

#### Main Roads WA

Minilya-Exmouth Road Overtaking Lanes, Exmouth

Environmental Management Plan

March 2009



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## 1. INTRODUCTION

This Environmental Management Plan (EMP) has been prepared by Main Roads' Gascoyne Region. The EMP provides specific details with regards to the management actions required for an effective environmental management program for the Minilya-Exmouth Road Overtaking Lanes.

### 1.1 Scope of Works

Minilya-Exmouth Road provides connection between Coral Bay and Exmouth town sites and links motorist with the North West Coastal Highway to the south and Burkett Road to the east.

The road primarily services pastoral, fishing and tourist industries as well as provides community access. Historically Minilya-Exmouth Road functioned as the main transport link for the pastoral industry in the area and defence facilities at Exmouth. Over the past ten years there has been a significant increase in the traffic volumes of triple road trains servicing the Exmouth area and tourist traffic utilising Minilya-Exmouth Road to visit local tourist destinations, including the Ningaloo Reef, Cape Range National Park and Yardie Creek Gorge.

As a result of the commercial growth and the increase in traffic volumes, it is now essential that the Minilya-Exmouth Road be improved. One of the major concerns with Minilya-Exmouth Road is the narrow seal, limited overtaking opportunities and increased risk of accidents occurring due to the interactions of higher speed passenger vehicles, and heavy slower moving road trains and tourist traffic.

Main Roads' Gascoyne Region will be widening the road at two locations along Minilya-Exmouth Road to provide passing opportunities between Learmonth airport, north of Burkett Road, and the Exmouth town site. Both of the proposed north and south bound passing lane will occur within Main Roads' road reserve and within 20 meters of the already existing sealed road. These works will be undertaken to provide a safer driving environment for the travelling public.

### 1.2 Clearing Permit CPS 818/4

All clearing of native vegetation associated with this project will be carried out using Main Roads' State Wide Purpose Permit CPS 818/4.

This permit was issued to Main Roads' WA by the Department of Environment and Conservation and allows Main Roads to undertake clearing for projects that have been assessed as not having a significant impact on the environment. Clearing carried out under the Main Roads' Purpose Permit will be in accordance with conditions set out within the Permit.

The total amount of native vegetation cleared during this project will not exceed the region's annual limit of 150ha, as stated in the Purpose Permit CPS 818/4.

## 1.3 Environmental Clearances

A Preliminary Environmental Impact Assessment (PEIA) was undertaken in August 2007 by Crystelle Evangelista (Environment Officer) and Matt Oswald (Environment Officer). This PEIA describes the environmental aspects relevant to the proposed project and surrounding areas, including impacts to flora and fauna, clearing of native vegetation, proximity to conservation areas and affects on surface and ground water. As a result of the PEIA findings, GHD consultants were contracted to undertake a Targeted Flora Survey in August 2008.

The Targeted Flora Survey identified one priority 3 flora species (*Corchorus congener*) to exist within the vicinity of the proposed passing lanes project area (Figure 2). The clearing of native vegetation required for this project was therefore assessed as maybe at variance to the *Environmental Protections Act's (1986)* Ten Clearing Principle (a) and (c3). Onsite identification of the priority flora populations revealed that no direct impacts to any of the populations will occur during any of the proposed construction works.

Management practices have been included within the Environmental Management Plan to ensure no adverse impacts will occur to the five populations of priority flora identified within the vicinity of the project area.

From the findings of the PEIA and targeted flora survey, it was concluded that the clearing of native vegetation during the construction of the Minilya-Exmouth Passing Lanes would not be at variance to the *Environmental Protection and Biodiversity Conservation Act (1999)* or the *Environmental Protection Act (1986).* 

## 1.4 Aboriginal Heritage

A search of the Department of Indigenous Affairs web based database identified no sites of Aboriginal heritage significance within the vicinity of the project area.

Consultation with the Gnulli Claimant Group was undertaken for all project areas. No sites of significance were identified during any of the Aboriginal heritage surveys.

### 1.5 Key Environmental Issue

The proposed Minilya-Exmouth Road Overtaking Lane project has the potential to impact on the surrounding environment. Environmental factors relevant to the Minilya-Exmouth Road Overtaking Lane project include:

- Vegetation and conservation of biodiversity;
- Water quality, surface and groundwater drainage;
- Weed and hygiene control;
- Noise;
- Dust;
- Fire Control;
- Visual amenities;
- Waste management; and
- Rehabilitation.

### 1.6 Stakeholders

There are a number of environmental stakeholders that may be interested in this project. These include:

- The Department of Environment and Conservation (DEC);
- Department of Agriculture and Food (DAF);
- Department of Water (DoW);
- Gnulli Native Title Claimant Group; and
- Shire of Exmouth.

### 2. ENVIRONMENTAL MANAGEMENT AND IMPLEMENTATION STRATEGIES

## 2.1 Environmental Commitment

### 2.1.1 Main Roads Environmental Policy

Main Roads is committed to achieving responsible environmental stewardship in developing and maintaining the road network during Main Roads projects and ongoing operations. To attain this goal, Main Roads has implemented a Corporate Environment Policy that seeks to:

- Protect and enhance the environmental values of road reserves;
- Minimise the impact on the natural environment of roads and road uses; and
- Conserve natural resources and minimising energy consumption and waste.

This Environmental Policy is applicable to all Main Roads' employees, contractors and sub contractors.

### 2.1.2 Environmental Management Systems

Main Roads operates a corporate Environmental Management System (EMS) certified to ISO 14001. The EMS was recently recertified in August 2008. Under this EMS, Main Roads has a number of standard policies and procedures that will be utilised as part of this project.



Western Australia

# Environmental Policy

MAIN ROADS WESTERN AUSTRALIA manages the State's road network to provide safe and efficient road access that will enhance community lifestyles and support economic prosperity. We seek to achieve balanced and sustainable outcomes for the community. Responsible environmental stewardship in developing and maintaining the road network is critical to our success.

#### Principles

Main Roads is committed to:

- Protecting and enhancing the environmental values of road reserves;
- Minimising the impact on the natural environment of roads and road use; and
- Conserving natural resources and minimising energy consumption and waste.

#### Objectives

In applying these principles, Main Roads aims to:

- Fully satisfy all environmental legislation, Government Policy and, where specific legislation is lacking, uphold the spirit of the law;
- Implement, maintain and continually improve an effective environmental management system across Main Roads planning, business, project and management processes;
- Apply an approach of "avoid, minimise and mitigate", in order of preference, to the management of environmental impacts associated with road construction projects;
- Develop awareness of environmental management processes, standards and responsibilities among Main Roads' employees and contractor partners;
- Listen and be responsive to community and stakeholder views on environmental issues; and
- Set specific environmental objectives and targets relating to the key environmental aspects of Main Roads' activities, and measure and report progress in achieving these targets.

Menno Henneveld Commissioner of Main Roads June 2004

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## 2.2 Environmental Aspects and Impacts Risk Register

The environmental aspects and impacts risk register was developed to enable the relevant environmental aspects and impacts associated with the Minilya-Exmouth Road Overtaking Lanes project to be accounted for.

The environmental risk associated with each of the identified aspects and impacts were assessed to determine their significance and potential actions.

The Environmental Aspects and Impacts Risk Register can be found in Appendix A

## 2.3 Statutory Requirements and Environmental Legislation

Main Roads' key statutory requirements and environmental legislation has been broadly identified and described in the corporate document – 6707/027 Environmental Obligations Register.

## 2.4 Roles and Responsibilities

All Main Roads employees are responsible for the environmental performance of their activities and for complying with environmental requirements. The following roles and responsibilities have been defined for this project.

## 2.4.1 Main Roads' Gascoyne Region

Main Roads' Gascoyne Region is responsible for ensuring that works meet regulatory environmental requirements and that environmental objectives are attained.

Main Roads' Gascoyne Region is also responsible for the environmental performance of staff and contractors working on this project and maintaining and implementing the EMP.

### 2.4.2 Project Manager

The Project Manager is responsible for the overall environmental performance of the whole project. The Project Manager will also be responsible for the implementation and compliance of the EMP within all project activities.

### 2.4.3 Environment Officer

The Environment Officer is responsible for overseeing the implementation of the EMP. The Environment Officer will be responsible for undertaking performance review, audits and co-ordinating successful maintenance of the EMP.

The Environment Officer will also assess the compliance with the EMP and will represent the Main Roads Project Manager on environmental matters with stakeholders.

#### 2.4.4 Surveillance Officers

The Surveillance Officers are responsible for ensure that all works conducted under their supervision will adhere to the EMP and is compliant with relevant environmental legislation. The Surveillance Officers are to pass on relevant environmental information from the Project Manager or Environment Officer to all staff at relevant times throughout the project.

As the Surveillance Officer will be the first point of contact for workers reporting environment incidents, they will be responsible for completing part A of the Environmental Incident Form (Form 6707/042/01).

#### 2.4.5 All Staff

All persons associated with the project have the responsibility of carry out any activities in such a manner that will not cause, or be likely to cause, environmental harm, in accordance with the *Environmental Protection Act 1986* and any other relevant environmental legislation.

#### 2.5 Environmental Incident Reporting and Investigations

Main Roads Corporate Procedure – <u>6707/042 Environmental Guideline –</u> <u>Environmental Incident Reporting and Investigation</u> shall be used to report, record and investigate environmental incidents.

All of the environmental incidents should be recorded in File No. 08/5621

Main Roads Environmental Incident Reporting and Investigation procedure:

- Environmental incident occurs;
- Immediate Remedial Action: The observer of an incident should undertake any immediate actions to stop, control or contain the incident to prevent further damage;
- Determine Environmental Incident Category (Appendix B)
- Notify Management (Appendix C)
- Assessment and Investigation
- Incident Report (Appendix D)
- Corrective and Preventative Action: The Environment Officer shall track the progress of the agreed corrective and preventative action.

#### 2.6 Communication Plan

A communication plan for Minilya-Exmouth Road Overtaking Lanes has been developed separately to this EMP.

#### 2.7 Monitoring & Inspections

Inspections of construction and clearing works will be undertaken by the Environmental Officer at regular intervals during the course of the project.

After project completion, revegetated areas will be inspected in accordance with Main Roads' Revegetation Plan for Pastoral Areas, which has been approved by DEC.

#### 2.8 Contingency Measures

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

#### 2.9 Auditing

Given the scale and nature of the project, an audit of the environmental aspects of the Minilya-Exmouth Road Overtaking Lanes will be conducted at the completion of the project to ensure the EMP was implemented during the course of the project.

Second or third party audits may be ordered by the Manager Environment as part of Main Roads' compliance to ISO 14001 and Purpose Permit CPS 818/4. Main Roads is required to audit at least one project from the Gascoyne Region annually. A third party audit may be conducted as part of the ISO 14001 recertification process.

## 3. ENVIRONMENTAL MANAGEMENT PLAN

| No. | Area of<br>Management                    | Timing  | Objective  | Action   | Responsible<br>Party                         | Advice | To the<br>Requirements of   |
|-----|--|---|--|--|--|--------|---|
| 1.  | Induction                                | Pre-<br>Construction  | Inform all<br>personnel of the<br>management<br>actions required<br>of them                          | Develop and implement a communication<br>plan including response to complaints,<br>liaising/reporting to government agencies,<br>engagement with the community and others<br>when work is performed.                         | Project<br>Manager                           | MRWA   |   |
|     |  |   |  | Ensure all personnel are aware of relevant<br>environmental and heritage requirements<br>specific to this project  |  |        |   |
|     | Induction -<br>Monitoring/<br>Inspection | Checks to be<br>made during<br>monthly<br>environment<br>monitoring | To ensure all<br>personnel are<br>aware of relevant<br>environmental<br>and heritage<br>requirements | All personnel involved with project works<br>shall attend a site induction that will outline<br>environment and heritage requirement.<br>All sheets shall be kept on file for future<br>reference and auditing requirements. |  |        |   |
| 2.  | Environmental<br>Incidents               | Construction  | Ensure all related<br>records of<br>environmental<br>incidents are<br>maintained                     | Main Roads Corporate Procedure – 6707/042<br>Environmental Guideline – Environmental<br>Incident Reporting and Investigation shall be<br>used to report, record and investigate<br>environmental incidents.                  | Project<br>Manager<br>Environment<br>Officer |        | Main Roads<br>environmental<br>guideline:<br>Environmental<br>Incident Reporting<br>and Investigation |
|     |  |   |  | All of the environmental incidents should be<br>recorded in File No. 08/5621<br>See Section 2.5 for more information   | be Surveillance<br>Officers                  |        | 6707/042  |

| No. | Area of<br>Management      | Timing                                | Objective   | Action   | Responsible<br>Party   | Advice | To the<br>Requirements of |
|-----|----------------------------|---------------------------------------|---|--|--|--------|---------------------------|
| 3.  | Traffic Risk<br>Management | Pre-<br>construction/<br>Construction | Minimise public<br>risk to as low as<br>reasonably<br>achievable to<br>comply with<br>relevant<br>standards.  | A Traffic Management Plan will be developed<br>and implemented for the period of this<br>proposal.   | Project<br>Manager/<br>Contractor  | MRWA   |                           |
| 4.  | Site<br>Management         | Pre-<br>construction/<br>Construction | Ensure that the<br>site is managed to<br>ensure that<br>construction of the<br>proposal will have<br>minimal impact<br>upon the public<br>and surrounding<br>environment. | Hard stand areas will be located on<br>designated area in discussion with the<br>Environment Officer. Storage areas and hard<br>stand area will not be relocated during project<br>time frame without consulting the<br>Environment Officer. The dumping of<br>materials anywhere outside of the hardstand<br>areas will be registered as an environmental<br>incident.<br>Specific areas shall be designated for the<br>storage, maintenance and refuelling of<br>machinery/vehicles in discussion with the<br>Environment Officer. These areas are to be<br>situated on an impermeable surface layer<br>(gravel sheeted as a minimum) not in close<br>proximity to any watercourse/drainage.<br>Maintain good housekeeping practices during<br>construction to prevent litter.<br>Rehabilitate temporary cleared areas as soon<br>as practical in accordance with Main Roads'<br>Revegetation Plan for Pastoral Areas which<br>has been approved by DEC. | Project<br>Manager<br>Surveillance<br>Officers<br>Contractor<br>Environment<br>Officer | MRWA   |                           |

| No. | Area of<br>Management                             | Timing       | Objective   | Action   | Responsible<br>Party   | Advice | To the<br>Requirements of |
|-----|---|--------------|---|--|--|--------|---------------------------|
|     | Site<br>Management -<br>Monitoring/<br>Inspection | Construction | Ensure the<br>management of<br>site is continued<br>throughout the<br>course of the<br>project. | Location of hard stand areas will be identified<br>prior to the commencement of onsite<br>activities in consultation between Project<br>Manager and Environment Officer. Further<br>discussions of hard stand area location will<br>be conducted as required throughout project<br>time frame.<br>Site inspections will occur throughout the<br>duration of works to ensure environmental or<br>heritage aspects are not impacted.<br>All environmental incidents will be<br>investigated by the Environmental Officer,<br>who will ensure that all remedial actions are<br>completed. | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer | MRWA   |                           |
| 5.  | Dust<br>Management                                | Construction | Minimise the<br>impact of dust on<br>surrounding<br>environments                                | A complaints handling system shall be set up<br>in order to rapidly handle any complaints<br>received.<br>Avoid earthmoving activities in high winds.<br>Dust suppression actions will be used to<br>prevent dust lift.<br>Areas of temporary clearing or disturbance<br>are to be rehabilitated as soon as practical.<br>Where it is found that trucks leaving the site<br>are carrying excessive material onto sealed<br>surfaces, these areas will be swept to reduce<br>dust generation and maintain traffic safety.   | Project<br>Manager<br>Surveillance<br>Officers                           | MRWA   |                           |

| No. | Area of<br>Management                             | Timing       | Objective  | Action  | Responsible<br>Party   | Advice | To the<br>Requirements of                         |
|-----|---|--------------|--|---|--|--------|---|
|     | Dust<br>Management -<br>Monitoring/<br>Inspection | Construction | Ensure the impact<br>of dust on<br>surrounding<br>environments is<br>kept to a<br>minimum. | Site inspections shall be conducted at regular<br>intervals throughout the project time frame to<br>ensure dust management practices are<br>maintained and minimise impacts to<br>surrounding environmental aspects.  | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer |        |   |
| 6   | Fire Control<br>and Response                      | Construction | Reduce the risk of<br>fire ignition from<br>construction<br>activities                     | <ul> <li>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.</li> <li>In case of fire call 000.</li> <li>Exmouth Fire and Rescue service located at: 352 Payne St Exmouth, WA 6707 (08) 9949 1664</li> <li>If a wildfire occurs inform adjacent landholders and Department of Environment and Conservation</li> <li>Induction to include evacuation procedures, location of fire response equipment and emergency contacts</li> <li>Works procedures for 'hot works' to include: <ul> <li>Clear area around works (no flammable materials)</li> <li>Fire trailer to be located at site of hot works</li> </ul> </li> </ul> | MRWA<br>Contractors<br>Surveillance<br>Officers                          | MRWA   | Government<br>legislation:<br>Bush Fires Act 1954 |

| No. | Area of<br>Management                      | Timing       | Objective   | Action  | Responsible<br>Party                           | Advice      | To the<br>Requirements of   |
|-----|--|--------------|---|---|--|-------------|---|
|     |  |              |   | Visual inspection of project area for ignition<br>sources and high fuel loads should occur<br>prior to work.<br>No fires shall be lit within the project area.  |  |             |   |
|     | Fire Control-<br>Monitoring/<br>Inspection | Construction | Ensure the fire<br>risk from<br>construction<br>activities is kept to<br>a minimum                                | All personnel shall be made aware of fire<br>control requirements during inductions.<br>Undertake regular site inspections to identify<br>potential fire risks and remove any hazards.  | Project<br>Manager<br>Surveillance<br>Officers | MRWA        |   |
| 7.  | Noise<br>Management                        | Construction | Reduce the<br>impact of noise on<br>local sensitive<br>noise receptors<br>during<br>construction and<br>operation | <ul> <li>Comply with Environmental Protection<br/>(Noise) Regulations 1997.</li> <li>Restrict working hours to 0700 to 1900<br/>Monday to Saturday in the vicinity of sensitive<br/>noise receptors (within 1km) <ul> <li>No construction activities are to occur<br/>prior to 0700</li> </ul> </li> <li>Works on Sunday will be restricted to 0900 to<br/>1900 in the vicinity of sensitive noise<br/>receptors (within 1km)</li> <li>Prior to 0700, preparation may occur on site,<br/>but must not include: <ul> <li>Operation of mobile plant</li> <li>Power tools, hoists and other power<br/>equipment</li> <li>Impact noise including hammering,<br/>boring or drilling</li> <li>Radios</li> </ul> </li> </ul> | Project<br>Manager<br>Surveillance<br>Officers | MRWA<br>DEC | Government<br>legislation:<br>Environmental<br>Protection (Noise)<br>Regulations 1997<br>AS 2496-1981<br>Guide to Noise<br>Control on<br>Construction,<br>Maintenance and<br>Demolition Sites |

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

| No. | Area of<br>Management                              | Timing       | Objective  | Action  | Responsible<br>Party                           | Advice | To the<br>Requirements of   |
|-----|--|--------------|--|---|--|--------|---|
|     |  |              |  | All spills will be recorded as an environmental incident and an environmental incident report filled out.   |  |        | Environmental<br>Protection<br>(Controlled Waste)<br>Regulations 2004<br>(WA) |
|     |  |              |  | Emergency cleanup procedures shall be<br>implemented in the case of any spillage.<br>These will include control of spilled material<br>and removal of contaminated soil to an<br>approved site.       |  |        | Soil and Land<br>Conservation Act<br>1945 (WA)                                |
|     |  |              |  | All spills are to be contained immediately and<br>remediated within 1 week. Remediation will<br>consist of removal of contaminated soils to an<br>appropriate treatment facility and will be in       |  |        | Soil and Land<br>Conservation<br>Regulations 1992<br>(WA)                     |
|     |  |              |  | accordance with Main Roads Document No.<br>6707/028 – Contaminated Sites  |  |        | Main Roads<br>property<br>management  |
|     |  |              |  | 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).   |  |        | guideline:<br>Land Disposal<br>Process Guidelines<br>60/04/01                 |
|     |  |              |  | The project areas, including hardstand areas,<br>will be kept in a tidy manner at all times. All<br>litter on the project will be placed into lidded<br>bins and disposed of at an approved landfill. |  |        | Main Roads<br>environmental<br>guideline:<br>Contaminated Sites<br>6707/028   |
|     | Waste<br>Management<br>- Monitoring/<br>Inspection | Construction | Ensure waste<br>management<br>practices are<br>maintained<br>throughout course<br>of project | Inspection of all storage and service areas,<br>spill kits and bunding will be carried out at<br>regular intervals throughout the project<br>timeframe.   | Project<br>Manager<br>Surveillance<br>Officers | MRWA   |   |

| No. | Area of<br>Management    | Timing                                | Objective  | Action   | Responsible<br>Party   | Advice      | To the<br>Requirements of |
|-----|--------------------------|---------------------------------------|--|--|--|-------------|---------------------------|
|     |                          |                                       |  | Inspections of hard stand area will be<br>conducted prior to commencement of<br>construction and throughout the course of the<br>project.<br>All environmental incidents will be<br>investigated by the Environmental Officer,<br>who will ensure that all remedial actions are<br>completed.  | Environment<br>Officer   |             |                           |
| 9.  | Vegetation –<br>Clearing | Pre-<br>Construction/<br>Construction | Ensure that the<br>overall objectives<br>of the alignment<br>and construction<br>works are<br>compatible with<br>maintaining and,<br>where possible,<br>enhancing the<br>biological integrity<br>of the surrounding<br>environment | The proposed construction works shall be<br>designed/located in a manner that minimises<br>adverse impacts on the surrounding<br>environment.<br>Construction works to be undertaken in dry<br>season to reduce the potential for soil erosion<br>and drainage line siltation due to vegetation<br>removal and heavy rains.<br>Any stockpiled vegetation from clearing<br>works shall not be burnt. This vegetation<br>shall be used during any rehabilitation works<br>and either chipped or replaced according to<br>the revegetation plan.<br>Stockpiled vegetation shall be windrowed<br>parallel to the road alignment, not exceeding<br>2m beyond the limit of the earthworks. The<br>stockpile shall not exceed 1.5m in height.<br>Stockpiled topsoil shall not be stockpiled on<br>vegetation that is not designated for clearing. | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer<br>Contractor | MRWA<br>DEC |                           |

| э. | Area of<br>Management                                 | Timing                                 | Objective  | Action   | Responsible<br>Party   | Advice | To the<br>Requirements of |
|----|---|--|--|--|--|--------|---------------------------|
|    |   |  |  | will be minimised to prevent reduction in<br>biotic viability. Topsoil will be stored and<br>reused locally rather than transported large<br>distances.  |  |        |                           |
|    |   |  |  | During construction works, damage of existing vegetation will be avoided as far as practicable.  |  |        |                           |
|    |   |  |  | Vehicles and equipment is not to be parked<br>or driven over tree roots or over vegetation<br>that is not designated for clearing.<br>Native vegetation to be removed is to be<br>cleared in a manner that ensures all clearing<br>occurs within the approved clearing areas. i.e<br>machine turn around points will be within<br>clearing limits. |  |        |                           |
|    | Vegetation<br>Clearing -<br>Monitoring/<br>Inspection | Pre-<br>construction /<br>Construction | Ensure that<br>clearing of native<br>vegetation during<br>the course of the<br>propose project<br>does not impact<br>significantly on<br>sensitive<br>environments | Inspections of clearing works shall be<br>conducted at the time of vegetation clearing<br>to ensure that impacts to sensitive<br>environmental aspects is kept to a minimum.   | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer |        |                           |

| No. | Area of<br>Management   | Timing                                | Objective   | Action  | Responsible<br>Party   | Advice | To the<br>Requirements of |
|-----|---|---------------------------------------|---|---|--|--------|---------------------------|
| 10. | Threatened<br>Ecological<br>Communities<br>(TECs),<br>Declared Rare<br>or Priority<br>Flora | Pre-<br>construction/<br>Construction | Avoid disturbing,<br>and minimise<br>impact on any<br>identified TECs,<br>Declared Rare or<br>Priority Flora. | Flora surveys were undertaken to ensure that<br>no Declared Rare or Priority Flora are<br>impacted during the proposed project.<br>One priority 3 flora species ( <i>Corchorus</i><br><i>congener</i> ) has been identified within the<br>vicinity of the project area. Consultation with<br>DEC has been undertaken regarding the<br>impacts to this priority species. It has been<br>determined that no direct impacts to any of<br>the priority flora populations will occur during<br>any of the proposed construction works.<br>All personnel will be made aware of the<br>location of priority flora species within the<br>project area and management strategies will<br>be implemented to avoid unnecessary<br>impacts to any of the priority flora<br>populations. | Environment<br>Officer   | DEC    |                           |
|     | TEC's,<br>Declared<br>Rare and<br>Priority Flora -<br>Monitoring/<br>Inspection             | Construction                          | Ensure impacts to<br>priority flora and<br>other sensitive<br>environmental<br>aspects is<br>minimised        | Location of priority flora species shall be<br>marked and flagged to ensure minimal impact<br>to these populations occurs during the course<br>of the project.<br>All personnel working on the project will be<br>made aware of the requirements not to<br>impact on the populations during the<br>inductions.  | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer | MRWA   |                           |

| No. | Area of<br>Management | Timing               | Objective  | Action   | Responsible<br>Party   | Advice      | To the<br>Requirements of   |
|-----|-----------------------|----------------------|--|--|--|-------------|---|
| 11. | Dieback<br>Management | Pre-<br>construction | Ensure all<br>Dieback<br>Management<br>issues have been<br>addressed prior to<br>construction work | Not an issue given the project area receives<br>less than 400 mm of average annual rainfall<br>and is located above the 26° parallel.  | Environment<br>Officer   | DEC         |   |
| 12. | Fauna<br>Management   | Construction         | To protect and<br>avoid impact to<br>native fauna  | No animals are to be intentionally harmed or<br>killed by the project personnel, unless there is<br>a real and immediate threat to human health.<br>THIS INCLUDE SNAKES<br>Animals (including snakes) should be allowed<br>to move on if there is no threat to human<br>safety.<br>If a snake will not move on a suitable<br>qualified reptile handler shall be called. The<br>following DEC office may be contacted in<br>such circumstances:<br>- Department of Environment and<br>Conservation, Exmouth Office – 9947<br>8000<br>If a sick or injured animal is encountered the<br>Department of Environment and<br>Conservation, Exmouth Office shall be called.<br>No pets, traps or firearms shall be allowed on<br>site<br>Any death or injury of an animal shall be<br>reported to the supervisor and recorded as<br>an environmental incident | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer | MRWA<br>DEC | Government<br>legislation:<br>Environmental<br>Protection and<br>Biodiversity<br>Conservation Act<br>1999<br>(Commonwealth)<br>Wildlife<br>Conservation Act<br>1950<br>Wildlife<br>Conservation<br>Regulations 1970<br>(WA)<br>Wildlife<br>Conservation<br>(Reptiles &<br>Amphibians)<br>Regulations 2002<br>(WA) |

| No. | Area of<br>Management                              | Timing               | Objective   | Action  | Responsible<br>Party   | Advice      | To the<br>Requirements of  |
|-----|--|----------------------|---|---|--|-------------|--|
|     | Fauna<br>Management<br>- Monitoring/<br>Inspection |                      |   | All personnel working on the project will be<br>made aware of the requirements not to harm<br>or kill any animals during the course of the<br>project during site induction and that animals<br>should be allowed to move away from project<br>site.<br>Investigation of any environmental incidents<br>involving fauna will be undertaken by the<br>Environment Office to ensure all remedial<br>actions are completed.  |  |             | Conservation and<br>Land Management<br>Act 1984 (WA)   |
| 13. | Aboriginal<br>Heritage                             | Pre-<br>Construction | Ensure that there<br>is no unauthorised<br>disturbance to<br>Aboriginal<br>heritage sites<br>during<br>construction | <ul> <li>Ensure Aboriginal heritage is managed in accordance with <i>Aboriginal Heritage Act 1972</i>. Aboriginal heritage consultation was undertaken with the Gnulli Claimant Group. No Aboriginal heritage sites of significance were identified within the project area.</li> <li>If any materials of significance to Aboriginal people are discovered, works will immediately cease within 100m of the material and the site will be examined by a qualified archaeologist.</li> <li>The DIA will be notified in the event of any significant Aboriginal heritage discovery.</li> <li>If skeletal material is uncovered during works the WA Police Service will also be advised immediately.</li> <li>If remains are determined to be of Aboriginal origin, Native Title claimants are to be consulted on the management of the remains</li> </ul> | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer | MRWA<br>DIA | Government<br>Legislation:<br>Aboriginal Heritage<br>Act 1972 (WA)<br>Aboriginal Heritage<br>Regulations 1974<br>(WA)<br>Native Title Act<br>1993<br>(Commonwealth)<br>Main Roads<br>environmental<br>guidelines:<br>Environmental<br>Assessment and<br>Approval 6707/001<br>Aboriginal Heritage<br>6707/006 |

| No. | Area of<br>Management                                 | Timing       | Objective  | Action   | Responsible<br>Party   | Advice                           | To the<br>Requirements of   |
|-----|---|--------------|--|--|--|----------------------------------|---|
|     | Aboriginal<br>Heritage -<br>Monitoring/<br>Inspection |              | Ensure no<br>disturbances to<br>Aboriginal<br>heritage aspects<br>are caused during<br>the course of the<br>project. | All personnel working on the project will be<br>made aware of the requirements regarding<br>Aboriginal heritage sites during site induction  | Project<br>Manager<br>Environment<br>Office  |                                  |   |
| 14. | Weeds   | Construction | Prevent and<br>reduce the<br>introduction and<br>spread of weeds   | <ul> <li>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.</li> <li>The following machinery and vehicle hygiene measures will be utilised to avoid the inadvertent spread of weeds within any project areas: <ul> <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</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> </ul> </li> </ul> | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer<br>Contractor | MRWA<br>Dept. of<br>Ag &<br>Food | Government<br>Legislation:<br>Biosecurity and<br>Agriculture<br>Management Act<br>2007<br>Agriculture and<br>Related Resources<br>(Declared Plants<br>and Restricted<br>Animals)<br>Regulations 1982<br>(WA)<br>Noxious Weeds<br>Regulations 1973<br>(WA)<br>Main Roads<br>environmental<br>guideline:<br>Environmental<br>Assessment and<br>Approvals 6707/001 |

| No. | Area of<br>Management                   | Timing       | Objective   | Action  | Responsible<br>Party   | Advice      | To the<br>Requirements of |
|-----|---|--------------|---|---|--|-------------|---------------------------|
|     |   |              |   | All site personnel will be advised of the hygiene measures.   |  |             |                           |
|     |   |              |   | If a new weed infection is identified within the area, measures to reduce its spread should be established.   |  |             |                           |
|     |   |              |   | Weed infested soil is not to be imported into the works for rehabilitation or fill.   |  |             |                           |
|     |   |              |   | Declared Plants or environmental weeds<br>listed under the Department of Agriculture<br>and Food's <i>Declared Plants List</i> shall be<br>controlled with the aim of eradication.  |  |             |                           |
|     | Weed -<br>Monitoring/<br>Inspection     | Construction | Ensure no<br>introduced weed<br>species or weed<br>spread occurs  | Inspections of plant equipment entering<br>project area will occur to reduce any<br>infestation of weed species   |  |             |                           |
| 15. | Water Course<br>and Surface<br>Drainage | Construction | Maintain the<br>hydrological<br>regime that exists<br>prior to the<br>construction of the<br>proposal and<br>prevent erosion in<br>areas subject to<br>flooding | Clearing works are expected within a marked<br>floodway; however this floodway consists of<br>low lying surface area with no clearly defined<br>waterway and no riparian vegetation.<br>Clearing within other floodways will be kept to<br>a minimum.<br>Works should minimise vegetation and soil<br>disturbance to prevent soil movement. | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer | MRWA<br>DoW |                           |
|     |   |              |   | All disturbance works will be undertaken<br>during dry seasons to reduce the potential for<br>soil erosion and drainage line siltation and<br>avoid interactions with personnel and heavy<br>rainfall and flood waters.   |  |             | 25                        |

| No. | Area of<br>Management  | Timing       | Objective   | Action   | Responsible<br>Party   | Advice      | To the Requirements of                   |
|-----|--|--------------|---|--|--|-------------|--|
|     | Water Course<br>and Surface<br>Drainage -<br>Monitoring/<br>Inspection |              |   | A permit to interfere with Bed and Banks of<br>relevant floodways will be obtained from the<br>DoW prior to the commencement of<br>construction.<br>Site inspections shall be conducted at regular<br>intervals throughout the course of the project<br>to minimise construction impacts.  |  |             |  |
| 16. | Water Quality  | Construction | Prevent<br>groundwater<br>contamination<br>associated with<br>machinery<br>storage,<br>maintenance, bulk<br>fuel storage and<br>refuelling. | Specific areas shall be designated for the storage, maintenance and refuelling of machinery/vehicles in discussion with the 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.<br>Bulk fuels area to be adequately bunded.<br>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.<br>Stormwater drainage shall be treated and disposed of in accordance with the DoW's <i>Stormwater Management Manual</i> and DEC's requirements. | Project<br>Manager<br>Surveillance<br>Officers<br>Contractor<br>Environment<br>Officer | MRWA<br>DoW | DoW's Stormwater<br>Management<br>Manual |

| No. | Area of<br>Management   | Timing                     | Objective   | Action   | Responsible<br>Party   | Advice      | To the<br>Requirements of   |
|-----|---|----------------------------|---|--|--|-------------|---|
|     | Water Quality<br>– Monitoring/<br>Inspection  |                            |   | Site inspections shall be conducted at regular<br>intervals throughout project time frame to<br>minimise impacts to sensitive environmental<br>aspects.  |  |             |   |
| 17. | Construction area free fr<br>debris; and<br>Rehabilitate<br>temporary of<br>area so that<br>revegetated<br>provides a<br>increase in<br>of native |                            | Leave the project<br>area free from<br>debris; and<br>Rehabilitate<br>temporary cleared<br>area so that the<br>revegetated area<br>provides a net<br>increase in area<br>of native<br>vegetation. | Revegetation of temporary cleared area will<br>be undertaken in accordance with Main<br>Roads' Revegetation Plan for Pastoral Areas,<br>which has been approved by DEC.<br>All waste materials from the development are<br>to be completely removed from the site upon<br>completion of the project. Final clean-up<br>shall be to the satisfaction of the Project<br>Manager and Environment Officer. | Project<br>Manager<br>Surveillance<br>Officers<br>Environment<br>Officer | MRWA        | MRWA Statewide<br>Clearing Purpose<br>Permit – CPS 818/4<br>Main Roads<br>environmental<br>document:<br>Revegetation Plan<br>for Pastoral Areas<br>6707/048 |
|     | Rehabilitation<br>- Monitoring/<br>Inspection   |                            |   | Monitoring of revegetation works will be in accordance with Main Roads' Revegetation Plan for Pastoral Areas   | Environment<br>Officer   | MRWA<br>DEC |   |
| 18. | Record<br>keeping   | All phases of construction | All required<br>records relating to<br>clearing of native<br>vegetation under<br>Main Roads<br>Purpose Permit<br>(CPS 818/4) will<br>be maintained.   | <ul> <li>Clearing:</li> <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>   | Project<br>Manager<br>Environment<br>Officer                             | MRWA<br>DEC | MRWA Statewide<br>Clearing Purpose<br>Permit – CPS 818/4<br>Main Roads<br>environmental<br>guideline:   |

| No. | Area of<br>Management                            | Timing                | Objective   | Action  | Responsible<br>Party   | Advice | To the Requirements of   |
|-----|--|-----------------------|---|---|------------------------|--------|--|
|     |  |                       |   | <ul> <li>Offsets: <ul> <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> </li> <li>Revegetation and rehabilitation of areas: <ul> <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> <li>a description of the revegetation and rehabilitated recorded in an ESRI Shapefile;</li> <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> </li> <li>Control of weed and other pathogens <ul> <li>a copy of any management plan prepared; and</li> <li>for any pathogen the appropriate steps taken</li> </ul> </li> </ul> |                        |        | Environmental<br>Assessment and<br>Approval 6707/001<br>Native Vegetation<br>Clearing Regulations<br>and Permits<br>6707/034 |
|     | Record<br>Keeping -<br>Monitoring/<br>Inspection | All phases of project | Maintain all<br>required<br>environmental<br>and heritage<br>records for<br>auditing and<br>reporting<br>requirements | All environmental and heritage approval records will be maintained on appropriate files for auditing and reporting purposes.  | Environment<br>Officer | MRWA   |  |

#### Appendix A ENVIRONMENTAL ASPECTS AND IMPACT RISK REGISTER

#### Table A1: Risk Likelihood (probability)

| Likelihood     | Description                   | Probability of Occurrence during Project<br>Life |
|----------------|-------------------------------|--|
| Almost certain | Many times daily              | >90%   |
| Likely         | Approximately once daily      | 50% - 90%  |
| Possible       | Once a week to once a months  | 15% - 49%  |
| Unlikely       | Once a month to once a year   | 5% - 14%   |
| Very unlikely  | It has known to have happened | <5%  |

#### Table A2: Risk Magnitude (Consequence) of Impact

| Level | Description   | Consequence   |
|-------|---------------|---|
| 1     | Insignificant | Very low or positive impact on the environment            |
| 2     | Minor         | Limited and/or localised impact on the<br>environment     |
| 3     | Moderate      | Reversible impacts. Wider implications on the environment |
| 4     | Major         | Serious long term implications for the<br>environment     |
| 5     | Catastrophic  | Serious or permanent damage to the<br>environment         |

#### Table A3: Risk Level Matrix

| Risk level Matrix |               |          |          |         |              |  |  |  |  |
|-------------------|---------------|----------|----------|---------|--------------|--|--|--|--|
| Drobobility at    | Consequences* |          |          |         |              |  |  |  |  |
| Probability*      | Insignificant | Minor    | Moderate | Major   | Catastrophic |  |  |  |  |
| Almost Certain    | High          | High     | Extreme  | Extreme | Extreme      |  |  |  |  |
| Likely            | Moderate      | High     | High     | Extreme | Extreme      |  |  |  |  |
| Possible          | Low           | Moderate | High     | Extreme | Extreme      |  |  |  |  |
| Unlikely          | Low           | Low      | Moderate | High    | Extreme      |  |  |  |  |
| Very unlikely     | Low           | Low      | Moderate | High    | High         |  |  |  |  |

\*Consequence: the result from an accident involving a hazard.

\*Probability: the likelihood of a hazard becoming a hazard event.

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## Table A4: Risk Level Matrix Description

| Risk Level | Qualitative Risk Action Description         |  |  |  |  |
|------------|---|--|--|--|--|
| Extreme    | Immediate action required                   |  |  |  |  |
| High       | Senior management attention needed          |  |  |  |  |
| Moderate   | Management responsibility must be specified |  |  |  |  |
| Low        | Manage by routine procedures                |  |  |  |  |

## Minilya-Exmouth Road Environmental Aspects, Impacts and Risk Register

|                                      |                |   |  |   |                  | Initial Risk |               |  |                  | <b>Residual Risk</b> |               |
|--------------------------------------|----------------|---|--|---|------------------|--------------|---------------|--|------------------|----------------------|---------------|
|                                      |                |   |  |   | Likelihood       | Consequence  | Risk          |  | Likelihood       | Consequence          | Risk          |
| Management<br>Area                   | Classification | Aspects   | Impacts  | Possible<br>Consequence   | L                | Env.<br>Harm | Risk<br>Level | Proposed<br>Controls   | L                | Env<br>Harm          | Risk<br>Level |
| Aboriginal<br>Heritage<br>Management | Social         | Ground<br>disturbance<br>works  | Disturbance/<br>interference with<br>a Aboriginal site<br>of significance                | May result in<br>damage to<br>significant<br>Aboriginal heritage<br>aspects and breach<br>of <i>Aboriginal</i><br><i>Heritage Act 1972.</i> | Very<br>Unlikely | Moderate     | Moderate      | Consultation<br>undertaken with<br>Aboriginal<br>claimant group.<br>No site within<br>vicinity of project<br>area.   | Very<br>unlikely | Minor                | Low           |
| Fauna<br>Management                  | Biodiversity   | Construction  | Death/ injury to<br>native fauna<br>including<br>threatened and<br>vulnerable<br>species | Breach of State and<br>Commonwealth<br>legislation.   | Unlikely         | Moderate     | Moderate      | Minimise the<br>amount of<br>vegetation<br>clearing within<br>project area.<br>Allow fauna to<br>move away from<br>project area.<br>Record the death<br>or injury of fauna<br>as an<br>environmental<br>incident.                  | Unlikely         | Minor                | Low           |
| Land<br>Disturbance                  | Biodiversity   | Ground<br>disturbance<br>including the<br>clearing of<br>native<br>vegetation | Disturbance of<br>conservation<br>significant<br>vegetation                              | Impacts to identified<br>priority flora species<br>within project area.<br>Breach of State and<br>Commonwealth<br>legislation.              | Possible         | Major        | Extreme       | Targeted flora<br>survey undertaken<br>to identify<br>significant flora<br>species.<br>Priority flora<br>species to be<br>fences off and for<br>personnel to be<br>aware of priority<br>location and<br>necessary<br>conservation. | Unlikely         | Moderate             | Moderate      |

| Fire Risk             | Biodiversity | Outbreak of<br>Fire  | Damage to<br>vegetation and<br>fauna habitat,<br>risk to human<br>life and<br>infrastructure,<br>damage to<br>adjacent<br>national park | Temporary loss of<br>vegetation and<br>fauna habitat.<br>Risk to human life,<br>infrastructure and<br>impacts to<br>economy.<br>Risk of bush fire.                 | Unlikely | Major    | High     | Development of an<br>Emergency<br>Response Plan.<br>Implementation of<br>EMP with adequate<br>fire control actions.  | Unlikely | Moderate | Moderate |
|-----------------------|--------------|--|---|--|----------|----------|----------|--|----------|----------|----------|
| Waste<br>Management   | Biodiversity | Waste<br>disposal<br>during<br>construction<br>works             | Pollution of<br>natural<br>environment  | Discharge of<br>environmentally<br>harmful pollutants<br>into the<br>environment, which<br>may impact on<br>national park, fish<br>industries and<br>human health. | Unlikely | Major    | High     | Implementation of<br>EMP with adequate<br>waste management<br>protocols.   | Unlikely | Moderate | Moderate |
| Dust<br>Management    | Air          | Construction<br>works  | Generation of<br>dust   | Result in complaints<br>from nearby<br>stakeholders and<br>impacts to public<br>safety.  | Possible | Minor    | Moderate | Implement a Dust<br>Management Plan to<br>ensure likely impacts<br>are diminished.<br>Ensure complaints<br>are handled<br>efficiently via the<br>communication plan. | Possible | Minor    | Moderate |
| Weed<br>Management    | Biodiversity | Construction<br>and land<br>clearing                             | Spread of<br>weed from<br>contaminated<br>machinery,<br>equipment and<br>vehicles   | Spread of weeds<br>and declared plants<br>within project area<br>which may lead to<br>the degradation of<br>surrounding<br>environment.                            | Likely   | Moderate | High     | Implementation of<br>weed hygiene<br>management actions<br>to minimise impact of<br>construction works.  | Unlikely | Moderate | Moderate |
| Temporary<br>clearing | Biodiversity | Rehabilitation<br>of temporary<br>cleared areas<br>– Borrow pits | Failure to<br>correctly strip<br>and stockpile<br>topsoil and<br>vegetation   | Loss of soil and<br>native seed viability<br>in topsoil. Increase<br>likely impacts of<br>weed spread.   | Possible | Moderate | Moderate | Ensure stockpiling<br>and revegetation is<br>undertaken in<br>accordance with<br>MRWA revegetation<br>plan and EMP.  | Unlikely | Moderate | Moderate |

| Erosion &<br>Sediment<br>Control        | Land            | Clearing areas                                    | Unnecessary<br>clearing of<br>vegetation  | Loss of biodiversity<br>and increase<br>likelihood of erosion<br>and dust issues.   | Possible | Minor | Moderate | Ensure clearing is<br>kept to a minimum<br>and revegetation of<br>temporary cleared<br>area occurs as<br>soon as possible.  | Unlikely      | Minor    | Low      |
|---|-----------------|---|---|---|----------|-------|----------|---|---------------|----------|----------|
| Hydrocarbons<br>/Chemical<br>Management | Land &<br>Water | Storage & use<br>of<br>hydrocarbons/<br>chemicals | Spills of<br>chemicals and<br>hydrocarbons<br>onto the<br>ground or into<br>waterways | Result in<br>contamination of<br>site, surface and<br>groundwater. May<br>result in death of<br>flora and fauna and<br>loss of biodiversity,<br>may impact on<br>national park, fish<br>industries and<br>human health. | Possible | Major | Extreme  | Ensure spill<br>response kits are<br>available at all<br>times on site,<br>chemicals are<br>stored correctly and<br>adequate response<br>actions have been<br>incorporated into<br>EMP. | Likely        | Moderate | Moderate |
| Hydrocarbons<br>/Chemical<br>Management | Land            | Weed<br>Spraying                                  | Drift of<br>herbicides<br>outside of<br>designated<br>area                            | Result in death of<br>native vegetation,<br>including non<br>targeted flora and<br>protected flora.   | Unlikely | Minor | Low      | Use of only<br>registered herbicide<br>operators.<br>No straying should<br>be undertaken<br>during windy<br>conditions.   | Very Unlikely | Minor    | Low      |

#### Appendix B ENVIRONMENTAL INCIDENT CATEGORY (from 6707/042 Environmental Guideline – Environmental Incident Reporting and Investigation)

| Incident Category                        | Definition  | Examples   |
|--|---|--|
| MINOR<br>ENVIRONMENTAL<br>INCIDENT       | Where the environmental impact is limited and is confined<br>within the work site. Environmental impacts are readily<br>addressed through clean up or changes to work practices.<br>Breach of project or contract EMP.<br>NB: Minor incidents that have a high frequency of<br>recurrence are indicative of underlying issues associated<br>with work practices. This in turn increases the potential for | Uncontained hydrocarbon spillage <200 L.<br>Dust suppression spray failure without causing off site impact.  |
| SIGNIFICANT<br>ENVIRONMENTAL<br>INCIDENT | <ul> <li>these minor incidents developing into significant incidents.</li> <li>Incident involving off-site environmental impacts that requires significant resources to address.</li> <li>Non-compliance with statutory requirements or environmental criteria requiring reporting to authorities.</li> </ul>   | Clearing outside of approved area (<100m <sup>2</sup> ).<br>Over spray of herbicides damaging nearby crops or native<br>vegetation.<br>Dust monitoring results exceed statutory criteria.<br>Failure to submit compliance report to DEC within the<br>timeframe.               |
|  | Non-conformance with EMP occurring within the work site<br>where the environmental impact is significant and has the<br>potential for an offsite environmental impact.  | Uncontained hydrocarbon spillage >200 L.<br>Dust suppression spray failure causing actual off-site impact.<br>Unauthorised clearing of rare flora.   |
| MAJOR<br>ENVIRONMENTAL<br>INCIDENT       | Any on-site or off-site environmental incident resulting in significant long term environmental harm<br>An incident resulting in prosecution under environmental laws.  | Unauthorised clearing of a large area (>100 m <sup>2</sup> ).<br>Actual pollution of waterways (eg. by on-site or off-site fuel<br>spills).<br>Land disturbance resulting in damage to public infrastructure<br>(power line or water pipes) which impact on a group of people. |

#### **Appendix C** TIMING AND NOTIFICATION OF ENVIRONMENTAL INCIDENTS (modified from 6707/042 Environmental Guideline – Environmental Incident Reporting and Investigation)

| Incident Category | Personnel to be Notified by Whom  | Timing of Notification  |
|-------------------|---|---|
| MINOR             | <ul> <li>Observer(s) notifies the relevant Supervisor</li> </ul>  | <ul> <li>By the end of the working day.</li> </ul>  |
| SIGNIFICANT       | <ul> <li>Observer(s) notifies the relevant Supervisor</li> <li>Supervisor notifies the Project Manager and<br/>Environment Officer</li> <li>Project Manager notifies Manager Environment and DEC<br/>if the incident is a non-compliance with statutory<br/>requirements or has resulted in pollution or<br/>environmental harm.</li> </ul> | <ul> <li>Upon completion of remediation actions.</li> <li>Upon completion of initial incident assessment.</li> <li>Upon completion of initial incident assessment.</li> </ul> |
| MAJOR             | <ul> <li>Observer(s) notifies the relevant Supervisor.</li> <li>Contractor's Supervisor notifies Project Manager and<br/>Environment Officer.</li> <li>Project manager notifies DEC, Manager Environment<br/>and relevant Executive Directors.</li> </ul>   | <ul> <li>Immediately.</li> <li>Immediately.</li> <li>Upon completion of initial incident assessment and/or site emergency response procedure.</li> </ul>                      |

#### Appendix D ENVIRONMENTAL INCIDENT AND INVESTIGATION REPORT

| CONTRACT<br>NUMBER                         | CONTRACTOR              |                     | REG     | iION     |        | INCIDENT<br>REPORT<br>NUMBER |
|--|-------------------------|---------------------|---------|----------|--------|------------------------------|
| PART A – INCIDENT DET                      | AILS                    |                     |         |          |        |                              |
| OBSERVATION DETAILS                        | 3                       |                     |         |          |        |                              |
| Name:                                      |                         |                     | Po      | osition  | :      |                              |
| Company:                                   | Select                  |                     |         |          |        |                              |
| DETAILS OF INCIDENT                        |                         |                     |         |          |        |                              |
| Location:                                  | Time:                   | Select              | Da      | ate:     | 1      | 1                            |
| INCIDENT CATEGORY (<br>Category Attached): | Refer Environmenta      | Il Incident         |         | Select   |        |                              |
| MANAGEMENT NOTIFIE                         | D (Refer Environme      | ental Incide        | nt Not  | ificatio | n Pro  | ocess attached)              |
| Select                                     |                         |                     |         |          |        |                              |
| DETAILS OF INCIDENT (<br>happened?)        | i.e. Where did the in   | ncident occ         | ur? W   | hat ha   | ppen   | ed? How the incident         |
|  |                         |                     |         |          |        |                              |
| IMMEDIATE REMEDIAL                         | ACTION TAKEN <b>(To</b> | Stop, Cont          | rol or  | Contai   | in the | Incident)                    |
|  |                         |                     |         |          |        |                              |
| DESCRIPTION OF ENVI                        | RONMENTAL IMPAC         | CT <b>(Size, Dι</b> | iration | ı)       |        |                              |
|  |                         |                     |         |          |        |                              |

PART B – INCIDENT INVESTIGATION

7. DESCRIPTION OF EVENTS LEADING UP TO THE INCIDENT

8. CONTRIBUTING FACTORS / IMMEDIATE CAUSES

9. LIKELY UNDERLYING CAUSES

| 10. | CORRECTIVE AND PREVENTIV   | VE ACTION        |        |            |               |            |
|-----|----------------------------|------------------|--------|------------|---------------|------------|
|     | DESCRIPTION                |                  |        | onsible    | Target        | Date       |
|     |                            |                  | Pe     | rson       | Completion    | Completion |
|     |                            |                  |        |            |               |            |
|     |                            |                  |        |            |               |            |
|     |                            |                  |        |            |               |            |
|     |                            |                  |        |            |               |            |
| 11. | TEAM INVESTIGATION         |                  |        |            |               |            |
|     | NAME                       | POSITION         |        |            | SIGNATUF      | RE         |
|     |                            | (Investiga       | tion   |            |               |            |
|     |                            | (Team            |        |            |               |            |
|     |                            | (Team            |        |            |               |            |
|     |                            | (Team            |        |            |               |            |
| 12. | COMMENTS (Contractor's Rep | presentative)    |        |            |               |            |
|     |                            |                  |        |            |               |            |
|     |                            |                  |        |            | Signature     | & Date     |
| 13. | COMMENTS (Contract Manage  | er)              |        | I          |               |            |
|     |                            |                  |        |            |               |            |
|     |                            |                  |        |            | Signature     | & Date     |
| 14. | COMMENTS (Main Roads Envi  | ironment Manager | – Sign | ificant li | ncident Only) |            |
|     |                            |                  |        |            |               |            |
|     |                            |                  |        |            | Signature     | & Date     |

#### Appendix E

## **ENVIRONMENTAL CHECHLIST**

#### Minilya-Exmouth Road Overtaking Opportunities

| Date of Inspection:                                      | Officer:      | Checklist Sequence Number: |  |
|--|---------------|----------------------------|--|
| Serials from previous inspection that required fur       |               |                            |  |
| Have all the further actions identified from previous in | □ Yes□ No□ NA |                            |  |

| Number | Aspect                                       | Scope  | Compliance    | Comments/Observations |
|--------|--|--|---------------|-----------------------|
|        | General                                      | Have all staff received an environmental induction?  | □ Yes□ No□ NA |                       |
|        |  | Does the environmental induction require updating?   | □ Yes□ No□ NA |                       |
|        | Aboriginal<br>Cultural and<br>Heritage Sites | No Aboriginal sites have been disturbed or located   | □ Yes□ No□ NA |                       |
|        | Borrow Pits                                  | Visual inspection of active pit and rehabilitated pits for weeds, topsoil management & regrowth. | □ Yes□ No□ NA |                       |
|        | Weed<br>Management                           | Field inspection for the presence of weeds, particularly in problem areas.                       | □ Yes□ No□ NA |                       |
|        |  | Plant & vehicle inspection logs up to date   | □ Yes□ No□ NA |                       |
|        |  | Washdown register up to date   | □ Yes□ No□ NA |                       |
|        |  | Presence of weeds and implementation of mitigation measures.                                     | □ Yes□ No□ NA |                       |

| Number | Aspect                         | Scope   | Compliance    | Comments/Observations |
|--------|--------------------------------|---|---------------|-----------------------|
|        |                                | Herbicide use.  | □ Yes□ No□ NA |                       |
|        | Drainage<br>Management         | Evidence of scour, erosion around culverts and batters  | □ Yes□ No□ NA |                       |
|        |                                | Visually inspect native vegetation<br>around bores for draw down effects<br>eg sudden dying off | □ Yes□ No□ NA |                       |
|        | Noise<br>Management            | Compliance with plant and vehicle noise maintenance activities.                                 | □ Yes□ No□ NA |                       |
|        |                                | Investigations of received complaints.  | □ Yes□ No□ NA |                       |
|        | Vegetation                     | Inspection of clearing lines, temporary fences and markings                                     | □ Yes□ No□ NA |                       |
|        |                                | Has any over clearing occurred since last inspection?   | □ Yes□ No□ NA |                       |
|        | Priority Species<br>Management | Are all known populations priority flora marked and sign posted                                 | □ Yes□ No□ NA |                       |
|        |                                | Inspect priority flora populations for damage   | □ Yes□ No□ NA |                       |
|        | Fire Prevention                | Does the fire trailer have water in it?   | □ Yes□ No□ NA |                       |
|        |                                | Observations of any potential ignition sources or fuel source                                   | □ Yes□ No□ NA |                       |
|        | Dust<br>Management             | Is dust mitigation being carried out?   | □ Yes□ No□ NA |                       |
|        |                                | Have any complaints about dust been received from residents?                                    | □ Yes□ No□ NA |                       |

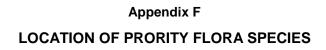
| Number | Aspect                                  | Scope  | Compliance    | Comments/Observations |
|--------|---|--|---------------|-----------------------|
|        | Handling,<br>Storage and<br>Disposal of | Implementation of measures to minimise the risk of spills and land contamination.                        | □ Yes□ No□ NA |                       |
|        | Dangerous<br>Goods                      | Inspect chemical and fuel storage areas  | □ Yes□ No□ NA |                       |
|        |   | Are fuels, oils & hazardous<br>substances being stored in<br>bunds/drip trays with adequate<br>capacity? | □ Yes□ No□ NA |                       |
|        |   | Is a 3000L spill kit located at the designated refuelling point?   | □ Yes□ No□ NA |                       |
|        |   | Do all refuelling vehicles have spill kits?  | □ Yes□ No□ NA |                       |
|        | Waste<br>Management                     | Are waste containers clearly labelled?   | □ Yes□ No□ NA |                       |
|        |   | Visual inspection for litter on site   | □ Yes□ No□ NA |                       |
|        |   | Are waste materials being regularly removed from site?   | □ Yes□ No□ NA |                       |
|        | Fauna<br>Management                     | Fauna encounters including death or injury.  | □ Yes□ No□ NA |                       |
|        |   | Any significant encounters with native fauna (ie snakes)?  | □ Yes□ No□ NA |                       |
|        | Environmental<br>Incidents              | Have there been any environmental incidents since the last inspection?                                   | □ Yes□ No□ NA |                       |
|        |   | If so, have they been reported and investigated?   | □ Yes□ No□ NA |                       |

| Number | Aspect                                      | Scope   | Compliance    | Comments/Observations |
|--------|---|---|---------------|-----------------------|
|        | Rehabilitation<br>and Topsoil<br>Management | Visual inspection of rehabilitation<br>and vegetation along whole<br>alignment, noting areas where<br>vegetation is in a poor condition | □ Yes□ No□ NA |                       |
|        | Summary                                     | List serials above that require further action  |               |                       |

| Additional Comments: |  |
|----------------------|--|
|                      |  |
|                      |  |
|                      |  |
|                      |  |
|                      |  |
|                      |  |

Signed: \_\_\_\_\_

Date:



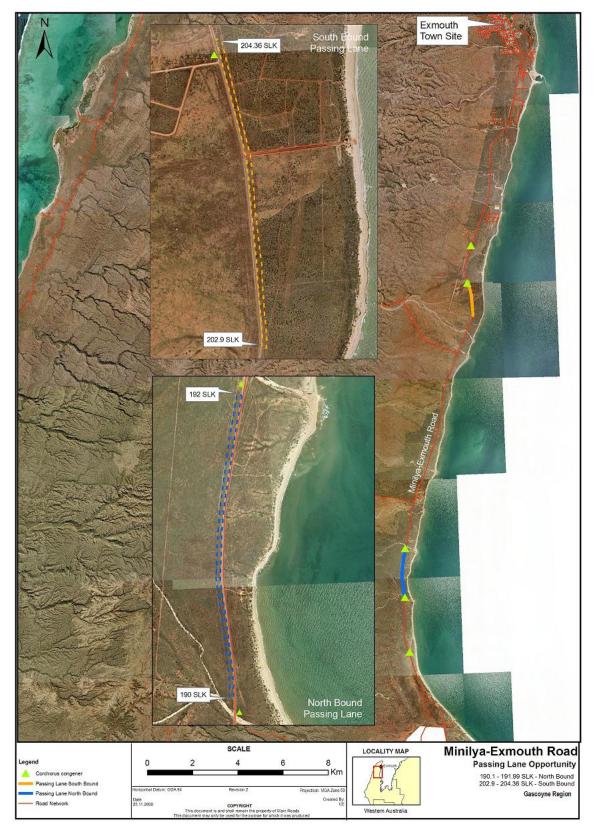


Figure 2: Location of priority flora species within vicinity of north and south bound passing lanes