</p> <p>DEC</p>	<p>Government Legislation:</p> <p><i>Contaminated Sites Act 2003 (WA)</i></p> <p>Contaminated Sites Regulations 2004 (WA)</p> <p><i>Environmental Protection (Controlled Waste) Regulations 2004 (WA)</i></p> <p><i>Soil and Land Conservation Act</i></p>

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
				<p>of contaminated soil to an approved site.</p> <p>All spills are to be contained immediately and remediated within 1 week. Remediation will consist of removal of contaminated soils to an appropriate treatment facility and will be in accordance with Main Roads Document No. 6707/028 – <i>Contaminated Sites</i></p> <p>In the event of a major spill that may contaminate water sources or groundwater, DEC Emergency Pollution Response is to be called (1300 784 782).</p> <p>The project areas, including hardstand areas, will be kept in a tidy manner at all times. All litter on the project will be placed into lidded bins and disposed of at an approved landfill.</p>			<p>1945 (WA)</p> <p><i>Soil and Land Conservation Regulations 1992 (WA)</i></p> <p>Main Roads property management guideline: <i>Land Disposal Process Guidelines 60/04/01</i></p> <p>Main Roads environmental guideline: <i>Contaminated Sites 6707/028</i></p>
	Monitoring/ Inspection	Construction	Ensure waste management practices are maintained throughout course of project	<p>Inspection of all storage and service areas, spill kits and bunding will be carried out at regular intervals throughout the project timeframe.</p> <p>Inspections of hard stand area will be conducted prior to commencement of construction and throughout the course of the project.</p> <p>All environmental incidents will be investigated by the Environmental Officer, who will ensure that all remedial actions are completed.</p>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Environment Officer</p>	MRWA	
9.	Borrow Pits	Construction	Minimise the environmental impact of borrow pit operations	New borrow pits are to be sited, assessed and operated in accordance with the Corporate Environmental Guideline <u>6707/008 Environmental Guideline Pits &amp; Quarries</u>	Project Manager	MRWA	Main Roads environmental guideline: <i>Pits and Quarries 6707/008</i>

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
10.	Vegetation – Clearing	Pre-Construction/ Construction	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	<p>The proposed construction works shall be designed/located in a manner that minimises adverse impacts on the surrounding environment.</p> <p>Construction works to be undertaken in dry season to reduce the potential for soil erosion and drainage line siltation due to vegetation removal and heavy rains.</p> <p>Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either chipped or replaced according to the revegetation plan.</p> <p>Stockpiled vegetation shall be windrowed parallel to the road alignment, not exceeding 2m beyond the limit of the earthworks. The stockpile shall not exceed 1.5m in height. Stockpiled topsoil shall not be stockpiled on vegetation that is not designated for clearing.</p> <p>Wherever possible, the topsoil storage period will be minimised to prevent reduction in biotic viability. Topsoil will be stored and reused locally rather than transported large distances.</p> <p>During construction works, damage of existing vegetation will be avoided as far as practicable.</p> <p>Vehicles and equipment is not to be parked or driven over tree roots or over vegetation that is not designated for clearing.</p> <p>Native vegetation to be removed is to be cleared in a manner that ensures all clearing occurs within the approved clearing areas. i.e machine turn around points will be within clearing limits.</p>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Environment Officer</p> <p>Contractor</p>	<p>MRWA</p> <p>DEC</p>	



No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
	Monitoring/ Inspection	Pre-construction / Construction	Ensure that clearing of native vegetation during the course of the propose project does not impact significantly on sensitive environments	Inspections of clearing works shall be conducted at the time of vegetation clearing to ensure that impacts to sensitive environmental aspects is kept to a minimum.	Project Manager  Surveillance Officers  Environment Officer		
11.	Threatened Ecological Communities (TECs), Declared Rare or Priority Flora	Pre-construction/ Construction	Avoid disturbing, and minimise impact on any identified TECs, Declared Rare or Priority Flora.	<p>The two priority flora species that were identified were:</p> <ul style="list-style-type: none"> <li>• Thryptomene ninghanensis (Priority 1)</li> <li>• Philotheca kalbarriensis (Priority 2)</li> </ul> <p>Flora surveys will be undertaken to identify the extent of priority flora species within the proposed project area and surrounding environment.</p> <p>An offset package will be implemented in consultation with DEC and other stakeholders to minimise impacts to the priority flora populations.</p> <p>All personnel will be made aware of the location of priority flora species within the project area and management strategies will be implemented to avoid unnecessary impacts to any of the priority flora populations.</p>	Environment Officer	DEC	
	Monitoring/ Inspection	Construction	Ensure impacts to priority flora and other sensitive environmental aspects is minimised	<p>An offset package will be implemented to minimise impacts to the priority flora population.</p> <p>All personnel working on the project will be made aware of the priority flora populations and the required management strategies.</p>	Project Manager  Surveillance Officers  Environment Officer	MRWA  DEC	
12.	Dieback Management	Pre-construction	Ensure all Dieback Management issues have been addressed prior to construction work	Not an issue given the project area receives less than 400 mm of average annual rainfall.	Environment Officer	DEC	

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
13.	Fauna Management	Construction	To protect and avoid impact to native fauna	<p>No animals are to be intentionally harmed or killed by the project personnel, unless there is a real and immediate threat to human health. THIS INCLUDE SNAKES</p> <p>Animals (including snakes) should be allowed to move on if there is no threat to human safety.</p> <p>If a snake will not move on a suitable qualified reptile handler shall be called. The following people may be contacted in such circumstances</p> <ul style="list-style-type: none"> <li>- Department of Environment and Conservation, Exmouth Office – (08) 9921 5955</li> </ul> <p>If a sick or injured animal is encountered the Department of Environment and Conservation, Exmouth Office shall be called.</p> <p>No pets, traps or firearms shall be allowed on site</p> <p>Any death or injury of an animal shall be reported to the supervisor and recorded as an environmental incident</p>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Environment Officer</p>	<p>MRWA</p> <p>DEC</p>	<p>Government legislation:</p> <p><i>Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i></p> <p><i>Wildlife Conservation Act 1950</i></p> <p><i>Wildlife Conservation Regulations 1970 (WA)</i></p> <p><i>Wildlife Conservation (Reptiles &amp; Amphibians) Regulations 2002 (WA)</i></p>
	Monitoring/ Inspection			<p>All personnel working on the project will be made aware of the requirements not to harm or kill any animals during the course of the project during site induction and that animals should be allowed to move away from project site.</p> <p>Investigation of any environmental incidents involving fauna will be undertaken by the Environment Office to ensure all remedial actions are completed.</p>			<p><i>Conservation and Land Management Act 1984 (WA)</i></p>

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
14.	Aboriginal Heritage	Pre-Construction	Ensure that there is no unauthorised disturbance to Aboriginal heritage sites during construction	<p>Ensure Aboriginal heritage is managed in accordance with <i>Aboriginal Heritage Act 1972</i>. Aboriginal heritage consultation will be undertaken with the Nanda Native Title Claim Group.</p> <p>All personnel are to be made aware of their obligations under the Aboriginal Heritage Act 1972 during Site Inductions.</p> <p>Any Aboriginal heritage sites in close proximity to the alignment shall be fenced to prevent inadvertent disturbance during construction.</p> <p>Works are to cease if skeletal material or Aboriginal artefacts are discovered.</p> <p>Skeletal material:</p> <ul style="list-style-type: none"> <li>- All works throughout the project area are to cease until given all clear by police.</li> <li>- Police are to be called to establish if the remains are a potential crime scene.</li> <li>- Remains are to be protected from further disturbance.</li> <li>- If the remains are determined to be of Aboriginal origin, Native Title claimants are to be consulted on the management of the remains.</li> <li>- Work at the immediate location (plus 25m buffer) of the skeletal remains is not to be recommence until all parties have been consulted and agreement has been reached.</li> </ul> <p>Other Aboriginal artefacts:</p> <ul style="list-style-type: none"> <li>- Work shall cease in the immediate vicinity of the discovery of aboriginal artefacts.</li> <li>- A qualified archaeologist shall examine the material.</li> </ul>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Environment Officer</p>	<p>MRWA</p> <p>DIA</p>	<p>Government Legislation:</p> <p><i>Aboriginal Heritage Act 1972 (WA)</i></p> <p><i>Aboriginal Heritage Regulations 1974 (WA)</i></p> <p><i>Native Title Act 1993 (Commonwealth)</i></p> <p>Main Roads environmental guidelines:</p> <p><i>Environmental Assessment and Approval 6707/001</i></p> <p><i>Aboriginal Heritage 6707/006</i></p>

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
				<ul style="list-style-type: none"> <li>If the material is deemed to be of Aboriginal origin, DIA and Native Title claimants are to be informed.</li> <li>Treatment of the archaeological material shall be decided in consultation with DIA and Native Title claimants.</li> </ul>			
	Aboriginal Heritage - Monitoring/ Inspection		Ensure no disturbances to Aboriginal heritage aspects are caused during the course of the project.	All personnel working on the project will be made aware of the requirements regarding Aboriginal heritage sites during site induction	Project Manager Environment Office		
15.	Weeds	Construction	Prevent and reduce the introduction and spread of weeds	<p>Where reasonable, the control of weed species within the project area prior to construction will be carried out to limit the amount of propagative material that may be spread during disturbance.</p> <p>The following machinery and vehicle hygiene measures will be utilised to avoid the inadvertent spread of weeds within any project areas:</p> <ul style="list-style-type: none"> <li>All clearing, topsoil stripping and gravel cartage activities will be conducted under dry soil conditions</li> <li>All construction plant and machinery should be cleaned free of soil and vegetative material prior to arrival and prior to departing the project site.</li> <li>Clean down will comprise of the use of a brush and/or compressed air to remove clumps of soil. A metal bar or spade will be used to remove compacted soil where necessary.</li> <li>Dust adhering to the sides of vehicles does not need to be removed</li> <li>All plant is to be inspected on arrival.</li> <li>Unclean plant will not be allowed to enter the construction site.</li> </ul>	Project Manager Surveillance Officers Environment Officer Contractor	MRWA Dept. of Ag & Food	<p>Government Legislation: <i>Biosecurity and Agriculture Management Act 2007</i></p> <p><i>Agriculture and Related Resources (Declared Plants and Restricted Animals) Regulations 1982 (WA)</i></p> <p><i>Noxious Weeds Regulations 1973 (WA)</i></p> <p>Main Roads environmental guideline:</p> <p><i>Environmental Assessment and Approvals 6707/001</i></p>

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
				<p>All site personnel will be advised of the hygiene measures.</p> <p>If a new weed infection is identified within the area, measures to reduce its spread should be established.</p> <p>Weed infested soil is not to be imported into the works for rehabilitation or fill.</p> <p>Declared Plants or environmental weeds listed under the Department of Agriculture and Food's <i>Declared Plants List</i> shall be controlled with the aim of eradication.</p>			
	Monitoring/ Inspection	Construction	Ensure no introduced weed species or weed spread occurs	Inspections of plant equipment entering project area will occur to reduce any infestation of weed species			
16.	Water Course and Surface Drainage	Construction	Maintain the hydrological regime that exists prior to the construction of the proposal and prevent erosion in areas subject to flooding	<p>Clearing within floodways will be avoided during the proposed project.</p> <p>Works should minimise vegetation and soil disturbance to prevent soil movement.</p> <p>All disturbance works will be undertaken during dry seasons to reduce the potential for soil erosion and drainage line siltation and avoid interactions with personnel and heavy rainfall and flood waters.</p>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Environment Officer</p>	MRWA  DoW	
	Monitoring/ Inspection			Site inspections shall be conducted at regular intervals throughout the course of the project to minimise construction impacts.			



No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
17.	Water Quality	Construction	Prevent groundwater contamination associated with machinery storage, maintenance, bulk fuel storage and refuelling.	<p>Specific areas shall be designated for the storage, maintenance and refuelling of machinery/vehicles in discussion with a Main Roads' Environment Officer. These areas are to be situated on an impermeable surface layer (gravel sheeted as a minimum) not in close proximity to any watercourse/drainage.</p> <p>Bulk fuels area to be adequately bunded.</p> <p>If washdown facilities or chemical storage takes place on site, best management practices will be utilised in accordance with <i>DoW's Water Quality Protection notes, Mechanical Equipment Washdown</i> to minimise impacts on water resources.</p> <p>Stormwater drainage shall be treated and disposed of in accordance with the DoW's <i>Stormwater Management Manual</i> and DEC's requirements.</p> <p>Significant spills are to be reported immediately to Main Roads and as specified in the Waste Management section.</p>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Contractor</p> <p>Environment Officer</p>	<p>MRWA</p> <p>DoW</p>	<i>DoW's Stormwater Management Manual</i>
	Monitoring/ Inspection			Site inspections shall be conducted at regular intervals throughout project time frame to minimise impacts to sensitive environmental aspects.			

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
18.	Rehabilitation	Post-Construction	<p>Leave the project area free from debris; and</p> <p>Rehabilitate temporary cleared area so that the revegetated area provides a net increase in area of native vegetation.</p>	<p>Revegetation of temporary cleared area will be undertaken in accordance with Main Roads' Revegetation Plan for Pastoral Areas, which has been approved by DEC.</p> <p>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 Environment Officer.</p>	<p>Project Manager</p> <p>Surveillance Officers</p> <p>Environment Officer</p>	<p>MRWA</p> <p>DEC</p>	<p>MRWA Statewide Clearing Purpose Permit – CPS 818/4</p> <p>Main Roads environmental document:</p> <p><a href="#">Revegetation Plan for Pastoral Areas</a> 6707/048</p>
	Monitoring/ Inspection			Monitoring of revegetation works will be in accordance with Main Roads' Revegetation Plan for Pastoral Areas	Environment Officer	<p>MRWA</p> <p>DEC</p>	
19.	Record keeping	All phases of construction	All required records relating to clearing of native vegetation under Main Roads Purpose Permit (CPS 818/4) will be maintained.	<p>Clearing:</p> <ul style="list-style-type: none"> <li>a copy of the PEIA &amp; EMP shall be maintained on record;</li> <li>a map showing the location where the clearing occurred, recorded in an ESRI Shapefile;</li> <li>the size of the area cleared (in hectares); and</li> <li>the dates on which the clearing was done.</li> </ul> <p>Offsets:</p> <ul style="list-style-type: none"> <li>a copy of each offset proposal;</li> <li>a map showing the location where any offset have been implemented, recorded in an ESRI Shapefile;</li> <li>a description of the offset implemented; and the size of the area of the offset (in hectares)</li> </ul> <p>Revegetation and rehabilitation of areas:</p> <ul style="list-style-type: none"> <li>a copy of the Revegetation Plan;</li> <li>a map showing the location of any area revegetated and rehabilitated recorded in an ESRI Shapefile;</li> </ul>	<p>Project Manager</p> <p>Environment Officer</p>	<p>MRWA</p> <p>DEC</p>	<p>MRWA Statewide Clearing Purpose Permit – CPS 818/4</p> <p>Main Roads environmental guideline:</p> <p>Environmental Assessment and Approval 6707/001</p> <p>Native Vegetation Clearing Regulations and Permits 6707/034</p>

No.	Area of Management	Timing	Objective	Action	Responsible Party	Advice	To the Requirements of
				<ul style="list-style-type: none"> <li>a description of the revegetation and rehabilitation activities undertaken; and</li> <li>the size of the area revegetated and rehabilitated (in hectares).</li> </ul>			
				Control of weed and other pathogens <ul style="list-style-type: none"> <li>a copy of any management plan prepared; and</li> <li>for any pathogen the appropriate steps taken</li> </ul>			
	Monitoring/ Inspection	All phases of project	Maintain all required environmental and heritage records for auditing and reporting requirements	All environmental and heritage approval records will be maintained on appropriate files for auditing and reporting purposes.	Environment Officer	MRWA	

## **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:** Pit Extension 145.6 and 345.4 SLK – North West Coastal Highway

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 [Signature] Date 24/4/08  
Name DAVE CLARK Title SCCR

To be reviewed by a Main Roads Environment Officer Signature [Signature] Date 24/4/08  
Name Cristelle Langelsie Title Environment Officer

Comments: Works to be completed using a PEIA  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## **APPENDIX B**

### **Project Site Photos**



Photograph 1: Pit Extension 145.6 SLK – North West Coastal Highway – North



Photograph 2: Pit Extension 145.6 SLK – North West Coastal Highway – South East View





Photograph 3: Pit Extension 145.6 SLK – North West Coastal Highway – East View



Photograph 4: Pit Extension 145.6 SLK – North West Coastal Highway – East View

## **APPENDIX C**

### **DEC's Threatened Flora and Fauna Database Searches**

**DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DECLARED RARE AND PRIORITY FLORA LIST  
26 February 2008**

SPECIES / TAXON	CONS CODE	CALM REGION	DISTRIBUTION	FLOWER PERIOD
<i>Acacia gelasina</i>	2	MW	Kalbarri NP, Eurardy	
<i>Acacia isoneura</i> subsp. <i>isoneura</i>	3	MW, WB	Mingenew, Three Springs, Caron, Buntine, Perenjori, Wubin, Eurardy	
<i>Acacia plautella</i>	3	MW	Ajana, Wannoo Roadhouse, Murchison, Eurardy Station, Kalbarri NP, Cooloomia NR	Aug-Jan
<i>Beyeria gardneri</i>	1	MW	Murchison River, Eurardy Station, Badgingarra, Kalbarri NP	Aug
<i>Eucalyptus diminuta</i>	4	MW, WB	Yandanooka, Moresby Range, Mindaloo, Beacon, Watheroo, Binu, Three Springs, Eurardy Stn	Oct-Dec
<i>Eucalyptus zopherophloia</i>	4	MW	Dongara, Cliff Head, Illawong, Jurien Bay, Peron Peninsula, Zuytdorp, Eurardy	Nov-Jan
<i>Geleznovia verrucosa</i> subsp. <i>Kalbarri</i> (L.M. Broadhurst 123)	3	MW, WB	Kalbarri, Hill River, Geraldton, Eneabba, Eurardy, Eradu, Northampton, Binu, White Peak	Jun-Sep
<i>Goodenia neogoodenia</i>	4	MW	Eurardy, Yalgoo, Mt Magnet, Burnerbinmah Stn	Aug
<i>Macarthuria georgeana</i>	1	MW	Eurardy	Aug-Sep
<i>Physopsis chrysophylla</i>	3	MW	Eurardy Stn, Shark Bay, Kalbarri	Oct-Jan
<i>Scholtzia</i> sp. Bungebandi Creek (M Quicke EURA 48)	1	MW	Eurardy Stn	Nov
<i>Scholtzia</i> sp. Eurardy (JS Beard 6886)	2	MW	Eurardy, Murchison House Station, Kalbarri, Meadow Station, Port Gregory	Oct-Dec
<i>Scholtzia</i> sp. Galena (WE Blackall 4728)	2	MW	Eurardy	Aug, Sep
<i>Thryptomene ninghanensis</i>	1	MW	Eurardy, Yuna, Mt Singleton	Jul-Sep
<i>Thryptomene</i> sp. Eurardy (Bellaire 1649)	2	MW	Eurardy	Jul, Nov
<i>Verticordia eurardyensis</i> x	1	MW	Eurardy Station, Kalbarri NP	Oct-Nov
<i>Verticordia polytricha</i>	4	MW	Kalbarri N.P. to Eurardy Station	-

**DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DECLARED RARE AND PRIORITY FLORA LIST  
26 February 2008**

SPECIES / TAXON	CONS CODE	CALM REGION	DISTRIBUTION	FLOWER PERIOD
<i>Abutilon</i> sp. Hamelin (AM Ashby 2198)	2	MW	Shark Bay, Hamelin Pool, Yaringa Stn	Jul-Sep
<i>Acacia drepanophylla</i>	3	MW	Overlander, Billabong R/H, Coburn Stn, Hamelin, Yaringa	
<i>Acacia sclerosperma</i> subsp. <i>glaucescens</i>	3	MW	Yaringa Station, Wooramel Station, Edaggee Station	Jul-Aug
<i>Chthonocephalus spathulatus</i>	1	MW	Boologooro, Wooramel Roadhouse, Hamelin Pool	
<i>Grevillea stenostachya</i>	3	MW	Toolonga, Murchison, Belele, Talisker, Kall, Wannoo, Wooramel, Tallering Peak, Wandina	Aug
<i>Lepidium scandens</i>	3	MW	Sanford River, Murgoo Stn, Jingemarra Stn, Bush Bay, Wooramel	Aug, Sep
<i>Sondottia glabrata</i>	2	MW	Peron Peninsula, Wooramel River, Edaggee	Sep

## WA herbarium Database Search

SHEET NO	GENUS	SPECIES	CONSCODE	LAT	LONG
PERTH 1260340	Chamelaucium	oenanthum	P1	-27.56666	114.68333
PERTH 06860400	Dicrastylis	linearifolia	P3	-27.55000	114.66667
PERTH 6857604	Thryptomene	ninghanensis	P1	-27.56687	114.70026
PERTH 02838885	Verticordia	dichroma	P3	-27.56833	114.67000
PERTH 04004507	Goodenia	sericostachya	P3	-27.55500	114.69139
PERTH 1260324	Chamelaucium	oenanthum	P1	-27.56666	114.68333
PERTH 02160242	Chamelaucium	oenanthum	P1	-27.56638	114.66667
PERTH 03201546	Verticordia	capillaris	P4	-27.56638	114.66667
PERTH 03461114	Verticordia	x eurardyensis	P1	-27.57972	114.68806
PERTH 01560301	Macarthuria	georgeana	P1	-27.56666	114.73333
PERTH 03201597	Verticordia	capillaris	P4	-27.57972	114.68806
PERTH 03201511	Verticordia	capillaris	P4	-27.56638	114.66667
PERTH 03201570	Verticordia	capillaris	P4	-27.56638	114.66667
PERTH 03461092	Verticordia	x eurardyensis	P1	-27.57972	114.68806
PERTH 03461106	Verticordia	x eurardyensis	P1	-27.57972	114.68806
PERTH 02838850	Verticordia	x eurardyensis	P1	-27.57972	114.68806
PERTH 03201503	Verticordia	capillaris	P4	-27.56638	114.66667
PERTH 03461076	Verticordia	x eurardyensis	P1	-27.57972	114.68806
PERTH 03461084	Verticordia	x eurardyensis	P1	-27.57972	114.68806
PERTH 03461122	Verticordia	x eurardyensis	P1	-27.57972	114.68806
PERTH 03509273	Verticordia	x eurardyensis	P1	-27.57972	114.68806
PERTH 03003507	Verticordia	x eurardyensis	P1	-27.57972	114.68806
PERTH 03201538	Verticordia	capillaris	P4	-27.56638	114.66667
PERTH 03201589	Verticordia	capillaris	P4	-27.57972	114.68806
PERTH 01622013	Thryptomene	ninghanensis	P1	-27.53555	114.69139
PERTH 1257471	Chamelaucium	conostigmum	P3	-27.51666	114.70000
PERTH 06452361	Thryptomene	ninghanensis	P1	-27.55088	114.71397
PERTH 06452353	Thryptomene	ninghanensis	P1	-27.55088	114.71397
PERTH 06682294	Xanthoparmelia	nashii	P1	-27.55166	114.72917
PERTH 6946445	Hyalosperma	stoveae	P2	-27.56680	114.70003
PERTH 6922333	Phlothea	kalbarriensis	P2	-27.56676	114.66676
PERTH 6924301	Phlegmatospermum	drummondii	P3	-27.56680	114.70003
PERTH 6942873	Jacksonia	velutina	P4	-27.58183	114.72633
PERTH 6945325	Anthotroche	myoporoides	P2	-27.58183	114.72633
PERTH 6924395	Murchisonia	fragrans	P2	-27.58183	114.72633
PERTH 04591763	Eucalyptus	diminuta	P4	-27.51666	114.71667
PERTH 05220637	Eucalyptus	diminuta	P4	-27.53333	114.66667
PERTH 04004442	Eucalyptus	diminuta	P4	-27.56638	114.66667

PERTH 04592697	Eucalyptus	diminuta	P4	-27.51666	114.71667
PERTH 04592654	Eucalyptus	diminuta	P4	-27.51666	114.71667
PERTH 04592646	Eucalyptus	diminuta	P4	-27.51666	114.71667
PERTH 06069126	Eucalyptus	diminuta	P4	-27.51666	114.71667
PERTH 0999636	Caladenia	wanosa	R	-27.56666	114.66667
PERTH 1490664	Caladenia	wanosa	R	-27.56666	114.66667
PERTH 05426456	Anthotroche	myoporoides	P2	-27.56666	114.66667
PERTH 07524579	Microcorys	tenuifolia	P3	-27.52724	114.70478
PERTH 02838893	Verticordia	x eurardyensis	P1	-27.57972	114.68806

**EVANGELISTA Crystelle (GEnv)**

---

**From:** Mantle, Kellie [Kellie.Mantle@dec.wa.gov.au]  
**Sent:** Friday, 2 May 2008 4:17 PM  
**To:** EVANGELISTA Crystelle (GEnv)  
**Subject:** RE: DEC Fauna Database Search - North West Coastal Highway - Pit Extensions  
**Follow Up Flag:** Follow up  
**Flag Status:** Red  
**Attachments:** raref\_MainRoads\_Evangelista3.pdf; raref\_MainRoads\_Evangelista.doc;  
raref\_MainRoads\_Evangelista4.pdf

Hi Crystell

Please find attached the results of the threatened and priority fauna database search in the vicinity of the two Pit Extension sites on the North West Coastal Highway.  
Please refer to the attached letter for the conditions in relation the supplied data.

Let me know if you have any questions about the information supplied.

Regards  
Kellie

*Kellie Mantle  
Species and Communities Branch  
Department of Environment and Conservation  
Phone (08) 93340579  
Fax (08) 93340278*

---

**From:** EVANGELISTA Crystelle (GEnv) [mailto:crystelle.evangelista@mainroads.wa.gov.au]  
**Sent:** Thursday, 24 April 2008 8:16 AM  
**To:** Mantle, Kellie  
**Subject:** DEC Fauna Database Search - North West Coastal Highway - Pit Extensions

Hi Kellie

Main Roads Gascoyne Region is also proposing to extend numerous material pits across the Gascoyne Region. The purpose of the extension is to provide future gravel resources for road maintenance and construction.

As per our Purpose Permit requirements, I now seek your assistance in undertaking a Threatened Fauna Search.

The co-ordinates for the sites are as follows (data in GDA 94 – Zone 50)

Site 1 – Pit Extension 145.6 SLK  
SW Corner  
0274435  
6950400

NW Corner  
0274452  
6950492

NE Corner  
0274520  
6950485

SE Corner  
0274506



## Threatened and Priority Fauna Database

Page 1 of 1

27.35°S 114.54°E / 27.74°S 114.86°E Site1- Pit Extension 145.6 slk (plus~20km buffer)

\* Date Certainty Seen Location Name Method

## Schedule 1 - Fauna that is rare or is likely to become extinct

*Leipoa ocellata* Malleefowl 2 records

This species was once widely distributed across southern Australia. It prefers woodland or shrubland with an abundant litter layer that provides essential material for the construction of its nest mound.

Date	Certainty	Seen	Location Name	Method
2000	1	1	Eurardy	Dead
2004	1	1	Narren Narren	Day sighting

*Idiosoma nigrum* Shield-backed Trapdoor Spider 1 records

This species is in decline in its patchy distribution through the northern and central wheatbelt and coastal plain. It is a long-lived species that is very sensitive to disturbance.

Date	Certainty	Seen	Location Name	Method
1954	1	1	Galea	Caught or trapped

## Schedule 4 - Other specially protected fauna

*Cacatua leadbeateri* Major Mitchell's Cockatoo 1 records

This species is sporadically distributed through arid and semi-arid Australia and may occur in sparsely timbered grasslands and shrublands and rocky outcrops.

Date	Certainty	Seen	Location Name	Method
1980	1	1	Eurardy	Day sighting

## Priority Three: Taxa with several, poorly known populations, some on conservation lands

*Leioproctus contrarius* (bee) 1 records

This species of native bee is apparently dependent on flowers of Goodeniaceae and possibly *Lechenaultia stenosepala*. Recent surveys have shown that it is more widespread than previously thought.

Date	Certainty	Seen	Location Name	Method
2000	1	1	Eurardy	Caught or trapped

\* Information relating to any records provided for listed species:-

Date: date of recorded observation

Certainty (of correct species identification): 1=Very certain; 2=Moderately certain; and 3=Not sure.

Seen: Number of individuals observed.

Location Name: Name of reserve or nearest locality where observation was made

Method: Method or type of observation

Friday, 2 May 2008

Department of  
Environment and Conservation



# Threatened and Priority Fauna Database

Page 1 of 1

25.401°S 113.913°E / 26.323°S 114.77°E Site 2 - Pit Extension 345.4 slk (plus~50km buffer)

\* *Date* *Certainty* *Seen* *Location Name* *Method*

## Schedule 1 - Fauna that is rare or is likely to become extinct

*Egernia stokesii badia* **Western Spiny-tailed Skink** 1 records

This species occurs in semi-arid scrub and woodlands of Shark Bay and the northern wheatbelt, sheltering in hollow logs and behind bark of fallen trees.

2003 1 1 Woodleigh Caught or trapped

## Priority Three: Taxa with several, poorly known populations, some on conservation lands

*Lerista lineata* **Lined Skink** 1 records

A small, slender skink that inhabits white sands.

1994 1 3 Woodleigh Caught or trapped

\* Information relating to any records provided for listed species:-

Date: date of recorded observation

Certainty (of correct species identification): 1=Very certain; 2=Moderately certain; and 3=Not sure.

Seen: Number of individuals observed.

Location Name: Name of reserve or nearest locality where observation was made

Method: Method or type of observation

Friday, 2 May 2008



Department of  
Environment and Conservation

## **APPENDIX D**

### **Non-Indigenous Heritage Sites**

Australian Heritage Places Inventory - Microsoft Internet Explorer provided by MRWA ...

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites

Address <http://www.heritage.gov.au/ahpi/index.html> Go Links >>

# AUSTRALIAN HERITAGE PLACES INVENTORY

A cooperative project between the Commonwealth, State and Territory Governments

Record Identifier:

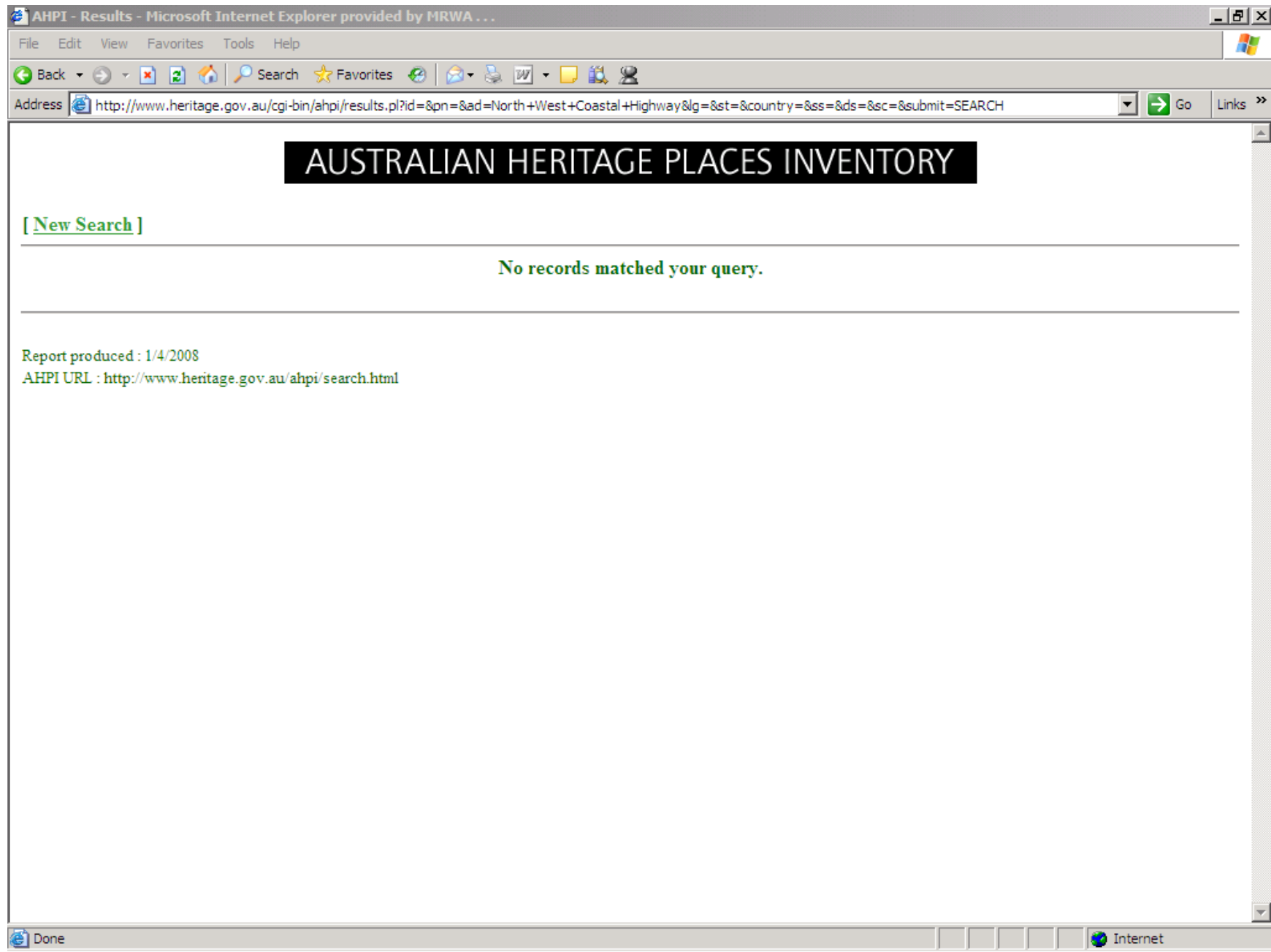
Place Name	<input type="text"/>	Keyword or full name, eg 'customs house' or 'Cairns Customs House'
Location	<input type="text" value="North West Coastal Highway"/>	Street or Town name, e.g. 'Macquarie' for Macquarie Place (avoid using street types)
Local Government	<input type="text"/>	Local Government Area keyword, eg 'aramac'
State	<input type="text" value="ALL"/>	Part or all of the name of a country, eg - 'fran'.
Country	<input type="text"/>	Keyword or key phrase eg 'statue' or 'eucalyptus intermedia'
Statement of Significance	<input type="text"/>	Keyword or key phrase eg 'statue' or 'eucalyptus intermedia'
Description	<input type="text"/>	
Source	<input type="text" value="ALL"/>	

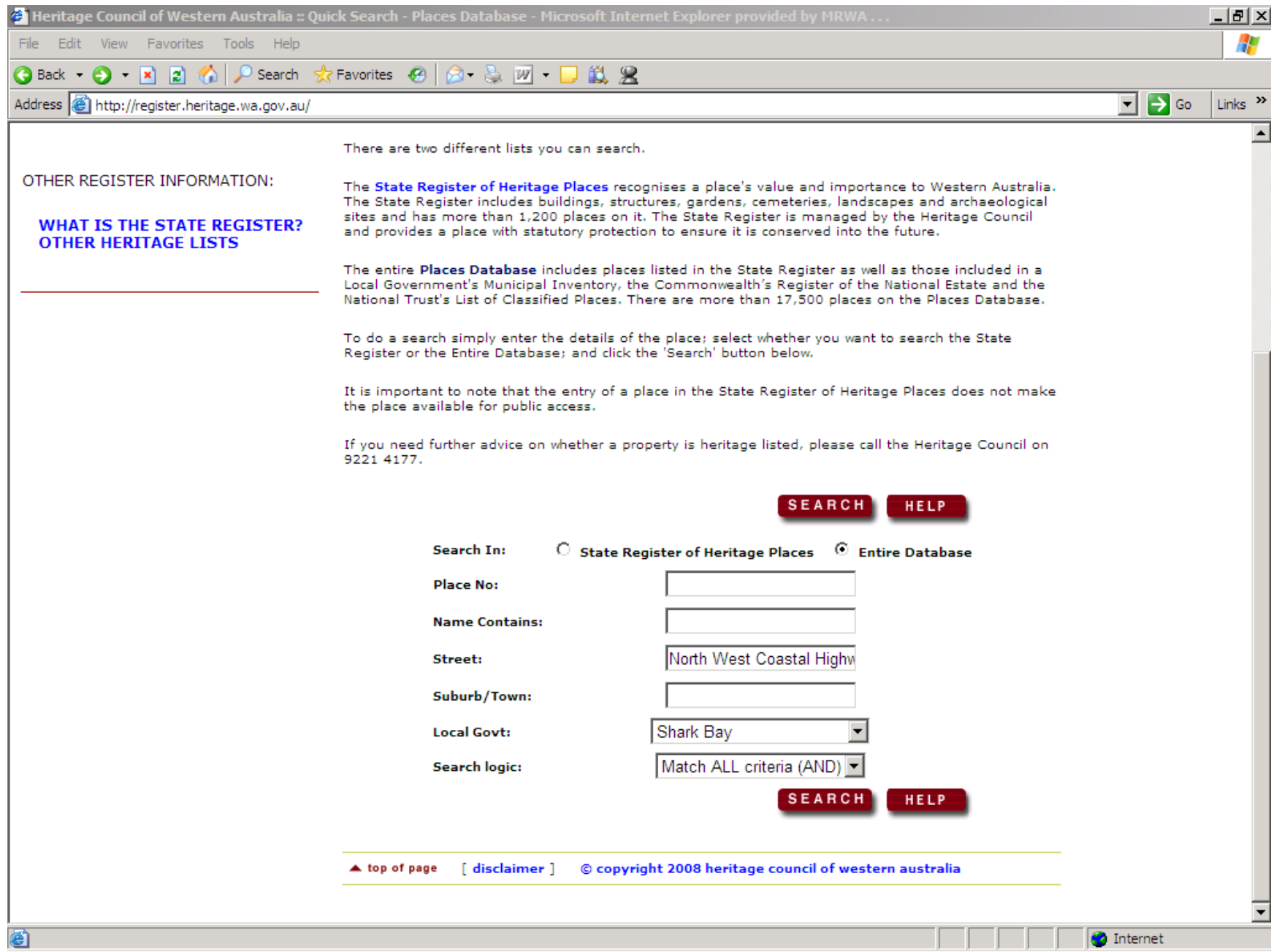
Note: Information about the legal status of places can be found in 'about the inventory'

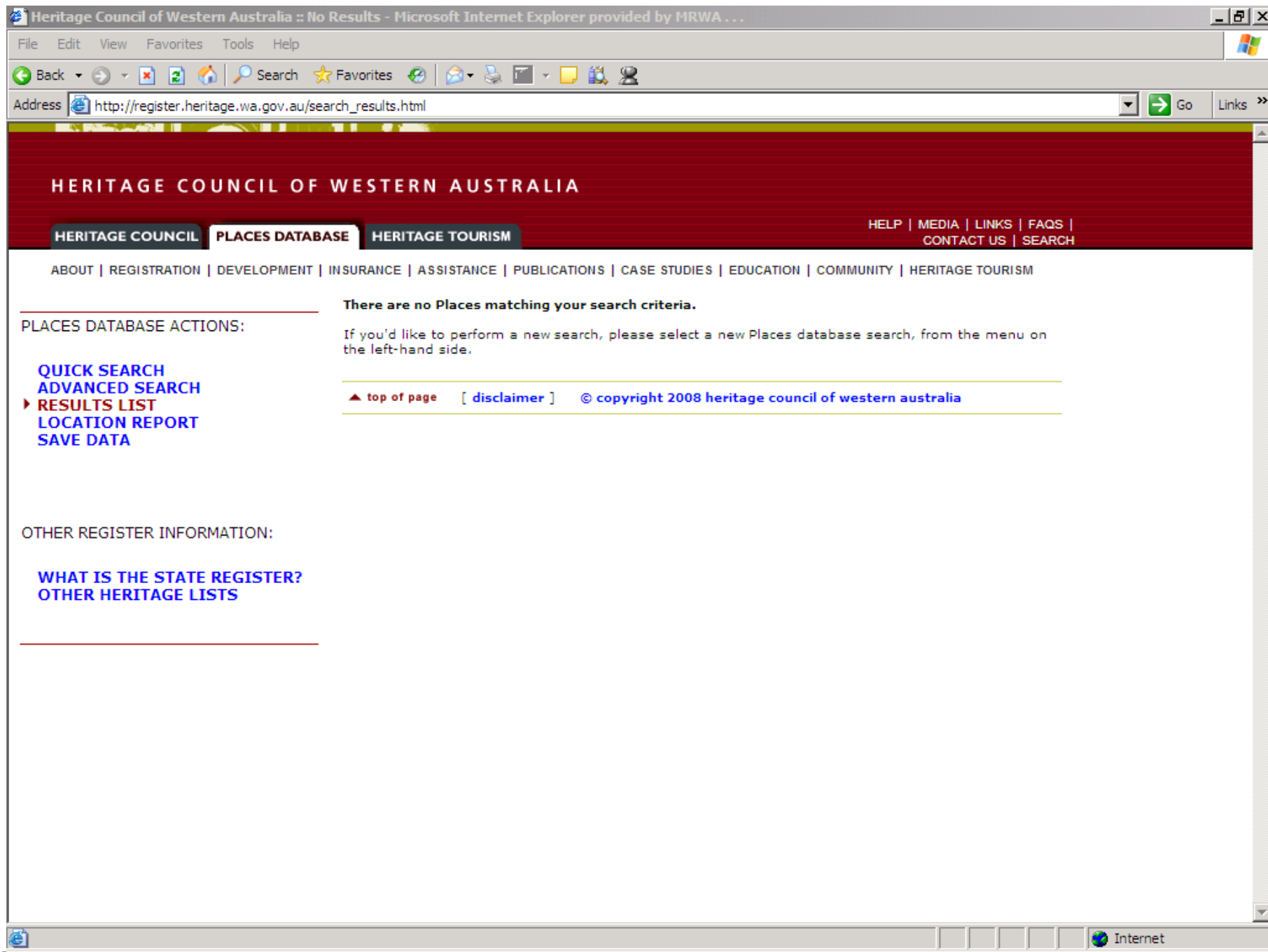
[about the Inventory](#) | [go to Australian Heritage Directory](#)

[about this site](#) | [contact](#) | [privacy](#) | [copyright](#) | [disclaimer](#) | [accessibility](#)

Internet







## **APPENDIX E**

### **Indigenous Heritage Sites**



## Search Criteria

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

MGA Zone 50	
Northing	Easting
6931783	273573
6948357	286422

## 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

Copyright in the information contained herein is and shall remain the property of the State of Western Australia. All rights reserved. This includes, but is not limited to, information from the Register of Aboriginal Sites established and maintained under the Aboriginal Heritage Act 1972 (AHA).

## Legend

Restriction	Access	Coordinate Accuracy
<b>N</b> No restriction	<b>C</b> Closed	Accuracy is shown as a code in brackets following the site coordinates.
<b>M</b> Male access only	<b>O</b> Open	<b>[Reliable]</b> The spatial information recorded in the site file is deemed to be reliable, due to methods of capture.
<b>F</b> Female access	<b>V</b> Vulnerable	<b>[Unreliable]</b> 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

<b>L</b> Lodged	<b>IR</b> Insufficient Information (as assessed by Site Assessment Group)	<b>Site Assessment Group (SAG)</b>
<b>I</b> Insufficient Information	<b>PR</b> Permanent register (as assessed by Site Assessment Group)	Sites lodged with the Department are assessed under the direction of the Registrar of Aboriginal Sites. These are not to be considered the final assessment.
<b>P</b> Permanent register	<b>SR</b> Stored data (as assessed by Site Assessment Group)	
<b>S</b> Stored data		Final assessment will be determined by the Aboriginal Cultural Material Committee (ACMC).

## Spatial Accuracy

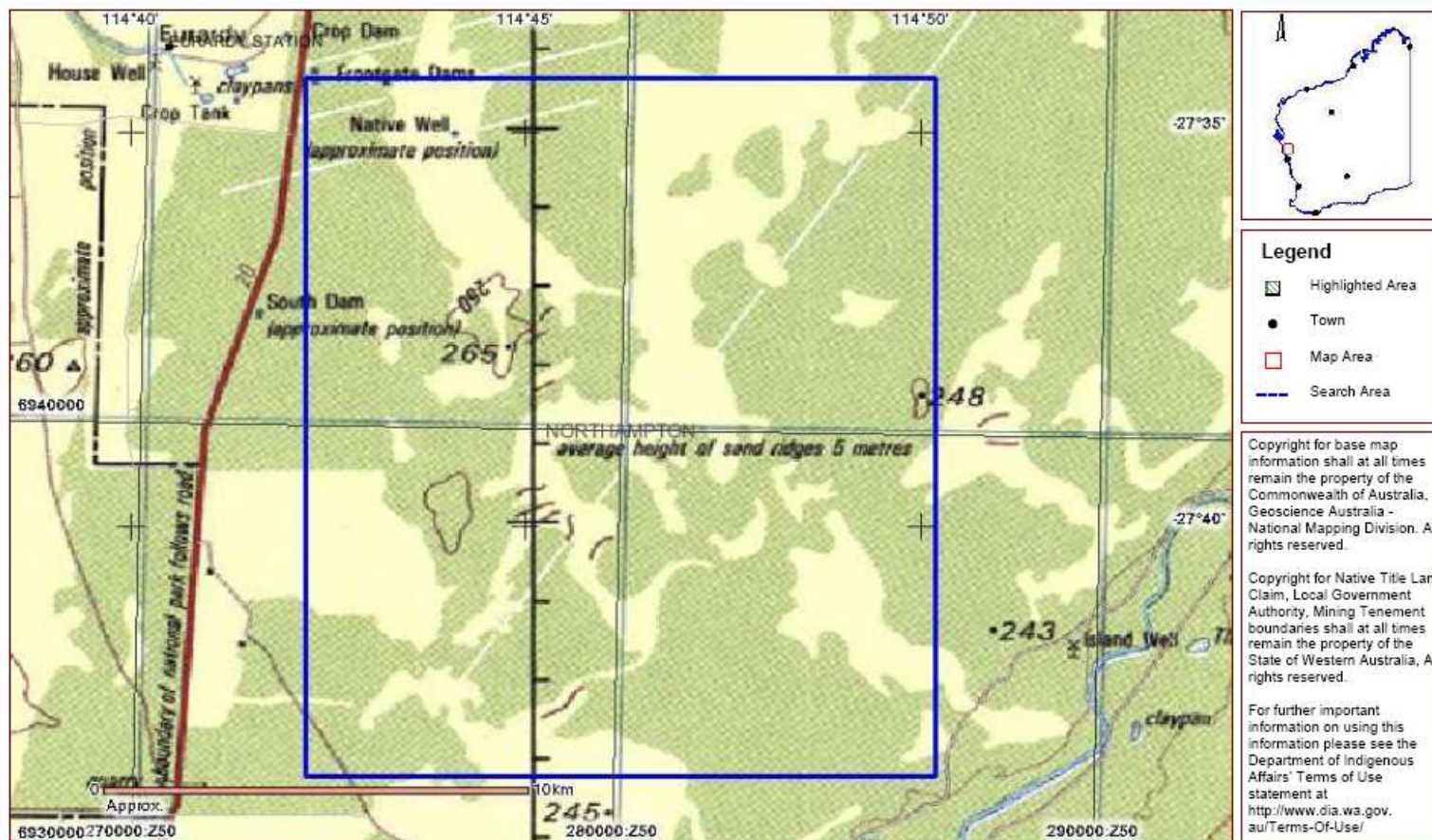
Index coordinates are indicative locations and may not necessarily represent the centre of sites, especially for sites with an access code "closed" or "vulnerable". Map coordinates (Lat/Long) and (Easting/Northing) are based on the GDA 94 datum. The Easting / Northing map grid can be across one or more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





## Aboriginal Heritage Inquiry System

Register of Aboriginal Sites



## **APPENDIX F**

### **WAPC's Acid Sulfate Soil Mapping**



## Acid Sulfate Soils Applicant Self-Assessment Form



### Important information for applicants

This form need only be completed if there is evidence of significant risk of disturbing acid sulfate soils at this location or having completed Form 1A - Application for approval of freehold subdivision or survey strata you have indicated yes to either question 1 or 2, Acid sulfate soils assessment, section 7.

### Applicant

The applicant is the person with whom the WAPC will correspond and, if the application is approved, the person to whom the approval will be sent.

Full name	Crystelle Evangelista	
Applicant signature		Date 1/04/08
Application property details	Pit Extension 145.4, 262.7 and 345.4 SLK – North West Coastal Highway	

### Step 1

If you have previously indicated yes to question 1 or 2 on form 1A go to Step 2.

Is there evidence of a significant risk of disturbing acid sulfate soils at this location?

The WAPC has published maps showing the levels of risk of acid sulfate soils. The maps are shown on figures 1-29 of planning bulletin no. 64 can be downloaded at [www.wapc.wa.gov.au/bulletins](http://www.wapc.wa.gov.au/bulletins)

- Question 1: Do figures 1-29 of the WAPC's Planning Bulletin No 64 Acid Sulfate Soils show the land as having a high to moderate risk of acid sulfate soil occurring within 3 m of natural soil surface? ☐ yes ☒ no
- Question 2: Is the land located in an area, whether depicted in figures 1-29 or not, where site characteristics and local knowledge lead you to form the view that there is a significant risk of disturbing acid sulfate soils at this location? ☐ yes ☒ no

If yes to either of these questions go to step 2.

If no to both of these questions then no further investigation is required. Sign this form and submit it with your application together with the written results of the preliminary site assessment.

### Step 2

Are any of the following works proposed, or likely to be carried out, on the land?

- Question 3: Are any dewatering works proposed to be undertaken? ☐ yes ☐ no
- Question 4: Is the surface elevation  $\leq$  5m AHD and is excavation of  $\geq 100\text{m}^3$  of soil proposed? (ie 10 standard dump truck loads) ☐ yes ☐ no
- Question 5: Is the surface elevation  $>$  5m AHD and is excavation of  $\geq 100\text{m}^3$  of soil (ie 10 standard dump truck loads) with an excavation depth of  $\geq 2\text{m}$  proposed? ☐ yes ☐ no

If yes to any of these questions go to step 3.

If no to all of these questions no further investigation is required. Sign this form and submit it with your application.

### Step 3

Carry out preliminary site assessment in accordance with Department of Environment and Conservation guidelines.

Note: Copies of documents in the acid sulfate soils guidelines series and further technical advice and information can be obtained from contaminated sites page on the Department of Environment and Conservation's website at <http://www.dec.wa.gov.au>

- Question 6: Did the preliminary site assessment reveal the presence of acid sulfate soils? ☐ yes ☐ no

If yes to this questions go to step 4.

If no to this questions then no further investigation is required. Sign this form and submit it with your application together with the written results of the preliminary site assessment.

## **APPENDIX G**

### **Department of the Environment, Water, Heritage and the Arts Database Search**

nominated.

<b>State and Territory Reserves:</b>	1
<b>Other Commonwealth Reserves:</b>	None
<b>Regional Forest Agreements:</b>	None

## Details

### Matters of National Environmental Significance

Threatened Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Birds</b>		
<a href="#">Acanthiza iredalei iredalei</a> * Slender-billed Thornbill (western)	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Calyptrorhynchus latirostris</a> * Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo	Endangered	Species or species habitat likely to occur within area
<a href="#">Leipoa ocellata</a> * Malleefowl	Vulnerable	Species or species habitat likely to occur within area
<b>Mammals</b>		
<a href="#">Dasyurus geoffroii</a> * Chuditch, Western Quoll	Vulnerable	Species or species habitat likely to occur within area
<b>Reptiles</b>		
<a href="#">Egernia stokesii badia</a> * Western Spiny-tailed Skink	Endangered	Species or species habitat likely to occur within area
<b>Plants</b>		
<a href="#">Beyeria lepidopetala</a> * Short-petalled Beyeria, Small-petalled Beyeria	Endangered	Species or species habitat likely to occur within area
<a href="#">Caladenia bryceana subsp. cracens</a> * Northern Dwarf Spider-orchid	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Caladenia wanosa</a> * Kalbarri Spider-orchid	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Eucalyptus beardiana</a> * Beard's Mallee	Endangered	Species or species habitat likely to occur within area
<a href="#">Hypocalymma longifolium</a> *	Endangered	Species or species habitat likely to occur within area
Migratory Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Migratory Terrestrial Species</b>		
<b>Birds</b>		
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
<a href="#">Leipoa ocellata</a> * Malleefowl	Migratory	Species or species habitat likely to occur within area
<a href="#">Merops ornatus</a> * Rainbow Bee-eater	Migratory	Species or species habitat may occur within area



**Migratory Wetland Species****Birds**

<a href="#"><i>Ardea alba</i></a> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<a href="#"><i>Ardea ibis</i></a> Cattle Egret	Migratory	Species or species habitat may occur within area

**Migratory Marine Birds**

<a href="#"><i>Apus pacificus</i></a> Fork-tailed Swift	Migratory	Species or species habitat may occur within area
<a href="#"><i>Ardea alba</i></a> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<a href="#"><i>Ardea ibis</i></a> Cattle Egret	Migratory	Species or species habitat may occur within area

**Other Matters Protected by the EPBC Act**Listed Marine Species [ [Dataset Information](#) ]**Birds**

<a href="#"><i>Apus pacificus</i></a> Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
<a href="#"><i>Ardea alba</i></a> Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
<a href="#"><i>Ardea ibis</i></a> Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
<a href="#"><i>Haliaeetus leucogaster</i></a> White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
<a href="#"><i>Merops ornatus</i></a> * Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area

Places on the RNE [ [Dataset Information](#) ]  
Note that not all Indigenous sites may be listed.

**Natural**[Kalbarri National Park \(1978 boundary\) WA](#)**Extra Information**State and Territory Reserves [ [Dataset Information](#) ]

Kalbarri National Park, WA

**Caveat**

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

## **APPENDIX H**

### **Main Roads WA – Revegetation Plan for Pastoral Areas**

**Main Roads WA – Revegetation Plan for Pastoral Areas  
Condition 14(e), CPS 818**

<b>Date:</b>	Unknown.	<b>Project:</b>	Unknown.
<b>Manager:</b>	Main Roads WA.		
<b>Location and size of clearing:</b>	For project areas located within the pastoral / rangelands region north of the agricultural area as described in the Environmental Protection Authority's Position Statement No.2.		
<b>Location and size of revegetation:</b>	Primarily for areas that were cleared for searching and extracting road building materials (e.g. borrow pits, etc.), and other project related temporary clearing.		
<b>Clearing description:</b>	Machine clearing.		
<b>Revegetation description:</b>	Replacement of topsoil material regeneration.		
<b>Reason for revegetation:</b>	Revegetation of temporary cleared areas, in accordance with condition 14 of clearing permit CPS 818.		
<b>Revegetation / rehabilitation requirements:</b>			
<b>Site preparation:</b>	<p>All vegetation will be cleared from the works area and non-weed infested vegetation is stockpiled. Stockpiled vegetation will be placed in a manner that will prevent damage to adjacent vegetation by machinery. Weed infested vegetation will be disposed of at an appropriate site and not used for revegetation purposes. Burning of the cleared vegetation will not be permitted.</p> <p>Topsoil will be stripped to a maximum depth of 100mm, and will be stored in a weed free (as far as possible) area, as close as possible to the area to be rehabilitated. Topsoil will be placed in windrows of less than 1.5m in height and reinstated as soon as practicable to maintain viability of in-situ seeds.</p>		
<b>Weed control:</b>	<p>Appropriate weed control will be carried out when weeds are present, both prior to topsoil stripping and where weeds become established on or between the stockpiled materials. Weed control will take place prior to the resspreading of topsoil to ensure weeds are killed and not transported to other areas.</p> <p>Control measures include the removal of weeds to an approved dumpsite, or treatment of weeds such as by using herbicides mixed in accordance with manufacturer's instructions and applied by a licensed operator. Where practicable, weeds will be removed prior to or when they are in flower, and prior to seeding.</p> <p>All machinery will be cleared of soil build up and vegetative material before entering and leaving the site to help minimise the transportation of weeds and their seeds.</p> <p>Exposed areas such as bare batters and borrow pits shall be promptly rehabilitated to reduce the potential for weed establishment. Where works are adjacent to good quality vegetation, where weeds from within the project area are likely to spread to and result in environmental harm to the adjacent area, those weeds will be controlled annually until 12 Dec 2010.</p>		



## Main Roads WA – Revegetation Plan for Pastoral Areas Condition 14(e), CPS 818

**Regeneration /  
direct seeding  
/ planting at an  
optimal time:**

The following rehabilitation works are undertaken on areas of disturbed earth requiring rehabilitation:

- Topsoil is uniformly respread to a typical depth of 100mm over the project area. In project areas where topsoil has not been removed and/or is not available, other substrate, such as gravel, may be substituted as a growth medium.
- Project areas will be ripped to a minimum depth of 200mm deep with rip lines approximately 300mm apart. Where slopes are present, rip lines shall follow natural contours.

The following rehabilitation works are undertaken at borrow / gravel pits:

- Overburden and then topsoil will be uniformly and evenly spread over the disturbed areas of the pit. Depending on the slope of drainage lines within the pit, small swales from the topsoil will be formed to reduce erosion velocities and encourage the deposition of seeds.
- The whole of the existing pit floor, including drainage lines, will be ripped to a depth of 300-500mm deep with rip lines between 500-800mm apart (if the material in the pit is able to be ripped).
- All stockpiled vegetation will be spread along the contour and the pit floor to help promote seed deposition and to reduce erosion velocities.

**Vegetation  
establishment  
period:**

The vegetation establishment period is for at least twelve months following the completion of the works. During this period, maintenance and monitoring will be undertaken (see below).

**Ongoing  
maintenance  
and  
monitoring:**

After revegetation works, revegetated areas will be inspected annually for a minimum of two years to monitor and control weeds and to measure the effectiveness of revegetation works.

When unwanted weed foliage cover exceeds 25% after the initial two year period, further actions will be implemented to monitor and control these weeds. The additional monitoring and weed control will be conducted annually until 12 Dec 2010 or until the unwanted weed foliage cover falls below 25%, whichever is sooner.

**Monitoring  
commitments:**

*Post revegetation site inspections will be carried out annually for a minimum of two years to monitor unwanted weeds and measure the effectiveness of revegetation works. Monitoring of sites where unwanted weed foliage cover exceeds 25% after the initial two year period will continue annually until 12 Dec 2010 or until the unwanted weed foliage cover falls below 25%, whichever is sooner.*

**Management  
commitments:**

Undertake annual weed control of unwanted weeds annually until 12 Dec 2010 or until the unwanted weed foliage cover falls below 25%, whichever is sooner.

**Agencies  
consulted and  
submissions  
received:**

Nil.

## **APPENDIX I**

### **Vegetation Clearing Assessment Report**

# MRWA Vegetation Clearing Assessment Report

This report has been prepared to assist MRWA in addressing condition 7 "Assessment of Clearing Impacts" under Clearing Permit CPS 818/3.

## AREA UNDER ASSESSMENT DETAILS

### Proponent details

Proponent's name:

Contacts:

**MRWA Gascoyne Region**

Name: Crystelle Evangelista

Phone: (08) 9941 0713

Fax: (08) 9941 0701

Email: crystelle.evangelista@mainroads.wa.gov.au

### Property details

Property:

Colloquial name:

Strategic Material Area – North West Coastal Highway – SLK 145.6

### Area under assessment

Clearing Area (ha)

*The proposed material area is part of a 20 year strategic plan and will be systematically cleared and revegetated in relatively small areas (e.g. 1 or 2 ha) as material is required.*

No. Trees

0

Method of Clearing

Mechanical

For the purpose of:

Road Building  
Materials

Site Plan Attached

☒ Yes ☐ No

### Avoidance/Minimise clearing

How have the clearing impacts been minimised?

Areas for extension have been carefully selected based upon preliminary material investigation.

## BACKGROUND

This material pit occurs within vegetation association No. 365 which is described as Shrublands; bowgada & jam scrub with scattered York gum & red mallee. According to Native Vegetation Association Data (DEC & DAF) this vegetation association is well represented in the region with 93% remaining. The condition of the vegetation is best described as degraded due to the grazing of cattle and previous material extraction.

Site Visit Undertaken

☒ Yes ☐ No

Fauna / Flora Survey Undertaken

☐ Yes ☒ No

Site Report Attached

☒ Yes ☐ No

Fauna / Flora Survey Report Attached

☐ Yes ☒ No

Site Photos Attached

☒ Yes ☐ No

Other Relevant References Attached

☐ Yes ☒ No

Vegetation Association  
365

Clearing Description  
Mechanical

Vegetation Condition  
Degraded

Comment

## ASSESSMENT OF APPLICATION AGAINST CLEARING PRINCIPLES

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

Comments

**Proposal is at variance to this Principle**

The area under application predominantly consists of grasses and a few scattered shrubs. The condition of the vegetation is somewhat degraded due to previous material excavation; however priority flora species have been identified within the project area. This proposal is therefore at variance with this Principle.

Methodology

Site visit – 28/07/08

GIS Databases:

- Interim Biogeographic Regionalisation of Australia –

**(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.**

**Comments** **Proposal is likely to be at variance to this Principle**  
The area under application predominantly consists of grasses and a few scattered shrubs. The condition of the vegetation is very good to excellent and may represent a significant habitat for fauna. However, due to the relatively small clearing area necessary for the pit extensions, it is expected that impacts to fauna species will be marginal. This proposal may be at variance with this Principle.

**Methodology** Site visit -28/07/08  
DEC advice – 02/05/08

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

**Comments** **Proposal is likely to be at variance to this Principle**  
DEC Threatened Flora Database search was conducted and no rare flora was known to exist within the project areas.

Two priority flora species have been identified to occur within the project area and surrounding environment. The two priority flora species that were identified were:

- Thryptomene ninghanensis (Priority 1)
- Philotheca kalbarriensis (Priority 2)

The project is likely to be at variance with c3 of this clearing principle, being:  
c3) Native vegetation should not be cleared if it is necessary for the continued *in situ* existence of significant habitat for priority flora species published by the Department of Environment and Conservation.

This proposal is therefore at variance with this Principle.

**Methodology** Site visit -28/07/08  
GIS Databases:  
- Declared Rare and Priority Flora list – DEC

**(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**

**Comments** **Proposal is not at variance to this Principle**  
There are no records of Threatened Ecological Communities (TEC'S) for the area under application. This proposal is therefore not at variance with this Principle.

**Methodology** GIS Databases:  
- Threatened Ecological Communities – DEC

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Comments** **Proposal is not at variance to this Principle**  
Pit 145.6 SLK is representative of Beard Vegetation Association 365 of which 93% of the pre-European extent remains. This vegetation association is therefore of 'least concern' for biodiversity conservation. This proposal is therefore not at variance with this Principle.

**Methodology** GIS Databases:  
- Interim Biogeographic Regionalisation of Australia –  
- Pre-European Vegetation

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

**Comments** **Proposal is not at variance to this Principle**  
The area under application does not consist of a watercourse or wetland . This proposal is therefore not at variance with this Principle.

**Methodology** Site visit -28/07/08  
DEC's web based Geographic Data Atlas mapping tool  
GIS Databases:  
- Hydrography, linear  
- Hydrographic Catchments – Catchments

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

<b>Comments</b>	<b>Proposal is not at variance to this Principle</b> The area under application consists of loamy earth soils. Given the small clearing footprint and that the surrounding vegetation is in good to excellent condition (with 93% of pre-European vegetation remaining). The proposal is not at variance with this principle.
<b>Methodology</b>	Site visit - 28/07/08 GIS Databases: - Acid Sulphate Soil risk map

**(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.**

<b>Comments</b>	<b>Proposal is not at variance to this Principle</b> The proposed project will not impacts on any conservation areas and therefore is not at variance with this Principle.
<b>Methodology</b>	Site Visit -28/07/08 DEC's web based Geographic Data Atlas mapping tool

**(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.**

<b>Comments</b>	<b>Proposal is not at variance to this Principle</b> The area under application only receives approximately 300mm of annual rainfall. Due to the low rainfall rate, these proposals will not cause deterioration in the quality of surface or under ground water and therefore is not a variance to this Principle.
<b>Methodology</b>	Site Visit - 28/07/08 DEC's web based Geographic Data Atlas mapping tool Rainfall, Mean Annual – BOM

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

<b>Comments</b>	<b>Proposal is not at variance to this Principle</b> The soil consists of loamy earth soils. In addition the area under application only receives approximately 300mm of annual rainfall. Due to the nature of the soil and the low rainfall rate, these proposals will not exacerbate the incidence of flooding and therefore is not at variance with this Principle.
<b>Methodology</b>	Site Visit - 28/07/08 Rainfall, Mean Annual – BOM

**ASSESSOR'S RECOMMENDATIONS**

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

**Recommendation:** As the proposed project will involve temporary clearing, a revegetation management plan is required. An Environmental Management Plan has been included in the PEIA and a Flora Surveys will be conducted over the entire project area.

**OFFICER PREPARING REPORT**

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Date: 16/03/09