



# Management Plan


## Gateway WA Perth Airport and Freight Access Project

### Operational Environmental Management Plan

Document No. GWA-PW-MNP-EN-0021 Rev 02

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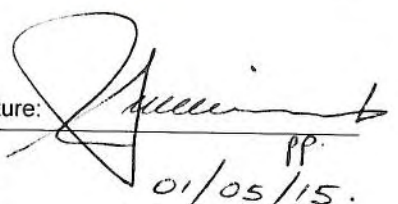
Signature: 

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Date: 1/5/15

Approved:

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Signature: 

Position: Alliance Director

Date: 01/05/15.  
PP

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## REVISION RECORDING

Rev	Date	By (Initials)	Description of Revision
A	11/02/2015	AE	Draft for internal and Main Roads review
B	4/03/2015	AE	Draft with Main Roads comments
C	5/03/2015	AE	Draft with additional Main Roads coments
1	5/03/2015	AE	Final for submission to DoE
2	1/05/2015	AE	Second submission to DoE based on their comments

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# 1 INTRODUCTION

## 1.1 Scope of Works

The Gateway WA Perth Airport and Freight Access Project (the 'Project') involves road upgrades and new construction on the section of Tonkin Highway between Great Eastern and Roe Highways, as well as part of Leach Highway from Orrong Road to Perth Airport. The Project area is located immediately south and west of the existing Perth Airport and includes development within Commonwealth land at the Perth Airport (Figure 1).

The following road and bridge works were undertaken as part of the Project:

- Upgrade of Tonkin Highway between Great Eastern Highway and Roe Highway
- Major freeway to freeway interchange at Leach Highway / Tonkin Highway
- A new interchange at Tonkin Highway and Boud Avenue
- Diamond, grade separated interchange at Tonkin Highway / Horrie Miller Drive / Kewdale Road
- Upgraded interchange at Roe Highway / Tonkin Highway
- Intersection upgrade at Leach Highway / Abernethy Road and
- Upgraded and control of access along Leach Highway between Orrong Road and Tonkin Highway.

## 1.2 Purpose of This Plan

This Operational Environmental Management Plan (OEMP) has been prepared to describe the planned environmental management for the operation and maintenance phase of the Project. This plan specifically addresses the condition 6 of the Project approval (EPBC 2010/5384) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), as well as summarises the overall planned management of other environmental aspects.

Condition 6 of EPBC 2010/5384 states:

*The person taking the action must prepare and submit for approval an Operation Environment Management Plan (OEMP) (or plans, for each construction zone) to the Minister for the better protection of listed threatened species, permanently protected wetlands and Commonwealth land. The OEMP must be submitted for approval by the Minister at least one (1) month prior to practical completion of any construction zone. The OEMP must include, but not be limited to:*

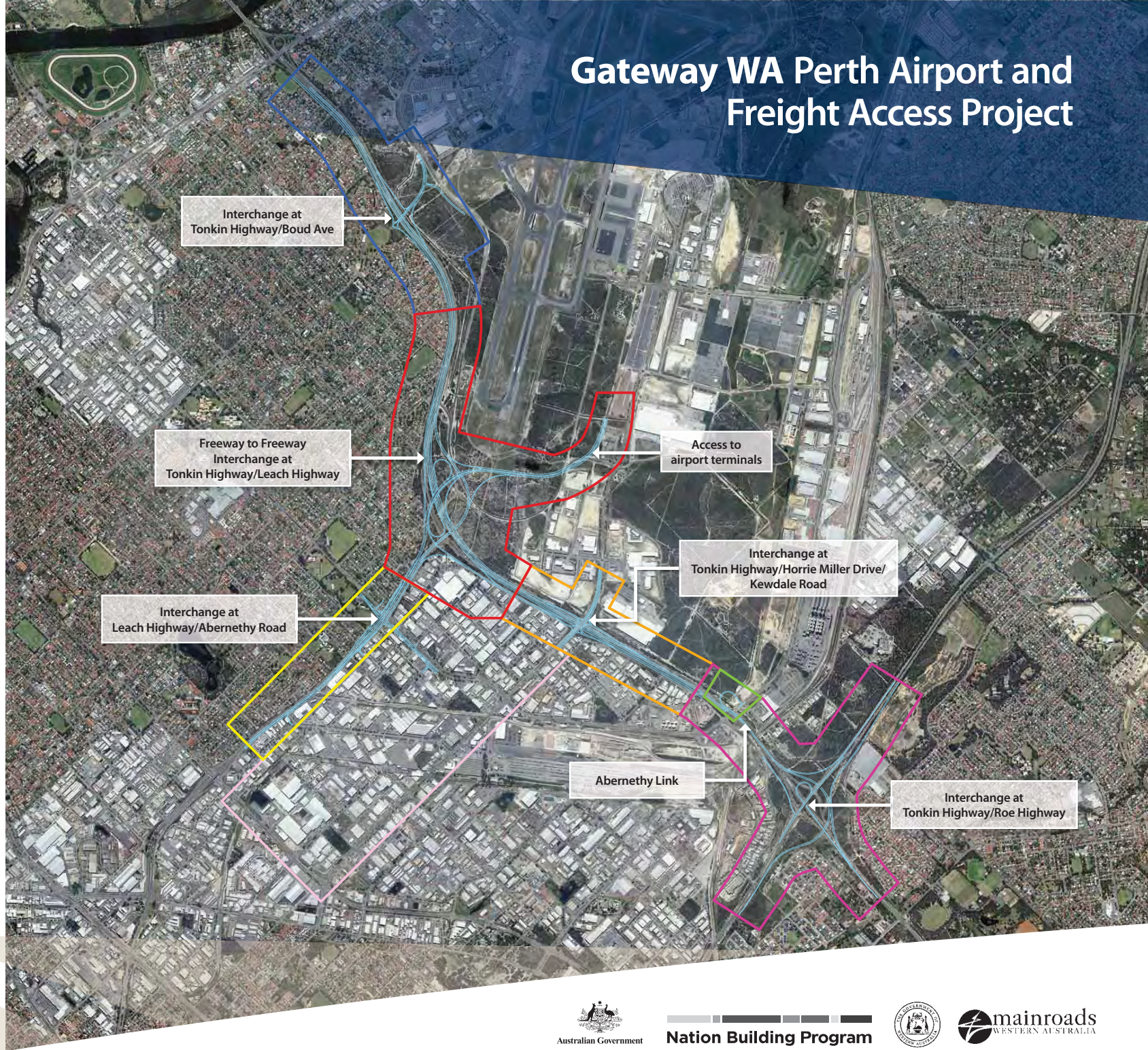
- a) Measures to prevent the slashing/mowing or accidental clearing of Keighery's Macarthuria (Macarthuria keighery) and Wavy-leaved Smokebush from ongoing maintenance activities;*
- b) Sediment and erosion control measures to restrict the movement of sediment onto and from the project footprint; and*
- c) Stormwater management measures compliant with the Stormwater Management Manual for Western Australia and the quantity and quality criteria set by the WA Department of Water.*

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*Operation must not commence until the OEMP has been approved by the Minister.  
The OEMP must be implemented as approved.*

This plan does not seek to repeat standard Main Roads (or their counterparts) environmental management systems, and will refer to existing processes and plans as necessary. Some of the key referenced documents are included within the submission of this plan, however they are included for information purposes only, and may be changed at a later time in order to ensure continuous improvement occurs. It is not intended for these documents to be reassessed by the Department of the Environment (DoE) after every change.





**Figure 1- Project Overview Map**

**Legend**

**Northern Zone**

- Area 1 – Tonkin Hwy, GEH to Elson
- Area 2 – Tonkin Hwy/Leach Hwy

**Western Zone**

- Area 4 – Leach Hwy/Abernethy Rd
- Area 5 – Kewdale Area

**Southern Zone**

- Area 3 – Tonkin Hwy/Kewdale Rd/Horrie Miller Dr
- Area 6 – Tonkin Hwy/Roe Hwy
- Area 7 – Abernethy Rd Ramp Connection

Note: majority of Area 4, and Areas 5 and 7 do not fall within the Project approval under the EPBC Act as they do not significantly impact matters of NES



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## 2 ORGANISATION AND TIMING

### 2.1 Main Roads WA and Gateway WA

Main Roads WA (Main Roads) remains the proponent of the Project and is ultimately responsible for the operation of the road network. Gateway WA, an alliance comprising of Main Roads, Leighton Contractors, Georgiou, GHD, AECOM and BG&E, were commissioned to design and construct the Project.

### 2.2 Project Timing

The Project will reach practical completion in different stages. The anticipated dates are shown below, however these are subject to change:

- Area 3 (Horrie Miller Drive, Tonkin Highway, Kewdale Road) – July 2015
- Area 2 (Tonkin and Leach Highways) – July 2015
- Area 1 (Tonkin Highway and Boud Avenue) – October 2015
- Area 6 (Roe and Tonkin Highways) – February 2016

Once each section reaches practical completion, Gateway WA will enter the defects correction period which shall include:

- Correct any defects
- Maintain landscaping and revegetation areas
- Maintain drainage infrastructure (except when damaged through operation)
- Others activities as per the contract between Main Roads and Gateway WA

During this period (3 years), Gateway WA activities will be fewer, however they will have a similar nature to those undertaken during the construction phase of the Project. Hence any activities undertaken by Gateway WA will be done in accordance with the DoE approved Construction Environmental Management Plan (GWA-PW-MNP-EN-0001).

Any works from the end of practical completion which Main Roads undertakes will be done in accordance with this OEMP. This includes works not included within the contract between Main Roads and Gateway WA, such as cleaning of graffiti and repairs to road infrastructure caused by road users, during the defects correction period. Once this period ceases, Main Roads will undertake all maintenance activities for the Project.

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## 3 GOVERNANCE

### 3.1 Federal Environmental Legislative Requirements

Existing federal legislation that the operation of the Project is required to adhere to in relation to environmental management is listed in the table below.

**Table 1 Commonwealth Legislation Relating to Environmental Management**

Legislation	Relevance	Specific trigger	Regulatory authority
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Protection of environmental matters of national significance. Impacts on Commonwealth land.	Impacts to Black Cockatoo habitats and populations of Wavy-leaved Smokebush and Keighery's Macarthuria.	DoE – project was assessed by regulator and approved with conditions. This plan fulfils condition 6 of the approval.
<i>Airports Act 1996</i>	Outlines requirements for land used for airports, including environmental management.	Portion of Project on Commonwealth land until such time as it is transferred to the State.	Department of Infrastructure and Transport/ Perth Airport.
<i>Airports (Environment Protection) Regulations 1997</i>	Regulates environmental standards and states other requirements on airport land.	Portion of Project on Commonwealth land until such time as it is transferred to the State.	Department of Infrastructure and Transport.

### 3.2 Environmental Management System

All operational and maintenance activities for the Project will be undertaken in line with the Main Roads Environment Management System and Environment Policy. These are subject to continual improvement and are accredited under ISO 14001. The current versions of these can be found in Appendix A.

Main Roads has a series of Guidelines for which works are required to adhere to. In addition, Downer Mouchel's Safety and Environmental Management Plan for the Metropolitan region will be in place which was approved by Main Roads.

Please note these policies, guidelines and management plans are have been developed for Main Roads operations and will be applied to the Gateway WA project.



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## 4 POTENTIAL IMPACTS

### 4.1 Specific Project Risks

During operation, risk to the environment is considered to be minor in comparison to the construction phase, with only minor repair works generally undertaken. Specifically to the Gateway WA Project, the high risks during operation are considered to be:

- Unauthorised damage to rare flora
- Uncontrolled movement of sediment and erosion outside the Project
- Inadequate stormwater management

Further information on these specific risks is detailed in the section below.

#### 4.1.1 Rare Flora

Two identified rare flora species occur within the Project, namely the Wavy Leaved Smokebush (*Conospermum undulatum*) and Keighery's Macathuria (*Macathuria keigheryi*). Although some were cleared during the construction works, a number of these remain within the Project footprint. Additionally over time it is likely individuals will grow within the batters themselves. The key activities which may put these individuals at risk are weed control and slashing. Figures 2 and 3 show the indicative locations of these two populations.

#### 4.1.2 Sediment and Erosion

With the change in topography, there exists the potential for sediment runoff and erosion during rain events. Where not well controlled, this can result in the blow out of batters and sedimentation, and possible death of adjacent vegetation. The design of the Project should mitigate the majority of these issues, providing suitable pathways for surface water flow.

#### 4.1.3 Stormwater Management

Inadequate stormwater management can lead to flooding of roads and the surrounding environment during large rainfall events. In addition it can also lead to uncontrollable erosion and sediment movement. The Project was designed and constructed to incorporate the principles for management within the Stormwater Management Manual for Western Australia (Department of Water, 2004-2007). These include the requirement for detention and infiltration of surface water from road runoff for the large majority of rainfall events (1 year, 1 hour event, up to 16 mm of rain).

During the design phase, the drainage design was reviewed internally by Gateway WA, externally by Main Roads and finally by an independent verifier external to both parties. The drainage design was also reviewed by:


- Department of Water
- Water Corporation
- Perth Airport
- City of Belmont
- Shire of Kalamunda





**Rare Flora Areas -  
Macarthuria Keigheryi**

**Figure 2**

  
 0 25 50 75 100 125 150 175 200  
 Metres  
 1:5,048 (A3)  
 GDA 1994 Perth Coastal Grid 1994

**LEGEND**

- Design (current as of April 2015)
- Rare Flora Areas**
- Conospermum undulatum*
- Macarthuria keigheryi*

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Rare Flora Areas -  
*Conospermum undulatum*

Figure 3



0 25 50 75 100 125 150 175 200

Metres

1:5,048 (A3)

GDA 1994 Perth Coastal Grid 1994

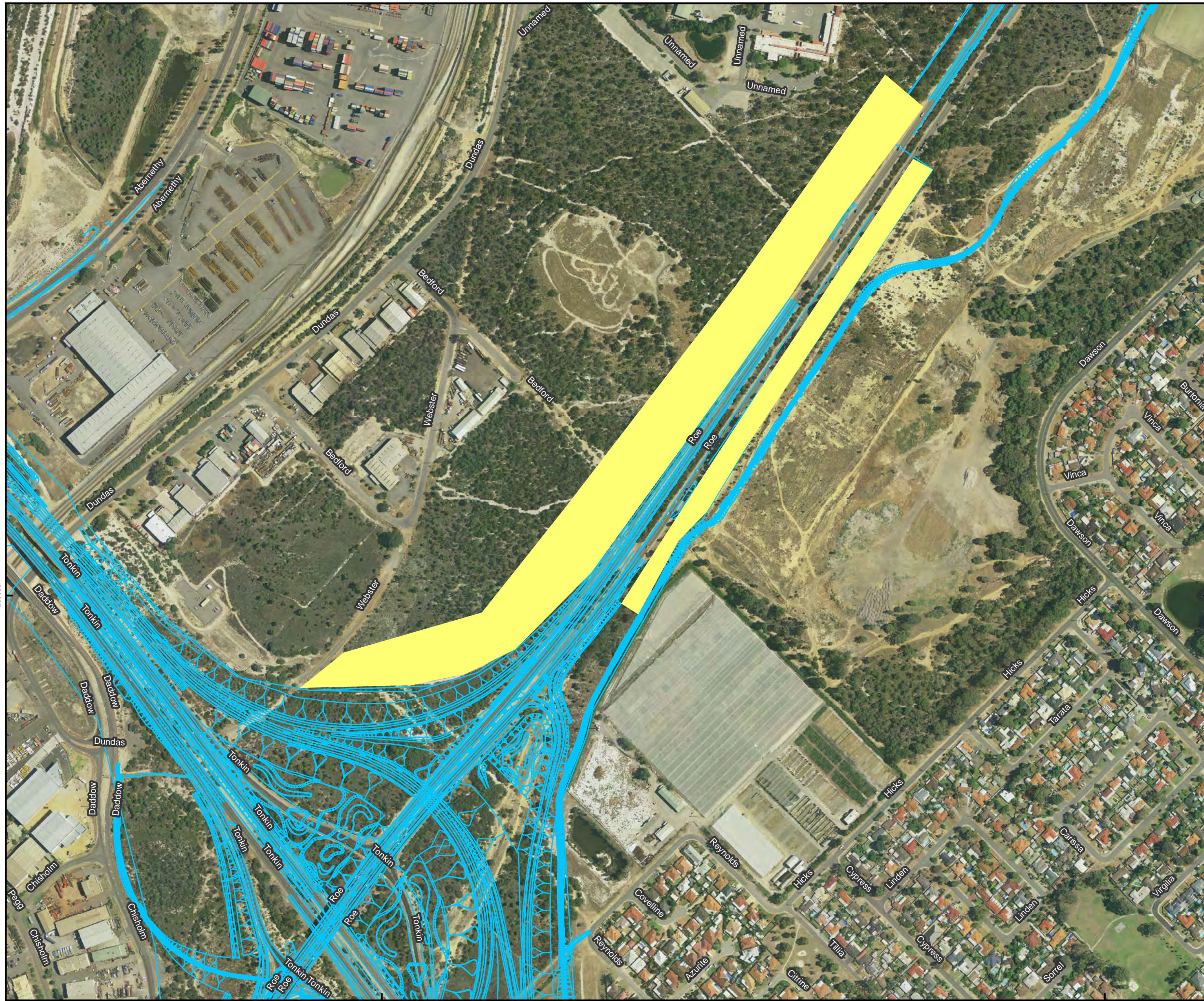
LEGEND

— Design (current as of April 2015)

Rare Flora Areas

■ *Conospermum undulatum*

■ *Macarthuria keigheryi*



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## 5 ENVIRONMENTAL MANAGEMENT CONTROLS

### 5.1 Management and maintenance guidelines

Main Roads has a number of management and maintenance guidelines in place for the management and maintenance of its road network. Note that these guidelines can and will change depending on Main Roads current practices. Guidelines that pertain to this OEMP include:

- *Operational Guideline 59 Special Environmental Areas*
- *Operational Guideline 61 Taking flora from Main Roads land*
- *Operational Guideline 65 Rare Flora Permit for Routine Road Maintenance*
- *Operational Guideline 94 Roadside Vegetation Management and Fire Hazard Control for Metropolitan Region*
- *Maintenance Work Code Guidelines*
- *Road Maintenance Intervention Parameter Guidelines*
- *Safety and Environment Management Plan, Section 11 (Downer Mouchel)*

If changes to the Safety and Environment Management Plan are required, they will be approved by Main Roads prior to implementation. If another party undertakes the works, Main Roads will approve their environmental management processes prior to allowing works to occur.

### 5.2 Inspections and Scheduling Works

The Project will form part of the Main Roads metropolitan operational assets which will be subject to the routine inspections and maintenance cycles applicable to network, in accordance with the relevant Main Roads guidelines, including those listed in Section 5.1, and as funding permits.

The purpose of these inspections is to detect any defects and/or maintenance issues with the network and associated infrastructure. Drainage, sediment and erosion issues will be detected during these inspections.

Other tasks, such as weed control, are undertaken on a regular basis regardless of the results of inspections.

Main Roads has a *Road Maintenance Intervention Parameter Guideline* which details the type of defect, maximum intervention level and maximum response time. These include defects such as:

- *Drainage: integrity and functionality of all associated drainage infrastructure*
- *Batters and Embankments: specifically any scour, erosion and/or instability.*
- *Vegetation: general vegetation issues relating to road use, including fire hazards, weeds (declared plants and other weeds)*
- *Litter and overall tidiness*

### 5.3 Rare Flora

Operation of the Project may see the need for maintenance works within the vegetated areas of the road reserve which may impact rare flora. This could be in the form of routine works such as mowing or slashing. Additionally in the future the



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Project may be upgraded in the future which would likely involve clearing, potentially of the neighbouring rare flora. Given both the recorded rare flora species in the Project area are relatively small, any slashing or mowing will likely have a similar impact regardless of the species type.

Rare flora is treated as one of the types of 'Special Environmental Areas' (SEA's) within Main Roads' road reserves and as such is managed in accordance with *Main Roads Operational Guideline 59 Special Environmental Areas (SEA's)*. This involves highlighting the presence of the rare flora both on ground and on electronic Main Roads' databases. On-site marking is undertaken with the purpose of highlighting the area to those working in the area, but not so it is obvious to the general public. This minimizes the risk of targeted vandalism or removal of rare flora for unauthorised purposes.

The actual works themselves within these rare flora areas will be undertaken as per *Main Roads Operational Guideline 65 Rare Flora Permit for Routine Road Maintenance*. This guides those undertaking works within the vegetated roadside areas with directions as to how to avoid disturbance to rare flora. This guideline is based on the conditions received from a State Permit to Take issued by the Department of Parks and Wildlife.

Although a portion of the Project occurs on Commonwealth land, this is scheduled to be transferred to the State shortly after practical completion. It intended for the requirements of the State Permit to Take to be implemented within the Commonwealth land sections of the Project once practical completion is reached. The reasons for this are firstly, DPaW are the relevant experts on Western Australian rare flora, and secondly the land will shortly become State land. Additionally, it is unlikely for major maintenance activities to be undertaken by Main Roads prior to this land transfer, particularly given Gateway WA are required to maintain the revegetation and landscape works during the defect correction period.

As required by this permit, the local Department of Parks and Wildlife office is notified a month prior to a proposed road maintenance activity adjacent to a known location of declared rare flora. This may include slashing or mowing of the vegetation adjacent to the road. At this point an approach, specific to the task and the qualities of the rare species, is generally determined with DPaW.

Any future works to the Project which may include clearing will be assessed by the Main Roads WA Environment Team for necessary environmental legal requirements. Any clearing of the rare flora for Project upgrades will be managed through these legal processes and may include the requirement to obtain new approvals through the Department of the Environment.

## **5.4 Sediment and Erosion**

The Project has been designed and constructed to minimise the risk of erosion and sediment leaving the area and into the adjacent environment. This has been done through numerous measures including, but not limited to:

- Rock pitching to stabilise steeper slopes (greater than 1:3 slope)
- Revegetation and landscaping to stabilise other batters/slopes
- Swale and detention basins, thereby allowing infiltration of stormwater and road runoff onsite, and preventing the export of sediment off site

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- Generally no direct connection to drains or other sources outside the Project area.

During the defects liability period following construction, the Gateway WA alliance will be directly responsible for the detection and correction of any erosion and sedimentation events. These activities will be managed under the existing site CEMP.

It is likely that any sedimentation and erosion events will occur when the earthworks are freshly completed and prior to the successful establishment of landscaping. That is most of the erosion and sedimentation events are likely to occur before the end of the defects liability period.

Following the defects liability period, there will be regular inspection of the Project area by Main Roads, and any impacts of sediment and/or erosion will be observed and recorded. The correction of erosion and sedimentation will be determined by Main Roads personnel (or their maintenance contractors) at the time of the event as to ensure a practicable and long term approach to the issue.

Where these inspections determine maintenance works are required, temporary erosion and sediment controls will be in place where necessary, depending up on the nature of the maintenance works and location on the Project. This may include installing a silt fence around the works site, or ensuring any permanent scour protection damaged during related works is replaced. This will be determined and documented within the Contractor's site Job Safety and Environment Analysis (or similar).

## 5.5 Stormwater Management

The Project drainage was designed and constructed to incorporate the Water Sensitive Urban Design (WSUD) principles for management within the Stormwater Management Manual for Western Australia (Department of Water, 2004-2007). This was a requirement of the contract between Main Roads and Gateway WA. At the commencement of operation, the stormwater network will have been constructed as approved by the associated authorities. These designs can be found within the Design Reports<sup>1</sup> for each of the Project areas.

Examples of how Gateway WA have designed and constructed the Project to meet the requirements of the WA Stormwater Management Manual include, but not limited to, incorporating the following principles:

- Generally the design has used the Project area to maintain the pre-development runoff characteristics of the site for at least up to a 1 in 1 year ARI event;
- Minimising interruption to existing drainage systems or modification of existing surface-flow patterns;
- Using surface flow in preference to piped drains, with long pipe runs broken at regular intervals to discretise the system;
- On-site infiltration, or infiltration at source through use of shallow swales and basins;

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<sup>1</sup>Tonkin Highway H107 – Area 1 – Tonkin Boud Interchange – Design Report, Gateway WA 2014  
Tonkin Highway – Area 2 – Tonkin Leach Interchange – Design Report, Gateway WA 2013  
Tonkin Highway H107 – Area 3 – Horrie Miller Drive, Kewdale Rd Interchange – Design Report, Gateway WA 2013  
Area 04 Design Report – Leach Highway and Abernethy Road Interchange, Gateway WA 2013  
Tonkin Highway H017 – Area 6 – Roe Highway Interchange – Design Report, Gateway WA 2014

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- Vegetated swales which are generally effective at removing sediment during low flows;
  - Detention and retention basins which retard flows by holding water and releasing it to the downstream system over a longer period of time or recharging the superficial aquifer;
  - Inclusion of baffled outlets to trap floating pollutants within detention basins;
  - Installation of gross pollutant devices where insufficient room for retention/infiltration basins
  - Vegetated road verges and median strips to slow runoff discharge, encourage infiltration, and prevent erosion; as well as improving the amenity.

During operation the importance of this drainage system continuing to function is reliant on regular maintenance. Similar to the section above, the regular inspections of the Project area will ensure any required maintenance to the stormwater network will be determined and addressed.

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## 6 CONCLUSION

With the construction of the Gateway WA project, there was the potential for ongoing impacts to the environment during the operation of the road. This includes impacts from poor stormwater management; significant erosion and sediment; and clearing, slashing or mowing of rare flora. Through measures implemented within the drainage design of the Project, and Main Roads (and its counterparts) operating procedures, these potential impacts will be minimized.



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## **APPENDIX A: Main Roads Environment Policy and ISO14001 Accreditation**

Please note: These versions are the most current at the time of publication of this document. They will be updated as necessary over time, with the most up to date version available at [www.mainroads.wa.gov.au](http://www.mainroads.wa.gov.au)



# Environmental Policy STATEMENT

*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



# Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2004

This is to certify that:

Main Roads Western Australia  
Don Aitken Centre  
Waterloo Crescent  
East Perth  
Western Australia  
6004  
Australia

Holds Certificate Number:

**EMS 530437**

and operates an Environmental Management System which complies with the requirements of ISO 14001:2004 for the following scope:

Main Roads Total Management System comprising Planning, Delivery, Maintenance, Network Operations and Supporting Services.

For and on behalf of BSI:

Nicholas Koukoulas, Managing Director, BSI Australia

Originally registered: 08/01/2008

Latest Issue: 05/06/2013

Expiry Date: 08/06/2016



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