



W.A. LIMESTONE

**EPBC 2010/5706: MILLAR ROAD CLEARING
VEGETATION TO ALLOW QUARRYING**

**ANNUAL COMPLIANCE REPORT
2015**

WA LIMESTONE
Lot 2170, Millar Road
Baldivis

PMR Quarries Pty Ltd T/A WA Bluemetal

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8 June 2015

EPBC 2010/5649 ANNUAL COMPLIANCE REPORT

WA LIMESTONE
Lot 2170, Millar Road
Baldivis

Prepared By:

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Reference	Status	Date	Prepared	Authorised
	Rev A	08/06/2015	Caroline Scally	Roger Stephens

CONTENTS

1.0 INTRODUCTION 1

LIST OF TABLES

Table 1: Compliance Audit of EPBC 2010/5706 Conditions.....2

LIST APPENDICES

Appendix 1: Department of Environment Letter of Approval for the THSRRP

Appendix 2: City of Rockingham Letter Confirming the Perpetuity at the THSRRP

Appendix 3: Offset Payment Details

Appendix 4: Offset Funding Correspondence

Appendix 5: WA Limestone Excavation Management Plan 2006

Appendix 6: Commencement of Clearing Letter

Appendix 7: Annual Report for Clearing Permit CPS 1814-1

Appendix 8: City of Rockingham Tamworth Hill Swamp Revegetation Update Report – June 2015

FIGURES

Figure 1: Approved Clearing Area

Figure 2: Fire management treatments

1.0 INTRODUCTION

The project site is a limestone and sand quarry that has been operating since 1983. At present mining occurs ahead of land filling by the City of Rockingham, who is the registered proprietor of Location 2170 Millar Road, Baldivis Western Australia. WA Limestone has a twenty five year agreement (expiry 2029) with the City of Rockingham for material extraction from the site.

In September 2010 PMR Quarries P/L trading as WA Limestone CO lodged a referral to the Department of Environment for the clearing of 22ha of native vegetation, to allow sand and limestone quarrying at 2170 Millar Road, Baldivis Western Australia. The quarry has operated continuously for 28 years and the purpose of the referral was to enable the continuation of activities, to extract the remaining sand and limestone resource from the site.

The referral was assessed as a controlled action in accordance with Part 9 of the *Environmental Protection and Biodiversity Conservation Act* (EPBC Act) and was granted conditional approval 2nd May 2013 by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPC).

This approval is subject to specified conditions from the DSEWPC, as outlined in the approval document EPBC 2010/5706.

This compliance report is based on the 2014/15 annual reporting period for EPBC 2010/5649, and has been developed to meet the reporting requirements of Condition 8 of EPBC 2010/5649.

Condition No.	Condition	Status	Evidence
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Table 1: Compliance Audit of EPBC 2010/5706 Conditions

1	<p>The person taking the action must ensure that the vegetation clearing does not exceed 22 hectares and is contained within the area specified in the map at Figure 1 of Appendix A: project area.</p>	<ul style="list-style-type: none"> Condition adhered to during the reporting period. 	<ul style="list-style-type: none"> There was no clearing during the reporting period. An Annual Report for clearing permit CPS 1814/1 was submitted to the Department of Environment Regulation, see Appendix 7 for details.
2	<p>To mitigate potential impacts to Black Cockatoos, within (6) months of the commencement of construction, the person taking the action must prepare and submit a Tamworth Hill Swamp Reserve Revegetation Plan (THSRRP) for the Minister's approval, that identifies the measures to minimise the impacts of the action on Black Cockatoos. The THSRRP must detail the following:</p> <ul style="list-style-type: none"> i. measures to establish the equivalent of at least 12 ha of habitat known to be primary feeding plants for Black Cockatoos within the Tamworth Hill Swamp Reserve (THSR), through landscape planting; ii. the revegetation methods to be undertaken within revegetation zones defined in Appendix A Figure 2; iii. measures to ensure that seedlings being planted are free of Dieback, (phytophthora cinnamomi); iv. timeframes and survival targets proposed for plantings; v. feral animal and weed controls measures to be implemented; vi. fencing to be undertaken; vii. contingency measures if targets are not met; viii. the monitoring and survey measures to be utilised, including timing schedules and reporting requirements; 	<ul style="list-style-type: none"> The Tamworth Hill Swamp Reserve Revegetation Plan (THSRRP) was submitted by the City of Rockingham (CoR) for the Ministers approval. The plan identified measures to minimise impacts on Black Cockatoos and fulfilled the points outlined in condition 2. As the landowner of Lot 2170 Millar Road, the CoR is committed to rehabilitating and protecting the THSRR, and undertaking the requirements of Condition 2. To date, the CoR preliminary management has consisted of establishing fire separation, slashing and general weed control. This work has also involved incorporating a limestone layered separation of the marshland in the south-western corner of the reserve to improve fire and maintenance access. Since late 2014 site preparation works have been underway to prepare for the 2015 planting. Works included regular herbicide applications, soil ripping, and mounding. A rabbit and kangaroo proof fence has been installed around the planting area to minimize predation during the seedling establishment phase. A number of photo monitoring points have also been identified to later evaluate the success of revegetation. A large sign has been placed along Nairn Drive directly adjoining the 2015 planting area, and an article was placed in the City Chronicle. A 3m wide bitumen stabilised limestone track has been installed around a portion of the reserve, spanning a total length of 1.5km. 	<ul style="list-style-type: none"> The Tamworth Hill Swamp Reserve Revegetation (THSRRP) is available on WA Limestone's public website: http://www.walimestone.com/content.php?CID=10 The THSRRP has been reviewed by officers of the Approvals Monitoring Section from the Department of Environment; approval was decided 26th November 2013 (Appendix 1). Fire management treatments detailed in Figure 2. City of Rockingham Tamworth Hill Swamp Revegetation Update Report – June 2015, Appendix 8

Condition No.	Condition	Status	Evidence
	<p>ix. roles and responsibilities of contractors, staff and the person taking the action,</p> <p>x. prior to, during and following any rehabilitation and revegetation works undertaken within the THSR area, and;</p> <p>xi. how the WA DEC, CoR, or other conservation organisation(s), have been consulted in the preparation of the THSRRP.</p> <p>If the Minister approves the THSRRP then the THSRRP must be implemented.</p>	<ul style="list-style-type: none"> A feral animal control program has been undertaken by a licensed feral animal control contractor at the reserve since October 2014. The program focused on the control of rabbits, cats and foxes. 	
3	<p>Prior to commencement of construction the person taking the action must provide the department with written agreement from the CoR that the Tamworth Hill Swamp Reserve (THSR) revegetation areas are shown at Appendix A Figure 2 will be retained in perpetuity under its existing conservation reserve status.</p>	<ul style="list-style-type: none"> The CoR provided the DSEW with a letter confirming the perpetuity of revegetation at the Tamworth Hill Swamp Reserve. 	<ul style="list-style-type: none"> CoR Letter sent to the department on the 7th of May 2013 (Appendix 2).
4	<p>To offset the loss of 22ha of Black Cockatoo foraging habitat and the loss of 93 potential breeding trees, the person taking the action must within 12 months of the commencement of construction, provide funding of \$65,000 to WA DEC for the acquisition, and to assist in the ongoing maintenance of, a 65ha area of freehold land in the Gingin area (offset area). The land being ceded to WA DEC, under irrevocable long term protection must contain Banksia woodland that is in equivalent or better condition than the Banksia woodland that is in 'average' condition within the project area. Within 4 weeks of the funding being provided to WA DEC, the person taking the action must provide written evidence to the department of the payment.</p>	<ul style="list-style-type: none"> The funding of \$65,000 for the acquisition and maintenance of an offset area has been paid. 	<ul style="list-style-type: none"> Copy of payment details to the DoPaW, see Appendix 3. For correspondence relating to condition 4 between DoPaW and Department of Environment see Appendix 4.
5	<p>Within 12 months of the commencement of construction, the person taking the action must provide to the department a description and map clearly defining the location and boundaries of the offset area, as specified in Condition 4, which must be accompanied with the offset attributes.</p>	<ul style="list-style-type: none"> Consultation with the Department of Parks and Wildlife Land Tenure Project Officer has been undertaken in sourcing an offset area, as specified in Condition 4. 	<ul style="list-style-type: none"> The \$65,000 funding will contribute to an accumulation of offset funds towards the protection of land in Gingin. Contact the Land Tenure Project Officer Alex Errington at DoPaW for further details.
6	<p>To mitigate potential impacts to Black Cockatoo habitat adjacent to the Project Area, the person taking the</p>	<ul style="list-style-type: none"> Vehicles used during construction of the quarry are unlikely to enter into a dieback affected area, as 	<ul style="list-style-type: none"> As a matter of course the Millar Road operation adopts dieback prevention policies to maintain the site in a

Condition No.	Condition	Status	Evidence
	<p>action must ensure that the following measures is carried out to limit the occurrence of Dieback (<i>Phytophthora cinnamomi</i>) on site.</p> <p>i. All vehicles being used during construction of the quarry that have come from a Dieback affected area must be washed down prior to entering the project area in accordance with WA DEC management of Dieback in extractive industries guidelines.</p>	<p>WA Limestone operates on low risk sites and have no affected sites that are dieback affected.</p> <ul style="list-style-type: none"> If dieback was found to occur, measures would be used in accordance with WA DEC Management of Dieback in extractive industries guidelines. 	<p>disease free state and to prevent plant disease affecting the adjoining native vegetation. Refer to Excavation Management Plan 2006 (Attachment 5) for details.</p> <ul style="list-style-type: none"> Dieback occurring on site is unlikely as the soils of the Millar Road project are in the Spearwood dune and plain system area (L. Stephens, 2006, WA Limestone Excavation Management Plan Limestone and Sand Quarry Millar Road 2170). Sites with calcareous soils such as the Spearwood dune system are not considered to be vulnerable” to the disease. Podger F D, S H James and M J Mulcahy, 2000 “Protectable Areas” and their Priority for Management, IN Protocol submitted to the Minister for the Environment by the Dieback Consultative Council. <p>CALM generally recognise “where Basic Raw Materials are being extracted from deep pits, such as mines and quarries, and where there is no obvious source of inoculum, this material may also be certified as free of Dieback and be suitable for use in uninfested areas. (2004 “Best Practice Guidelines for Management of <i>Phytophthora cinnamomi</i>”).</p> <p>The ‘Management of Phytophthora Dieback in Extractive Industries’ Best Practice Guidelines, Dieback Working Group recommends management strategies, suggesting limestone makes an ideal material for use in quarantine areas due to its high pH being very suppressive to dieback.</p>
7	<p>Within 30 days after the commencement of construction, the person taking the action must advise the department in writing of the actual date of commencement.</p>	<ul style="list-style-type: none"> Construction commenced 12th June 2013. The department was notified on 20 November 2013. The delay was due to an administrative oversight by WA Limestone. 	<ul style="list-style-type: none"> Letter sent to the department 20th November 2013. Appendix 6.
8	<p>Within three months of every 12 month anniversary of the commencement of construction, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. The reports must remain on the website for at least five (5) years. Documentary evidence providing proof of the date of publication and non-compliance with any of the</p>	<ul style="list-style-type: none"> Completed for the reporting period 2014/2015. All plans required for this approval have been published on WA Limestone’s website. 	<ul style="list-style-type: none"> This document. Plans available on WA Limestone’s website: http://www.walimestone.com/content.php?CID=10

Condition No.	Condition	Status	Evidence
	conditions of this approval must be provided to the department at the same time as the compliance report is published.		
9	If the person taking the action wishes to carry out any activity otherwise than in accordance with the Tamworth Hill Swamp Reserve Revegetation Plan (THSRRP) as specified in the conditions, the person taking the action must submit to the department for the Minister's written approval a revised version of that THSRRP. The varied activity shall not commence until the Minister has approved the varied THSRRP in writing. The Minister will not approve a varied THSRRP unless the revised THSRRP would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised THSRRP that THSRRP must be implemented in place of the THSRRP originally approved.	<ul style="list-style-type: none"> • Not applicable during the reporting period. 	<ul style="list-style-type: none"> • N/A
10	If the Minister believes that it is necessary or convenient for the better protection of Listed Threatened Species and Communities to do so, the Minister may request that the person taking the action make specified revisions to the Tamworth Hill Swamp Reserve Revegetation Plan (THSRRP) specified in the conditions and submit the revised THSRRP for the Ministers written approval. The person taking the action must comply with any such request. The revised approved THSRRP must be implemented. Unless the Minister has approved the revised THSRRP then the person taking the action must continue to implement the THSRRP originally approved, as specified in the conditions.	<ul style="list-style-type: none"> • Not applicable during the reporting period. 	<ul style="list-style-type: none"> • N/A
11	If, at any time after five years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the Minister.	<ul style="list-style-type: none"> • Action has commenced. 	<ul style="list-style-type: none"> • Department notified of commencement on November 20th 2013. Appendix 5.
12	Unless otherwise agreed to in writing by the Minister, the person taking the action must publish the Tamworth Hill Swamp Reserve Revegetation Plan (THSRRP) referred to in these conditions of approval on their website. The THSRRP must be published on the website within 1 month of being approved.	<ul style="list-style-type: none"> • All plans required for this approval have been published on WA Limestone's website. 	<ul style="list-style-type: none"> • Plans available on WA Limestone's website: http://www.walimestone.com/content.php?CID=10

Appendix 1: Department of Environment Letter of Approval for the THSRRP



Australian Government
Department of the Environment

Our reference: 2012/6232

Contact Officer: Jessica Croger
Telephone: (02) 6274 2609 Facsimile: (02) 6274 1878
Email: post.approvals@environment.gov.au

Mr Roger Stephens
W.A Limestone CO
PO Box 1404
BIBRA LAKE WA 6965

Dear Mr Stephens

Clearing vegetation to allow quarrying, Millar Road, Baldivis, WA (EPBC 2010/5649)

Thank you for your letter dated 22 August 2013, which attached a copy of the Tamworth Hill Swamp Reserve Revegetation Plan (THSRRP) as required under condition 2.

The THSRRP has been reviewed by officers of the Approvals Monitoring Section and has been found to meet the requirements of condition 2. On this basis, and as delegate of the Minister for the Environment, I have decided to approve the THSRRP.

In accordance with condition 2 of EPBC 2010/5649, the approved THSRRP must be implemented. Under condition 9, if the person taking the action wishes to carry out any activity other than in accordance with the approved THSRRP, the person taking the action must submit to the department for the Minister's approval a revised version of that THSRRP. If the Minister approves the revised THSRRP that THSRRP must be implemented in place of the THSRRP originally approved.

Please note, condition 12 requires that unless otherwise agreed to in writing by the Minister, the person taking the action must publish the THSRRP on their website within 1 month of the plan being approved.

Please ensure that you maintain accurate records of all activities associated with, or relevant to the conditions of approval, so that they can be made available to the Department on request. Such documents may be subject to audit and used to verify compliance. Summaries of results of audits may be published by the Department. Information about the monitoring and audit program can be found on the Department's website at www.environment.gov.au/epbc/compliance/auditing.html.

If you have any enquiries please contact Jessica Croger on (02) 6274 2609.

Yours sincerely

Shane Gaddes
Assistant Secretary
Compliance & Enforcement Branch
Environment Assessment and Compliance Division

26 November 2013

Appendix 2: City of Rockingham Letter Confirming the Perpetuity at the THSRRP

Our Ref: ECD/81, D13/46239

Your Ref:

Enquiries to: Ms K O'Neill 95270728



7 May 2013

www.rockingham.wa.gov.au

Mr Matt Barwick,
Project Manager
Department of Sustainability, Environment, Water,
Population and Communities
GPO Box 787
CANBERRA ACT 2601

Dear Mr Barwick

CONFIRMATION OF THE PERPETUITY OF REVEGETATION AT THE TAMWORTH HILL SWAMP RESERVE (THSR)

This letter is to confirm the permanency of proposed revegetation at the THRS. The reserve is vested with the City of Rockingham and zoned Parks and Recreation under the Metropolitan Region Scheme (MRS) and City of Rockingham Town Planning Scheme (TPS).

The THRS is an important ecological site which the City is committed to rehabilitating, protecting and conserving for future generations to enjoy. As such, a management plan was developed, with the overarching goals of rehabilitation and conservation. The management plan suggests revegetation for areas around the wetland periphery (see Figure 1 attached). This revegetation is also designed to serve as an offset for the Millar Road Quarrying Project in Baldivis (EPBC reference: 2010/5649).

During rehabilitation projects such as this, the City follows revegetation practices that ensure maximum planting success. Plantings are then typically monitored for a minimum of three years to ensure on-going viability.

In summary, the TPS and MRS zoning, the long-term management objectives for the reserve and the typical management practices employed by the City, will ensure that the proposed revegetation at the THSR will last in perpetuity.

Yours faithfully

JAMES HENSON
MANAGER PARKS DEVELOPMENT

cc: **Mr Roger Stephens**
Analyst
PMR Quarries T/A WA Limestone CO
PO Box 1404
BIBRA LAKE WA 6965



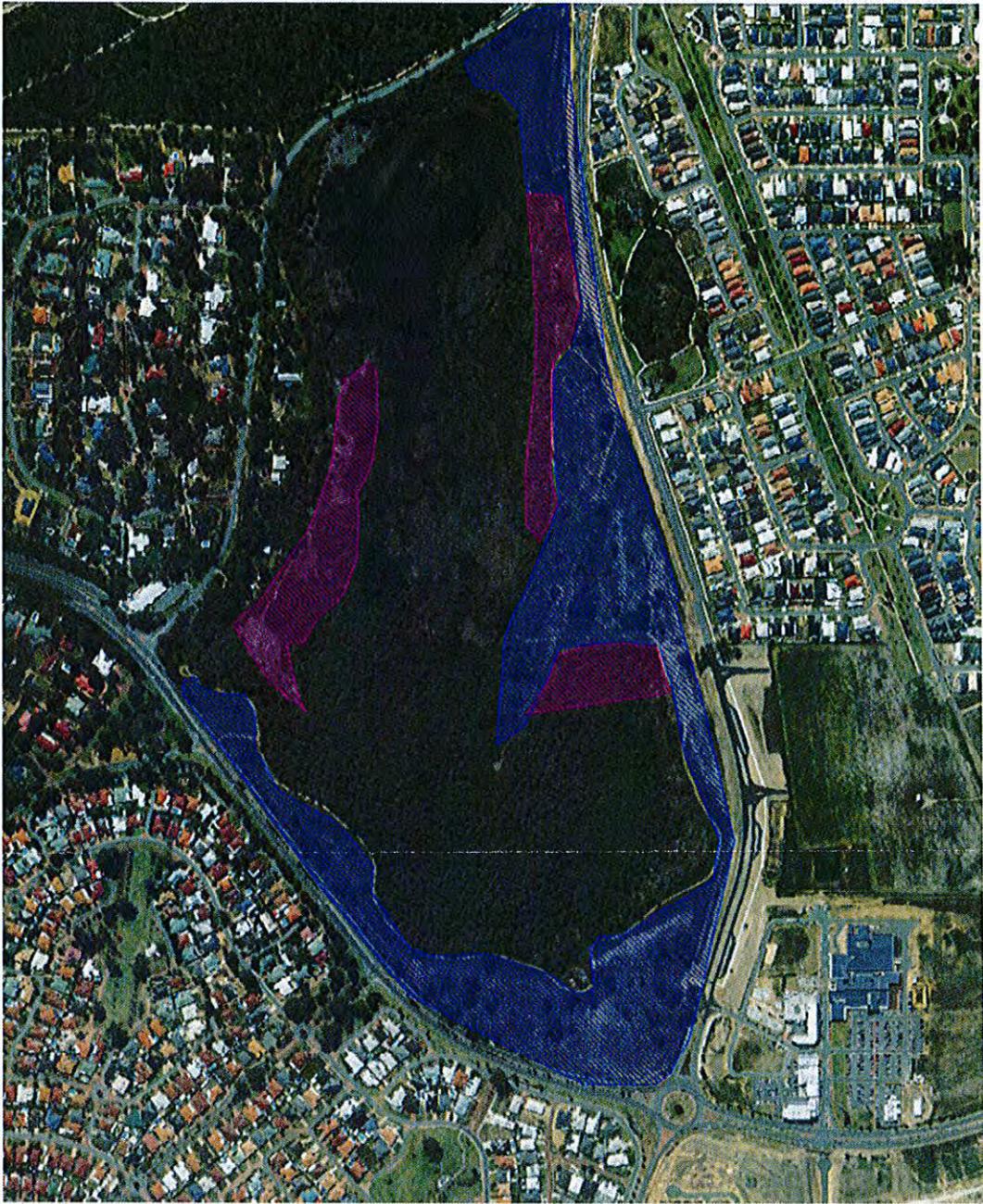


Figure 1

Tamworth Swamp



Priority Revegetation Zone



Secondary Revegetation Zone

Appendix 3: Offset Payment Details

DEPT OF ENVIRONMENT AND CONSERVATION

DEC 738A

ABN 38 052 249 024

POSTAL ADDRESS: LOCKED BAG 104, BENTLEY DELIVERY CENTRE
BENTLEY 6983

TELEPHONE: (08) 9334 0555

CUSTOMER No. **3580**

WA. LEMRSTONE

OFFICIAL RECEIPT

NOT VALID UNLESS PAYMENT
IS RECEIPTED BY CASH REGISTER

DATE	REF.	DETAILS	BALANCE	
		17296	65000	00
		GST		
TICK BOX IF RECEIPT REQUIRED		TOTAL INCLUDES GST	65000	00
DEPT OF ENVIRONMENT AND CONSERVATION 17 DICK PERRY AVE, KENSINGTON WA 6151				

Appendix 4: Offset Funding Correspondence

Caroline Scally

From: Errington, Alex <Alex.Errington@DPaW.wa.gov.au>
Sent: Thursday, 8 May 2014 9:31 AM
To: Mumford, Jacqui
Cc: Welsh, Mick; Jeanette Zubac; Caroline Scally
Subject: EPBC 2010/5649 W.A. Limestone

Hi Jacque

Further to my discussion with Mick Welsh, please note that, in accordance with Condition 4 of the approval dated 2 May 2013, W.A. Limestone yesterday provided this Department with a cheque for \$65,000 for the acquisition and ongoing maintenance of 65 ha of Black Cockatoo foraging habitat. As we have only just received the funds, I am unable at this stage to provide you with details of the property which will be acquired.

Alex Errington

Department of Parks and Wildlife

(08) 9219 8775

Appendix 5: WA Limestone Excavation Management Plan 2006



W.A. LIMESTONE

Excavation Management Plan

Limestone & Sand Quarry
Cockburn Sound Location 2170
Millar Road, Baldivis.



January 2006

Summary

Quarrying has been carried out on Location 2170 since 1983 initially for the Industrial Lands Development Authority (ILDA), then for Landcorp and now for the City of Rockingham through previous and current Extractive Industries Licences. The last Development Approval expired in 2002.

The site currently contains a limestone and sand quarrying operation, mining ahead of land filling by the City of Rockingham.

As sand occurs above the limestone, the excavation of both sand and limestone is proposed.

The proposed quarry will provide a strategic resource of road making material and construction materials, and ensure that Basic Raw Materials are utilised prior to sterilisation, in line with Statement of Planning Policy No 10.

The quarry will continue to be accessed from Millar Road. The existing access road intersection is asphalted into the property to minimise dust and carriage of fines onto the highway. The access road is due to be upgraded in February 2006 and asphalted for some 500m into the property and incorporating spray bars set up for dust suppression of loads.

WA Limestone has a twenty five year agreement (expiry 2029) with the City of Rockingham for materials extraction in four stages.

Perimeter fences and locked gates will be maintained to prevent illegal entry. Warning signs will continue to be maintained as required by the Department of Industrial Resources and the City of Rockingham.

This proposal is a report on activities and an application for renewal of the Development Approval and Extractive Industries License for twenty five years.

Contents

1.0 Introduction

- 1.1 Background and Proposal
- 1.2 Proponent
- 1.3 Location and Ownership
- 1.4 Description and Resource
- 1.5 Aims of the Proposal

2.0 Existing Environment

- 2.1 Climate
- 2.2 Geology and Soils
- 2.3 Hydrology
- 2.4 Flora

3.0 Planning Issues

- 3.1 Current Land Use
- 3.2 Land Zonings
- 3.3 End Use
- 3.4 Final Contours
- 3.5 Responsible Authorities

4.0 Project Description

- 4.1 Extraction and Processing
- 4.2 Staging and Timing
- 4.3 Hours of Operation
- 4.4 Access, Transport and Security
- 4.5 Equipment
- 4.6 Workforce
- 4.7 Water Usage
- 4.8 Safety

5.0 Environmental Impacts and Management

- 5.1 Surrounding Land Use and Buffers
- 5.2 Aesthetics
- 5.3 Noise
- 5.4 Dust
- 5.5 Water Quality
- 5.6 Flora and Fauna
- 5.7 Dieback Disease

- 5.8 Weed Management
- 5.9 Fire Protection
- 5.10 Aboriginal Sites
- 5.11 Rehabilitation

Attachments:

Copy of Certificate of Title
Excerpt from Draft Tuart Strategy
Public Liability Cover
Existing Contour Plan
Proposed Contour Plan
Blast Management Plan

Acknowledgements:

CALM: Draft Tuart Strategy
Landform Research: Lindsay Stephens

1.0 Introduction

1.1 Background and Proposal

Quarrying has been carried out on Location 2170 since 1983 initially for the Industrial Lands Development Authority (ILDA), then for Landcorp and now for the City of Rockingham through previous and current Extractive Industries Licences. The last Development Approval expired in 2002.

The site currently contains a limestone and sand quarrying operation, mining ahead of land filling by the City of Rockingham.

As sand occurs above the limestone, the excavation of both sand and limestone is proposed.

The proposed quarry will provide a strategic resource of road making material and construction materials, and ensure that Basic Raw Materials are utilised prior to sterilisation, in line with Statement of Planning Policy No 10.

WA Limestone now wish to renew the Development Approval and Extractive Industries License for twenty five years.

1.2 Proponent

The proponent is WA Limestone, arguably the largest limestone and sand quarrying operator in the state, with significant and diverse experience in limestone and sand extraction, processing and coastal construction work.

Contact can be made through:

WA Limestone
41 Spearwood Avenue
Bibra Lake WA 6163

1.3 Location and Ownership

Location 2170 is owned by the City of Rockingham

A copy of the Certificate of Title is attached.

1.4 Description of the Resource

Considerable remaining sand reserves exist on the site with underlying limestone at lower levels.

The limestone is suitable for rubble, road base and armour rock. The sand is used for filling and a variety of construction jobs, ie brickwork, plastering etc.

The degree of lithification (hardness) of the limestone changes both vertically and horizontally over the site and determines the use to which each type of limestone can be put.

Although the resource extends to depth the extraction will be limited to 7m AHD which is 5m above the water table.

1.5 Aims of the Proposal

Approximately twenty five years of limestone and sand resources are present.

The aims of the proposal are to:

- Provide the proponent with reserves of strategically located limestone and sand suited to a variety of end products.
- Complete the final landform to compliment the approved land fill cell construction the by the City of Rockingham.
- Keep pricing of the products at reasonable levels by maintaining small transport distances and competition. This benefits the whole community.
- To comply with the Statement of Planning Policy which states that basic raw materials should be taken prior to sterilisation of the area by development.

2.0 Existing Environment

2.1 Climate

The climate of the Baldivis area is Mediterranean, with wet winters and dry summers. The mean annual rainfall is around 890mm, average mean daily winter minimum temperatures are around 9 degrees and the mean average maximum summer temperatures are 28-29 degrees. Summer winds are predominately hot, dry morning easterlies and afternoon south westerlies, while winter winds tend to be cooler, wetter south westerlies.

2.2 Geology and Soils

The soils of the property are in the Spearwood dune and plain system, which lies between the Quindalup dune system to the west and the Bassendean dune and plain system to the south. The Spearwood system is characterised by the somewhat leached sand at the surface with creamy yellow to reddish brown sand at greater depth. The properties are underlain by limestone at varying depths and range in calcium carbonate from 55% to 70% content.

2.3 Hydrology

The site is well drained by both surface and subsurface processes as a result of its porous surface soils and porous underlying limestone. All storm water runoff is contained on site and drains naturally.

2.4 Flora

Location 2170 is two thirds cleared. The remaining vegetation (32 ha) is tuart, marri and some small jarrah re-growth forest with banksia, xamia, jacksonia and grass under storey. This represents 1.4% of the total tuart forest in the Rockingham area. It is intended to conduct a flora survey in the spring of 2006.

3.0 Planning Issues

3.1 Current Land Use

Location 2170 is about evenly divided in area to one third to landfill, one third quarrying and one third bush land. A permit to clear has been lodged with the DoE.

Surrounding land uses range from mining to the west (settling ponds), reserved bush land to the north, cemetery lands/rural to the east and mining/rural to the south. A railway line runs parallel to Millar Road on the north side. The DBNG pipeline and a major water main run parallel to the south boundary and Mundijong Road extension is proposed to abutt the south side of the water and gas easements.

3.2 Land Zonings

The land is zoned "Rural" under the City of Rockingham Town Planning Scheme Number 1.

3.3 End Use

The interim use of the land is as a Regional Refuse and Landfill Disposal Site. For end use contact City of Rockingham.

3.4 Final Contours

The interim landform is as per the attached finished contour plan with batters made safe for hand over in stages to the City of Rockingham.

3.5 Responsible Authorities

A number of state and local government authorities are responsible for overseeing the safety and management of limestone quarries. Other authorities have an interest in the proposal but may not hold any responsibility.

City of Rockingham

- Issues the Extractive Industries License.
- Makes a recommendation to the Western Australian Planning Commission in relation to Development Approval.
- Regulates land zonings in conjunction with the WAPC.
- Issues licenses in relation to building construction.

Department of Industry Resources

- Regulates safety and methods of extraction

Department of Environmental Protection

- Oversees all aspects of environmental impact and management.
- Issues licenses for crushing and screening plants.

Water and Rivers Commission

- Has control of groundwater in the area.

Department of Planning and Infrastructure and the Western Australian Planning Commission

- Responsible for structure plans
- Responsible for approval of Developments.
- Basic Raw Materials Policy

Main Roads Department

- Has an interest in transport routes.

Department of Conservation and Land Management

- Oversees Rare and Declared flora and fauna.

Department of Indigenous Affairs

- Oversees aboriginal sites.

4.0 Project Description

4.1 Extraction and Processing

Limestone has a variety of uses such as core and armour rock, spalls, filter, blocks, road sub base, manufactured blocks and bitumised limestone products. Depending on the quality of the resource, market demands and environmental conditions, a variety of products could be sourced from the quarry. Some stabilised road base is created by mixing varying amount of bitumen emulsion and crushed limestone. Sand is used for filling, brick laying, plastering, top dressing etc.

Excavation will be conducted to the:

- Mines Safety and Inspection Act and Regulations.

Excavation Methods

Excavation will be carried out as a sequence.

1. Remove any vegetation cover and push into windrows. Useful timber will be taken for firewood if feasible, and subject to liabilities and site safety. Where possible timber will not be burned, but at times there may be little alternative.
2. Smaller indigenous shrub material will be used in the rehabilitation process on the cliffs and batters if weed free. It will be laid on re-formed slopes to limit wind erosion and provide a source of seed for re-vegetation.
3. Remaining vegetation may have to be burnt to reduce the weed load, because mulching will spread seeds.
4. Topsoil will be removed and stockpiled. If direct return to rehabilitated areas is not possible or required it will be stored in low dumps for later use.
5. Limestone will be excavated to approximately RL7m AHD (if suitable), on site sand and overburden will be spread and compacted to the design levels.
6. Excavation methods will include:
 - Armour Stone - Produced by blasting, license applied for when and if required.
 - Road Base - Ripped and pushed out by bulldozer, crushed to size by mobile plant.
 - Stabilised Products - Road base mixed with bitumen emulsion.

7. All static equipment (Crusher, screen etc.) will be located on the quarry floor to provide visual and acoustic screening. Stockpiles will be retained on the floor of the pit to reduce visual impact.
8. Buffers: Along Millar Road a 40m buffer maintained.
 Along the eastern boundary a 20m buffer maintained.
9. Blasting, when and if used, will consist of small charges with delays to reduce air blast overpressure and ground vibration. Methodology will comply with Environmental Protection (Noise) Regulations 1997. See attached Blast Management Plan.

At the end of the excavation stages the quarry floor will be finished to lines and levels of the drawings ready for hand over to the City of Rockingham

4.2 Staging and Timing

Stages will be mined and handed over as follows:

- (a) Section 1 – July 2010
- (b) Section 2 – July 2016
- (c) Section 3 – July 2022
- (d) Section 4 – June 2029

4.3 Hours of Operation

Hours of operation will continue to be 6.00am to 5.00pm Monday to Saturday inclusive, excluding public holidays.

4.4 Access, Transport and Security

The quarry access is from Millar Road and has a sealed entry to minimise dust. Locked gates are in use and the site fully screened from the highway.

The site is fenced and signs placed at the required intervals. All access to the site other than the main entry has been blocked off by fire breaks and bunds.

The number of truck movements is dependent on market demand. On a yearly basis the pit averages about 50 truck movements a day with road base and sand. Millar Road is a major road and handles the pit traffic with little impact on the public. The Mundijong Road extension will make for easier access to the freeway and Rockingham.

4.5 Equipment

All static and operational equipment will work on the quarry floor to provide maximum acoustic and visual screening.

Site office and/or container(s)	Required for management and security
Toilet system	A serviced portable WC will be on site at times of operation if local facilities are not available.
Bulldozer	Ripping, track rolling and pushing of primary raw feed.
Mobile Crushing Plant	Crushing PRF to differing product sizes.
Screening Plant	Screening product to clean or size.
Loader	Loading the above plant and truck sales.
Water Tanker	Dust suppression on access roads and working floors. Water from off site.
Blasting	Production of armour stone. Explosives kept in approved magazines and removed from site when not in use.
Weighbridge	Not required at this time. May be introduced at a later date.
Fuel Storage	On site fuel if required will be from an overhead tank, bunded and lined to DEP, Waters & Rivers and DIR guidelines.

4.6 Workforce

The workforce will vary from 2 – 5 persons depending on the nature of contracts at time. Hire of local labour is supported by WAL.

4.7 Water Usage

Water is used for wash down and dust suppression as required.

Water can be drawn from a bore on site or imported from off site. Any bores on site will be licensed through the Waters and Rivers commission.

Drinking water will be brought to the site as required.

4.8 Safety

The deepest excavation will be around 20 metres from the natural surface. All batters will be bunded on top and toes filled when not in use. This will comply with Mines Regulations and in keeping with safety considerations when the site is unattended.

Signs required by the Department of Industry Resources will be erected.

Safety				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Adjoining properties	<p><i>Mines Safety and Inspection Act (1994) and Regulations (1995)</i></p> <ul style="list-style-type: none"> • Warning signs will be erected around the operating area. • Perimeter fencing will be maintained. Gates will be locked when the site is unattended. • There may be a fenced compound to protect equipment if required. • The site is within mobile telephone contact. 	The Operator will undertake the methods of rehabilitation as outlined in 5.11 Rehabilitation.	Compliance with the Excavation Management Plan. Compliance with the Mines Safety and Inspection Act	Ongoing.

5.0 Environmental Impacts and Management

5.1 Surrounding Land Uses and Buffers

All the land to the north is reserved bush land with no habitation. To the west is Western Mining settling ponds, again with no permanent habitation.

The bulk of the land to the east (Lot 1355) is the Cemeteries Board land, currently being mined for sand and no permanent habitation. Lots 1, 2 and 292 to the south east are rural lots with houses closer to Baldivis Road. These properties are well removed from the site by distance and topography. Lots 490 and 491 are owned by WA Limestone and are operated as a limestone quarry. (See separate application to the City of Rockingham).

Quarry activities are progressing north, carried out at lower levels than the natural ground, are not visible and are acoustically amenable.

Perimeter buffer will be as listed below:

- Millar Road – 40m and retaining natural vegetation.
- Southern batter – 20m and bunded.
- Eastern batter – 20m and retain existing vegetation.
- Western batter – bunded and abutting access road.

Buffers				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Adjoining properties	<ul style="list-style-type: none"> The excavation will work on the floor of the pit, 5-10 metres below natural ground level wherever possible. The operators will undertake the methods of rehabilitation outlined in 5.11 Rehabilitation, 5.3 Noise, 5.4 Dust and 5.2 Aesthetics. 	The operators will minimise the carry of impacts outside the excavation area. They will liaise with the relevant authorities as necessary to minimise any impact on infrastructure on adjoining properties.	Compliance with the Excavation Management Plan.	Ongoing

5.2 Aesthetics

The proposed and existing quarry will be screened from outside roads and adjoining land users by setbacks and/or retention of existing vegetation.

The interim land surface provided by WAL will be consistent with the future planning of the City of Rockingham.

Mature eucalypt trees, particularly Tuarts, and existing natural regrowth areas, will be retained in the buffers.

Aesthetics				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Neighbours or road users.	<ul style="list-style-type: none"> The closest dwellings are >300metres from operations Excavation will take place from the floor of the pit, working southwards. The operators will undertake the methods of rehabilitation outlined In 5.11 Rehabilitation. 	Visual and acoustic impact will be minimised.	Compliance with the Excavation Management Plan.	Ongoing

5.3 Noise

Noise is governed by the Environmental Protection (Noise) Regulations 1997.

Excavation of limestone and sand (including blasting) has been undertaken for many years at this site.

Access to the site will continue to be from Millar Road. Traffic rates are expected to average 50 laden trucks per day but will depend on market demand.

The Environmental Protection (Noise) Regulations 1997, require that dwellings in non industrial areas are not subjected to noise levels exceeding 45 dBA for more than 10% of the time, 55 dBA for more than 1% of the time and never exceeding 65 dBA during normal working hours. There are penalties for tonality of 5 dB, modulation 5 dB and 10 dB for impulsiveness, although impulsiveness is not likely to be relevant.

The only dwellings are over 300 metres away. To the south east they are completely screened for noise by the eastern batter, the topography and prevailing breezes.

All static and processing equipment will be located on the quarry floor below natural ground level, to provide maximum shielding.

Normal sand and limestone extraction for road base and armour stone is a relatively quiet operation screened by the walls of the quarry. Crushing and screening of limestone to produce various grades will be carried out on the floor of the quarry. Processing is quieter and is also effectively screened by the walls of the excavation.

Blasting

See attached Blast Management Plan.

If blasting is to be used it will be irregular and only for specific contracts for rock production.

Any blasting will be conducted to Environmental Protection (Noise) Regulations 1997, Mines Safety and Inspection Act/Regulations, relevant Australian Standards, eg 4326, 2187 and City of Rockingham bylaws.

Blasting will be restricted to between the hours of 8.00 am to 5.00 pm on Monday to Saturday, excluding Sunday and Public Holidays, and will not exceed:

125 dB Linear, peak for any blast and
120 dB Linear, peak for nine in any 10 consecutive blasts.

This complies with the Noise regulations.

Although there are no regulations governing ground vibration, the DEP normally sets limits of 5 mm/sec for peak particle velocity with no blast exceeding 10 mm/sec and only one in ten blasts exceeding 5 mm per second. The Australian Standard for blasting AS 2187.2 states that a peak particle velocity of 10 mm/sec does not mean damage to dwellings but is a limit based on human discomfort and structural integrity.

Management and commitments made to blasting are listed below.

Blasting and methods of extraction are not expected to change and therefore there are not anticipated to be any changes to noise generation.

Noise				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Noise may impact on neighbours	<p><i>Environmental Protection (Noise) Regulations</i></p> <ul style="list-style-type: none"> • Operations will be confined to the hours 6.00 am to 5.00 pm Monday to Saturday, excluding public holidays. • All static equipment and stockpiles will be located on the floor of the quarry. • The quarry will be worked from the centre outwards where possible. • The operation uses mobile rubber tyred equipment. • All equipment will be fitted with noise shields and efficient silencers. 	Compliance with the <i>Environmental Protection (Noise) Regulations</i>	None necessary at this time	Ongoing

Blasting	<ul style="list-style-type: none"> • <i>Dangerous Goods Regulations.</i> • <i>Mines Safety and Inspection Act/Regulations.</i> • <i>Environmental Protection (Noise) Regulations</i> • <i>Relevant Australian Standards, eg 4326, 2187</i> • Blasting will only be conducted on an intermittent basis if used at all. • All explosives will be handled to the Mines Safety and Inspection Act and relevant Australian Standards, eg 4326, 2187 • Only a registered shotfirer will be used to charge and fire blasts. • Any shotfirer's assistant will be required to undergo WA Limestone induction program relating to blasting. • Any detonators, explosives or ammonium nitrate stored on site will be retained in a magazine or locked steel container complying with the Dangerous Goods Regulations, Mines Safety and Inspection Act/Regulations and Australian Standards, and licensed by the Department of Mineral and Petroleum Resources. Alternatively detonators and explosives will be brought to the site as required. • Blasting will only be conducted during 8 am to 5 pm Monday to Saturday, excluding public holidays. • Firing will be conducted to Mines Safety and Inspection Act/Regulations. 	<p>Compliance with the <i>Mines Safety and Inspection Act/Regulations , Environmental Protection (Noise) Regulations, Relevant Australian Standards, eg 4326, 2187 and other relevant legislation.</i></p> <p>Compliance with the WAL Blast Management Plan.</p>	None necessary at this time	Ongoing
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Workers	<i>Mines Safety and Inspection Act and Regulations 1995.</i> <ul style="list-style-type: none"> • All workers will be supplied with the correct noise protection equipment. • Workers will be instructed in the use of noise protection equipment and the potential for hazard reduction. 	Noise management will comply with the provisions of the <i>Mines Safety and Inspection Act and Regulations.</i>	All workers will be supplied with adequate noise protection equipment as required when operating machinery.	Ongoing
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5.4 Dust

Excessive dust has the potential to impact on both the workers and the adjoining land.

Dust could be a potential problem during the summer months. The access roads will continue to be watered as necessary to reduce the generation of dust in the drier months.

Winds at 9.00 am vary from easterly on 49% of the time on summer mornings with an early sea breeze and on 46% of the summer mornings. Afternoon winds are predominantly south westerly (south to west) for 86% of the time in summer and 40% of the time in winter. These winds are strong and are normally all above 10 kph in summer, ranging up to > 30 kph on 20% of the time.

The predominant wind directions blow away from the dwellings, the vegetation, topography and distance away from the site has eliminated any dust nuisance in the past. The progress north of the operation will not change this circumstance.

A water tanker will be maintained on site during excavation when there is a risk of generating excessive dust. The water will be used to settle dust on the pit floor and to reduce the dust emanating from any crushing or screening operation.

Apart from land clearing, all operations will be conducted below natural ground level. Bearing in mind the distances involved and the dust suppression methods in place, dust should not impact on any dwellings.

The potential for dust to impinge on the closest dwellings was assessed using the Department of Environmental Protection Dust Control Guidelines (Sept 1990), taking into account the measures outlined below. A score of 306 was obtained which equates to Low Risk.

Dust emissions fall under the *Guidance for the Assessment of Environmental Factors, EPA, March 2000*. However an assessment of the dust risk can be made using the *Land development sites and impacts on air quality*, Department of Environmental Protection Guidelines, November 1996 which reveal that the risk of dust impacting on the closest dwelling is as listed below.

Activity	Calculated Score	Allocated Risk of Dust
Land clearing and excavation	306	Low risk

The generation of dust will be minimised by;

1. Perimeter bunds and buffers as well as working below natural ground level. This will help reduce the speed of the winds entering the property and act as a filter for airborne dust particles. Dust particles will fall out from the air as the wind speed drops on travelling through perimeter vegetation.
2. Clearing and reinstating vegetation, topsoil and overburden will be confined to the wetter months, April to October, where possible.
3. All crushing and processing will be carried out on the quarry floor, below the existing land surface. This will lead to a reduction in wind speed on the quarry floor near the crusher and thus help to prevent the generation of dust.
4. All workers will have access to efficient dust masks for use as required.
5. The dominant wind directions are from the east and the south west and any dust generated will be blown away from the rural properties to the south east.
7. The access road and quarry floor will be watered as required through the year to reduce dust generation.

DUST				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Neighbours	<p><i>Guidance for the Assessment of Environmental Factors, EPA, March 2000.</i></p> <ul style="list-style-type: none"> • Bunds, perimeter buffers and excavation below natural ground level will assist the potential for dust to emanate from the site. • The operator will suppress dust by using the measures outlined above. • The potential for dust nuisance is assessed as "Negligible" Risk. • The wind will blow away from dwellings for most of the operation times. 	The operator will monitor the potential for dust generation and reduce dust from excavation as needed.	None necessary at this time	Ongoing
Workers	<p>Mines Safety and Inspection Act and Regulations 1995</p> <ul style="list-style-type: none"> • All workers will have access to efficient dust masks for use as required. • All workers will be instructed on the use of dust minimisation equipment. 	The quarry will operate to the standards in the <i>Mines Safety Inspection Act and Regulations.</i>	<p>All workers will have access to efficient dust masks for use as required.</p> <p>All workers will be instructed on the use of dust minimisation equipment.</p>	Ongoing

5.5 Water Quality

Water can be transported to the site or if a water source is required on site, a licensed bore will be applied for, or other arrangements made with the City of Rockingham.

The RL of the water table is about 2.0 – 3.0 metres AHD. The interim land surface at hand over will be 7.0 metres AHD which will be a minimum of 4.0 metres above the water table, (Perth Groundwater Atlas, Water and Rivers Commission, 1997 and survey). This will comply with Water and Rivers Commission Guidelines.

The nature of the operation, and the underlying geology, will not lead to alteration of the groundwater systems in the area.

The extraction of limestone and sand is a chemically free operation with the only liquids used being lubricants for machinery. There are monitoring bores established on the property.

Ground water will be protected by the following;

- All water used on site will be drawn from a licensed bore.
- The interim land surface will be a minimum of 4 metres above the water table.
- Separations to groundwater comply with Water and Rivers Commission Guidelines.
- No potential chemical pollutants will be kept on site apart from fuel and normal lubricants for servicing.
- The Water and Rivers Commission will be notified of any fuel or oil spill of greater than 5 litres.
- Fuel, if stored on site, will be stored in tanks surrounded by bunds and lined with impermeable membranes, to prevent leakage and possible contamination of the ground water. Storage will be to Department of Industry and Resources and Water and Rivers Commission Standards. Minor spills will be recovered but will not affect the ground water because of the absorbent nature of the limestone and bacterial breakdown.
- A serviced portable or septic toilet system will be used if local facilities are not available.
- Major servicing and repairs of large machinery will only be undertaken offsite or within an area lined by an impermeable membrane in compliance with Water and River Commission Guidelines.

WATER QUALITY				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Surface and Ground water	<p><i>Water and Rivers Guidelines for Quarries.</i> <i>Water and Rivers Water Quality Protection Notes</i> <i>Guidelines for Extractive Industries.</i> <i>Temporary Above Ground Fuel Storage in Public Drinking Water Source Areas</i></p> <ul style="list-style-type: none"> • The nature of the operation and the underlying geology of limestone should not lead to alteration of the groundwater systems in the area. • Management procedures outlined above to protect water quality. • There should be no alteration to surface water flows or groundwater levels. • Small oil spills and drops will be dealt with by soil microbial activity. • Vehicles will generally be refueled directly on a daily basis. • Fuel will either be delivered to the site as required or alternatively a 5 000 L fuel tank may be retained on site, bunded to Water and Rivers Guidelines, or retained in a sea container. • Illegal dumping of rubbish will be contained by the site security measures. 	The operator will maintain water protection policies to minimise the potential for alteration to surface or ground water	Compliance with water protection policies and management.	Ongoing

5.6 Fauna and Flora

Clearing will be progressive and allow mobile fauna to adapt. A fauna survey will be conducted in 2006. A Permit for Clearing was lodged 21/10/04.

Descriptions of the vegetation are contained in 2.4 Flora. A flora survey is to be conducted in spring 2006.

The presence of trees on one third of the site is significant and these trees provide habitat.

The whole of Location 2170 has been identified and approved as a Regional Landfill and Refuse Disposal Site. The survival of fauna in the district will be more related to the future surrounding land use than the operation of a quarry.

Mature trees will be retained in the buffer areas.

FLORA and FAUNA				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Indigenous vegetation	<ul style="list-style-type: none"> The amount of ground open at any one time will be minimised, but sufficient ground will be required to provide a ranges of resources, production and stockpile areas. Indigenous vegetation in the boundary buffers will be retained. 	The operator will rehabilitate the site as described in 5.11 Rehabilitation.	On completion of each stage	Ongoing

5.7 Dieback Disease

CALM generally recognises that Dieback is less likely to impact on vegetation on limestone and Spearwood/Cottesloe Land Systems, Podger F D and K R Vear, 1998, *Management of Phytophthora and disease caused by it*, and in *Phytophthora cinnamomi* and the disease caused by it - protocol for identifying protectable areas and their priority for management, EPA 2000

There are however other plant diseases caused by fungus such as *Armillaria* that can cause dieback symptoms. Also the steps required to manage dieback are essentially the same as those used to manage weeds.

The Draft Tuart Conservation and Management Strategy also recognises that tuart is resistant to *Phytophthora cinnamoni* and *Amillaria luteobubalina*. The recent impacts on local tuarts are also not thought to be due to Medulla Yellows by the Strategy.

Dieback is only likely to be an issue when equipment is brought to the site from a dieback affected area either through vehicles or plant and soil materials.

All vehicles and equipment to be used during land clearing or land reinstatement, which are to be brought to the site from an infected area, will be washed down prior to leaving the infected site, using the procedures in CALM Guidelines for Dieback Management. No soil and vegetation will be brought to the site apart from that to be used in rehabilitation.

Essential Points in Dieback Management;

- *Discourage or prevent unwanted access to vegetated areas.*
- *A rehabilitated surface will be free draining and not contain wet or waterlogged conditions.*
- *No plant, soil, weed rubbish or other materials will be brought to the site apart from that used for rehabilitation.*
- *Materials to be used in rehabilitation will be dieback free.*
- *Do not bring any contaminated or suspect soil or plant material onto the site.*
- *Ensure that vehicles and earth moving equipment are cleaned prior to entering the site if they originate from a dieback affected area.*

DIEBACK DISEASE				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Dieback Disease	<p><i>Dieback Management Program and Essential Points, above</i></p> <ul style="list-style-type: none"> • The access road will be limestone and road traffic will be restricted to it. • All vehicles accessing the site from a dieback affected area will be required to be cleaned prior to leaving their source. • Access to the site will continue to be controlled and restricted by locked gates. • No plant or soil materials will be brought on site except for rehabilitation purposes. 	The operator will maintain a management program to reduce the spread of <i>Phytophthora spp.</i>	Vehicles to be used on site will be washed down or cleaned prior to leaving the previous site. The remaining Banksia Woodland will be quarantined. Any materials used in rehabilitation will be dieback free	Ongoing

5.8 Weed Management

The essential aspects of weed management are;

- *Do not bring any plant, soil or fill material to the site.*
- *Secure the site to prevent illegal dumping of rubbish.*
- *Remove all rubbish promptly.*

- *Treat any Declared or environmental weeds promptly no matter how few there are. Several weeds pulled out by hand and destroyed, may save many dollars in spraying at a later stage.*
- *It is better to work from the least weed affected areas to the most weed affected, which therefore gives a smaller area to treat with spray or earthworks.*
- *Do not use weed affected soils for rehabilitation, but bury them at least 500 mm below the surface.*
- *Regularly monitor the site for the introduction of Declared weeds and those that have the potential to become a local pest.*

If weeds do gain access to the site they will be treated as below;

- Large weeds such as Castor Oil plant will be buried, burned or removed off site.
- Follow up spraying by a licensed contractor will be undertaken and repeated as necessary.
- Small weeds will be sprayed by a licensed contractor and repeated as necessary.

WEED MANAGEMENT				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Weeds	<p><i>Agriculture and Related Resources Protection Act.</i></p> <ul style="list-style-type: none"> • The operator will undertake the weed management program outlined above to manage Declared or Environmental Weeds. 	The operator will maintain a weed policy to try and prevent the introduction of Declared, Environmental or other weeds to the site.	Compliance with the weed management program listed above.	Ongoing

5.9 Fire Protection

There is little potential fire risk from limestone mining operations of this type. The quarry itself will form a natural firebreak. However fire is always a potential risk in remnant vegetation and rehabilitated vegetation. Perimeter firebreaks will be maintained as required.

FIRE PROTECTION				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Fire Protection	<p><i>City of Rockingham By-laws and Bushfires Act.</i></p> <ul style="list-style-type: none"> • The excavated area will provide a natural fire break. • Perimeter firebreaks will be maintained. • Public access to the site will be prohibited and fences and locked gates maintained. • The water for dust minimisation will be available for fire fighting. • The site will be serviced by telephone. 	The operator will minimise the risk from fire.	Normal fire protection measures	Ongoing

5.10 Aboriginal Sites

There are no sites in the area that is the subject of this proposal.

ABORIGINAL SITES				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Aboriginal Sites	<p><i>Aboriginal Heritage Act 1972-1980</i></p> <ul style="list-style-type: none"> Should any evidence of early aboriginal occupation be uncovered during the extension of the quarry, development will be stopped pending an assessment by a recognised consultant. If the site is confirmed as a site under the provisions of Section 15 of the Aboriginal Heritage Act 1972-1980 and Amendments, WA Limestone will comply with the provisions of the Act, relating to development in areas of recognised aboriginal sites. 	The operator will abide by the Aboriginal Heritage Act.	None required at this stage.	Ongoing

5.11 Rehabilitation

Flora and Fauna

Flora and fauna will be affected by clearing the remaining 32 ha. Clearing will be progressive and conducted with care to allow mobile fauna to relocate. The typical existing bush land is well preserved in the large reservation to the north of Millar Road.

Rehabilitation

Rehabilitation will be by the City of Rockingham.

Completion criteria for WAL will be:

- *Weed species at levels not likely to threaten the native species*

Vegetation Clearing

1. Vegetation clearing will be progressive and minimised to that required for each stage (or part of a stage) during the sand and limestone excavation.
2. Useful timber will be taken for firewood if feasible and subject to liabilities and site safety. Where possible vegetation will not be burned but at times there may be little alternative.

Topsoil and Overburden Removal

1. Topsoil will be stored in stockpiles for later use on site and screened for off site use.
2. Overburden as yellow and brown sand and low grade limestone will be directly transferred or stored in dumps for later use.
3. Excavation will be worked progressively from the existing operational area to the north.
4. Where possible topsoil clearing will be undertaken in wetter months.

Landform Reconstruction and Contouring

1. The interim landform by WAL will be a flat floor of RL 7m as per the attached plan.
2. Interim slopes will be at angle of repose and batters made safe on both tops and toes.
3. Topsoil and overburden will be left by WAL to assist in cover for the landfill operation.

Vegetation Establishment

By the City of Rockingham.

Erosion Control

Landfill program following WAL operation, then erosion control by others. Normal drainage control over roads, tracks etc will be exercised.

Monitoring

1. Buffer areas will be monitored for good cover.

REHABILITATION				
Potential Impact	Management	Outcome Commitments	Action Required	Timing
Rehabilitation	<ul style="list-style-type: none"> The operator will undertake weed management and the dieback program outlined above. 	Monitoring of the buffer strips and weed control will be undertaken.	Compliance with the rehabilitation program	Ongoing

Hardened Tube Plant List - Shrubs and Trees

Hardened tube plants from the following indigenous species will be used for any re-vegetation required of WAL. These species have been selected because they occur on limestone soils.

Acacia cyclops	Coastal Wattle
Acacia saligna	Golden Wreath Wattle
Acacia rostellifera	
Acacia xanthina	White Stemmed wattle
Agonis flexuosa	Peppermint
Allocasuarina lehmannii	Dune Sheoak
Callitris preissii	Rottnest Island Pine
Calothamnus quadrifidus	Netbush
Eucalyptus calcicola	Bushy Moort
Eucalyptus calophylla	Marri
Eucalyptus decipiens	
Eucalyptus foecunda	
Eucalyptus gomphocephala	Tuart
Dodonea aptera	Coast Hop Bush
Dryandra sessilis	Parrot Bush
Grevillea thelmanniana var. preissii	
Hakea prostrata	Harsh Hakea
Melaleuca systema	
Melaleuca huegelii	Chenille Honey Myrtle
Melaleuca lanceolata	Rottnest Is. Tea Tree

Seed List - Shrubs and Trees

Where required seeds from the following indigenous species can be used for the re-vegetation. These species have been selected because they occur locally, are adapted to limestone soils and are visually compatible.

Acacia cyclops	Coastal Wattle
Acacia latericola	
Acacia pulchella	Prickly Moses
Acacia xanthina	
Acacia rostellifera	
Acacia saligna	Golden Wreath Wattle
Clematis pubescens	Old Man's Beard
Calothamnus quadrifidus	Netbush
Eucalyptus decipiens	
Eucalyptus foecunda	

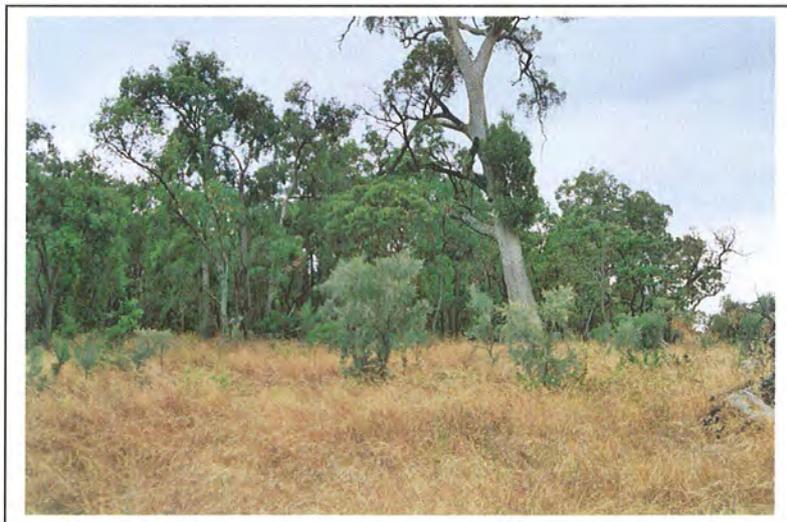
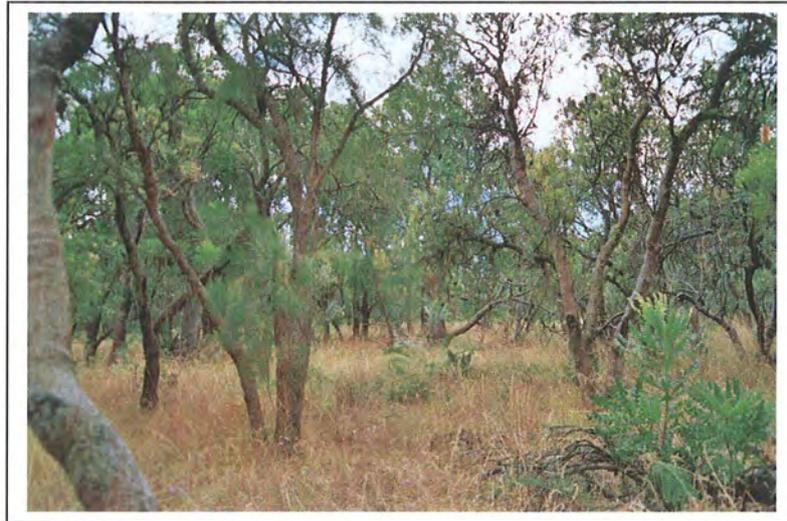
Eucalyptus doratoxylon
Eucalyptus gomphocephala
Hardenbergia comptoniana
Kennedia coccinea
Kennedia prostrata
Melaleuca systema
Melaleuca huegelii
Melaleuca lanceolata
Olearia axillaris
Templetonia retusa

Spearwood Mallee
Tuart
Native Wisteria
Coral Pea
Running Postman

Chenille Honey Myrtle
Rottnest Is. Tea Tree

Cockie's Tongues

Remaining vegetation:



WESTERN



AUSTRALIA

REGISTERED NUMBER 2170/DP211650	
DUPLICATE EDITION 2	DATE DUPLICATE ISSUED 6/8/2004

RECORD OF CERTIFICATE OF TITLE
 UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1464** FOLIO **465**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

RG Roberts
 REGISTRAR OF TITLES



LOT 2170 ON DEPOSITED PLAN 211650

LAND DESCRIPTION:

REGISTERED PROPRIETOR:
 (FIRST SCHEDULE)

CITY OF ROCKINGHAM OF CIVIC BOULEVARD, ROCKINGHAM
 (T F037905) REGISTERED 13 NOVEMBER 1992

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
 (SECOND SCHEDULE)

- 1. 1881017 LEASE TO AGL ENERGY SERVICES PTY LTD OF 181-187 FIRST AVENUE, FIVE DOCK, NEW SOUTH WALES AS TO PORTION ONLY. EXPIRES: SEE LEASE. REGISTERED 11.5.2004.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
 * Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
 Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitute for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1464-465.
 PREVIOUS TITLE: This Title.
 PROPERTY STREET ADDRESS: LOT 2170 MILLAR RD WEST, BALDIVIS.
 LOCAL GOVERNMENT AREA: CITY OF ROCKINGHAM.

NOTE 1: A000001A LAND PARCEL IDENTIFIER OF COCKBURN SOUND LOCATION 2170 (OR THE PART THEREOF) ON SUPERSEDED PAPER CERTIFICATE OF TITLE CHANGED TO LOT 2170 ON DEPOSITED PLAN 211650 ON 12-JUL-02 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE.

NOTE 2: THE ABOVE NOTE MAY NOT BE SHOWN ON THE SUPERSEDED PAPER CERTIFICATE OF TITLE OR ON THE CURRENT EDITION OF DUPLICATE CERTIFICATE OF TITLE.

ORIGINAL — NOT TO BE REMOVED FROM OFFICE OF TITLES

R1225/72

LANDS	T.O.
Land
Permit
Lease
Name



WESTERN



AUSTRALIA

CT 1464 0465 F



Crown Grant

1464 465

Elizabeth the Second, by the Grace of God, Queen of Australia and Her other Realms and Territories, Head of the Commonwealth. To all to whom these Presents shall come, GRANTING: Know Ye that We, of Our especial Grace, certain knowledge, and inere motion, have given and granted, and We do by these Presents, for Us, Our heirs and successors, in consideration of the payment of the sum of \$1.00 and pursuant to the provisions of Section 11 of the "Industrial Development (Resumption of Land) Act, 1945," Give and Grant unto Industrial Lands Development Authority of 32 Saint Georges Terrace Perth

(hereinafter called the Grantee), the natural surface and so much of the land as is below the natural surface to a depth of 12.19 metres of ALL THAT Piece or Parcel of Land situate and being in the District of Cockburn Sound in Our said State, containing 98.6674 hectares

location 2170 in the Map and Books of the Department of Lands and Surveys of Our said State of Cockburn Sound as in the plan so delineated and coloured green in the plan drawn in the first schedule: TOGETHER with all Appurtenances thereto belonging or in anywise appertaining: TO HAVE AND TO HOLD the said Piece or Parcel of Land to the Grantee, his heirs and successors, on payment of yearly rent on the twenty-fifth day of March in each year, or as soon thereafter as the same shall be lawfully demanded: PROVIDED NEVERTHELESS that subject to section 141 of the Land Act, 1933, by Our or their authority, to resume and enter upon possession of any part of the said Piece or Parcel of Land, which it may at any time by Us, Our heirs and successors, be deemed necessary to resume for roads, tramways, railways and railway stations, canals, bridges, towing paths, harbours or river improvement works, drains and irrigation works, aqueducts, and generally for any other works or purposes of public use, utility or convenience, and for the purpose of exercising the power to search for minerals hereinafter reserved, and each Land so resumed to hold to Us, Our heirs and successors as if Our or their former estate without making to the Grantee, his heirs and successors any compensation in respect thereof; so, nevertheless, that no such resumption be made without compensation of any part of the said Piece or Parcel of Land upon which any expenditure or improvements shall have been made by the said Grantee, his heirs and successors, or any person claiming under him; and We do hereby reserve to Us, Our heirs and successors, all Mines of Gold, Silver, Copper, Tin, or other Metals, Ore and Minerals, or other substances containing Metals, and all Gems or Precious Stones and Coal or Mineral Oil, and all Placeratic substances in or under the said Piece or Parcel of Land hereby granted, with full liberty to search for and dig for and carry away the same; and for that purpose to enter upon the said Piece or Parcel of Land or any part thereof; and we do hereby reserve to Us, Our heirs and successors all petroleum (as defined in the Petroleum Act, 1967 and all amendments thereof for the time being in force) on or under the surface of the said Land with the right reserved to Us, Our heirs and successors and persons authorized by Us, Our heirs and successors to have access to the land for the purpose of searching for and for the operations of obtaining petroleum in any part of the said land subject to and in accordance with the provisions contained in the Petroleum Act, 1967, and all the amendments thereof for the time being in force.

IN WITNESS whereof We have caused Our trusty and well-beloved HIS EXCELLENCY AIR CHIEF MARSHAL SIR WALLACE KYLE, Knight Grand Cross of the Most Honourable Order of the Bath, Commander of the Most Excellent Order of the British Empire, Companion of the Distinguished Service Order, Distinguished Flying Cross, Knight of Grace of the Most Venerable Order of the Hospital of St. John of Jerusalem, Governor in and over the State of Western Australia and its Dependencies in the Commonwealth of Australia, to affix to these Presents the Public Seal of the said State.

Sealed this 13th day of April, One thousand nine hundred and seventy seven

Grant under the Land Act, 1933 as amended

James Craig
Minister for Lands.

Wallace Kyle
Governor

CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

The abovenamed Grantee is now the registered proprietor of an estate in fee simple in all the land described in this Grant subject to the easements and encumbrances shown in the Second Schedule hereto.

DATED THE 3rd DAY OF May, 1977

Transfer F37905 to City of Rockingham of Council Avenue, Rockingham. Registered 13th November, 1992 at 15.06 hrs.

Handwritten signature
REGISTRAR OF TITLES



FOR ENCUMBRANCES AND OTHER MATTERS AFFECTING THE LAND SEE SECOND SCHEDULE

Superseded - Copy for Sketch Only

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

APPENDIX 6.1
TUART EXTENT BY LAND CATEGORY AND LOCAL GOVERNMENT AREA ¹⁹

Local Government	NP ²⁰	NR ²¹	CP ²²	Other Cons. ²³	SF ²⁴	UCL ²⁵	UMR ²⁶	Other Res.	F'hold	Total
	CALM managed lands (ha)							(ha)	(ha)	(ha)
Bunbury	0.0	0.0	0.0	0.0	0.0	57.8	5.1	33.8	170.6	267.3
Busselton	594.5	2.1	0.0	0.0	213.2	2.8	5.6	0.1	118.7	937.0
Cambridge	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.6	123.5	204.1
Capel	1331.6	0.0	0.0	0.0	311.2	0.6	27.8	37.7	2165.9	3874.8
Claremont	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cockburn	0.0	63.3	0.0	0.0	0.0	54.2	0.0	55.7	198.1	371.3
Dandaragan	0.0	10.6	0.0	0.0	0.0	0.0	0.0	2.4	25.4	38.4
Dardanup	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	50.0	50.7
Fremantle	0.0	0.0	0.0	0.0	0.0	0.0	0.3	45.5	6.1	51.9
Gingin	0.0	0.0	0.0	8.6	301.9	149.7	66.7	28.9	2640.7	3196.5
Harvey	225.0	23.2	84.3	0.0	1063.5	0.1	35.1	41.1	3148.1	4620.4
Joondalup	0.0	0.1	3.4	0.0	25.1	21.9	4.2	84.8	144.1	283.6
Kwinana	0.0	250.9	0.0	0.0	0.0	94.4	26.8	54.7	454.5	881.3
Mandurah	995.1	0.0	0.0	2.0	0.0	72.9	18.7	179.6	2526.5	3794.8
Melville	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Murray	0.0	190.9	0.0	0.0	0.0	0.3	2.0	0.0	1116.6	1309.8
Nedlands	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	28.3	28.5
Perth	0.0	0.0	0.0	0.0	0.0	0.0	23.8	0.0	0.0	23.8
Rockingham	0.0	0.0	0.0	0.0	0.2	4.0	64.7	60.1	2191.3	2320.3
South Perth	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
Stirling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.1	19.4	43.5
Subiaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wanneroo	706.5	44.7	0.0	60.7	312.7	26.0	61.7	55.3	2091.0	3358.6
Waroona	1555.4	0.0	0.0	7.6	1094.3	74.8	1.9	66.9	1858.0	4658.9
Total (ha)	5408.1	585.8	87.7	78.9	3322.1	559.7	344.4	852.0	19077.8	30316.5
Total (%)	17.8	1.9	0.4	0.3	11.0	1.8	1.1	2.8	62.9	100.0

¹⁹ Data sourced from the Atlas of Tuart Woodlands on the Swan Coastal Plain (2003)

²⁰ NP: National park

²¹ NR: Nature reserve

²² CP: Conservation park

²³ Other Cons: CALM Act s.5(1)(g) and s.5(1)(h) reserves

²⁴ SF: State forest, Executive Director private lands, miscellaneous reserves

²⁵ UCL: Unallocated Crown land

²⁶ UMR: Unmanaged reserve

Schedule attached to and forming part of Policy No: 70A034737PLB

Insurer: QBE Mercantile Mutual
Levels 4 & 5, 95 William Street PERTH WA 6000
ABN: 28 087 142 589

Period of Cover: From 31/03/2005 to 31/03/2006 at 4:00 pm

The Insured: WA Limestone Co

RENEWAL

Invoice No: 140878

Date: 6/04/2005

Account: WALIMEST

POLICY IN THE NAME OF: P M R QUARRIES PTY LTD ATF WA LIMESTONE
UNIT TRUST T/AS WA LIMESTONE CO AND
RANSBERG PTY LTD ATF RANSBERG UNIT TRUST
T/AS WA BLUOMETAL & WA PREMIX FOR THEIR
RESPECTIVE RIGHTS & INTERESTS

SITUATIONS : Lot 386 Mandogulup Road, Mandogulop
Lot 41 Spearwood Ave & Flynn Dve,
Neerabup
Millar Road, Baldivis
Cockburn Pit
Anketell Pit
Abercrombie Pit
Mandogalup Pit
Dawasville Pit
Kerosene Lane, Baldivis
Pickering Brook
Byford/Mundijong Quarry
Rowse Road, Greenfields

BROADFORM LIABILITY

Covering Legal Liability to the general public
for bodily injury or damage to property as a
result of an accident and happening attributable
to the negligence of the Insured and arising out
of business of the Insured

Limit of Liability

\$10,000,000

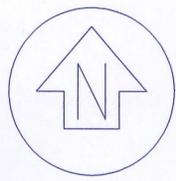


WA LIMESTONE	
LOCATION 2170	
MILLAR ROAD, BALDIVIS	
Scale 1 10 000	Photography DLI January 2005



W A Limestone

ACN 008 886 448 ABN 67 478 411 404
 41 Spearwood Avenue, Bibra Lake WA 6163
 Phone 9434 2299 Fax 9434 1513



SDR
 Mapping & Design
 From
Sokkia

SDR33 V04-04 27
 SDR Map V6 5

PERTH COASTAL SURVEYS

12 Cuthbert Street, Shenton Park,
 PERTH WA 6008
 Ph 9381 6831 Fax 9434 1513
 Mob 0418 166 302
 E Mail: denishill@inet.net.au
 ACN: 009 455 092
 ABN: 45 009 455 092

Client:

WA Limestone

Local Authority:

City of Rockingham

Land Description:

**Cockburn Sound Location 2170
 Millar Road, Baldvis.**

Surveyed: PCS 04-07/11/05

Drawn: DH 10/11/05

Field Book: FB116 & SDR33

Data Source: Field Survey & Dola
 Digital Data

Amendments/Notes:

Plan of:

**Location 2170
 Millar Road,
 Baldvis.**

Datum: **AHD** Grid: **MGA94**
 Origin: 387875 000 E 6426425 000 N
 Scale: 1:3000 Rotation: 0 ~

Millar Road - November 2005

Surveyed :
 Computed:
 Job Description:

Date: 10 NOV 2005
 Job Ref:
 Plot Name: November 2005

Appendix 6: Commencement of Clearing Letter



W.A. LIMESTONE

**401 Spearwood Avenue
Bibra Lake 6163
PO Box 1404
Bibra Lake 6965**

A.C.N 008 866 448
A.B.N 67 478 411 404

**Telephone : (08) 9434 2299
Fax : (08) 9434 1513**

Department of the Environment
Mr Kynan Gowland
Approvals Monitoring North
Compliance & Enforcement Branch
Environment Assessment and Compliance Division
GPO Box 787
Canberra ACT 2601

Your ref 2012/6232

Wednesday, 20th November, 2013

Dear Mr Gowland,

CLEARING VEGETATION MILLAR ROAD, BALDIVIS, EPBC 2010/5649

Thank you for your letter of November 15th 2013 regarding the late notification of commencement of clearing, approximately 6 weeks after the due date of July 10th 2013.

It was at this time that we had our staff member (for 40 years) Dennis Hill, who was managing this project, retire. Therefore this condition was inadvertently overlooked, during handovers and staff changes etc.

We apologise for this and ensure that such an oversight does not occur in future.

Yours sincerely,



Roger Stephens

Appendix 7: Annual Report for Clearing Permit CPS 1814-1

COPY



W.A. LIMESTONE

401 Spearwood Avenue
Bibra Lake WA 6163

PO Box 1404
Bibra Lake WA 6965

P: (08) 9434 7777

F: (08) 9434 1513

www.walimestone.com

Native Vegetation Conservation Branch
Department of Environmental Regulation
Locked Bag 33
Cloister's Square
PERTH WA 6850

Tuesday, 24 June 2014

**ANNUAL REPORT FOR CLEARING PERMIT CPS 1814/1
LOC 2170 MILLAR ROAD, BALDIVIS**

WA Limestone provides the following information for the above clearing permit for the reporting period January 2013 to 31 December 2013.

During the reporting period a total of 21.0 hectares of native vegetation was cleared within the premises. Please refer to the attached plan highlighting the area cleared. The information is additionally provided on the enclosed CD in ESRI Shapefile format. The data was captured by GPS using the Geocentric Datum of Australia 1994 datum.

In accordance with Condition 3 of the permit, a pre-clearing fauna inspection and removal program was undertaken. See attached report for details.

No revegetation occurred during the reporting period as all cleared areas remain actively utilised by the quarry operations.

Should you require any further information please contact Roger Stephens at WA Limestone on 08 9434 7718 or roger.s@walimestone.com.

Regards

Roger Stephens

388.500mE 389.000mE 389.500mE 390.000mE

6.427.500mN 6.427.000mN



Legend

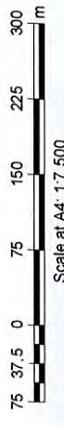
 Cleared during reporting period

2013 Clearing Permit CPS 1953/2 Report

Loc 2170 Millar Road, Baldiavis
DATE: 25/06/2014
COORDINATE SYSTEM: GDA 1994 MGA Zone 50



W.A. LIMESTONE



Scale at A4: 1:7,500

COPYRIGHT:
Image source: Nearmap
Date of Imagery: 17/03/2014

388.500mE 389.000mE 389.500mE 390.000mE

Millar Rd Sand Quarry Extension:

Pre-clearing Fauna Inspection.



Prepared for: WA Limestone

Prepared by: Western Wildlife
8 Ridgeway Pl
Mahogany Creek WA 6072
Ph: 0427 510 934



June 2013

Plan 1814/1

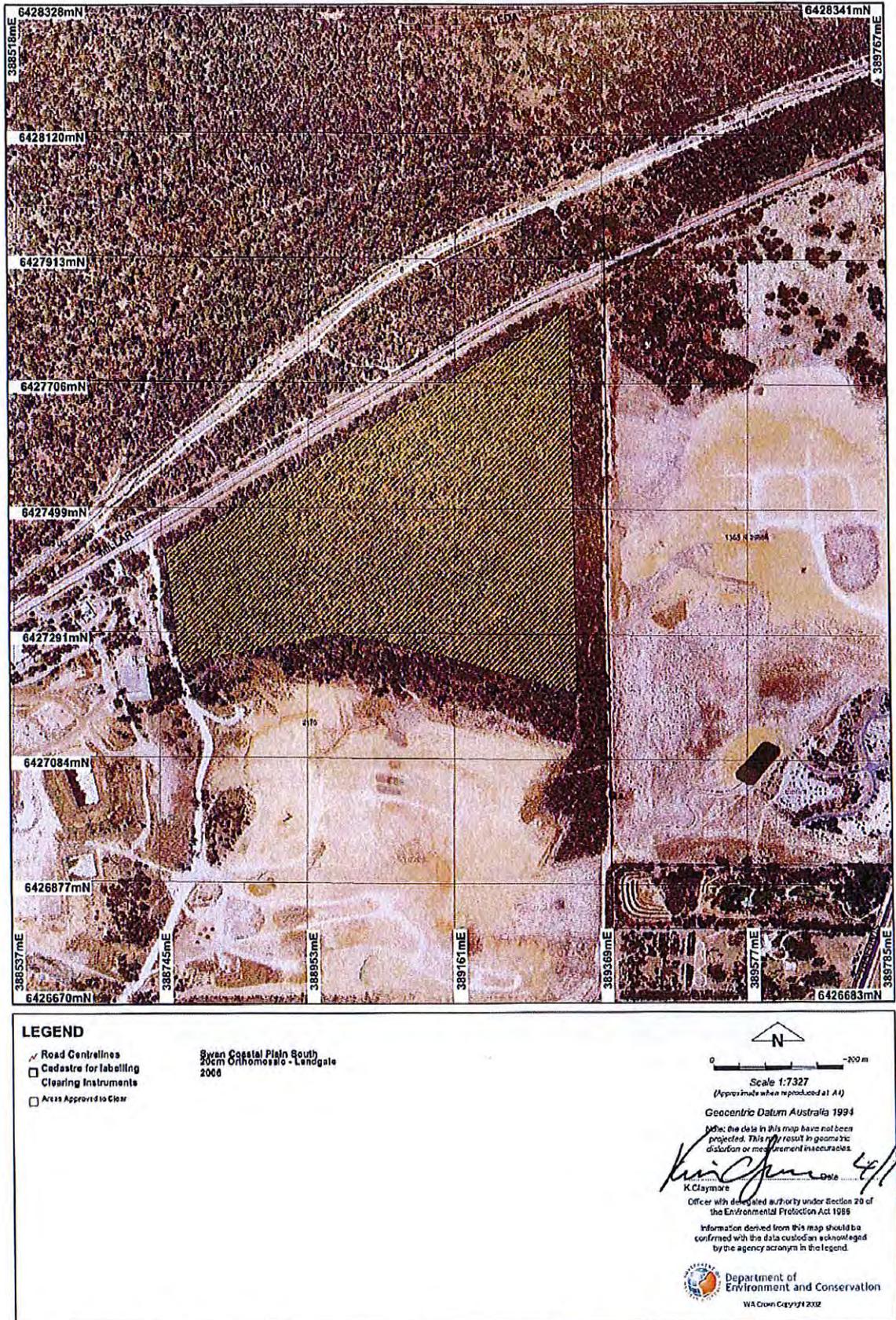


Figure 1. Area of native vegetation surveyed for fauna habitats and habitat trees.

Carpet Python

The Carpet Python is highly unlikely to occur, as it tends to be restricted to very large tracts of native vegetation (Bush *et al.* 2010).

Carnaby's Black-Cockatoo

Evidence of Carnaby's Black-Cockatoo foraging on *Banksia attenuata* was recorded in 2010 (Kirkby 2010) and was also observed during the 2013 survey. This species is likely to forage throughout the study area on *Banksia*, *Corymbia* and *Eucalyptus* species. Although Carnaby's Black-Cockatoo traditionally breeds in the wheatbelt, this species has also been recorded breeding on the Swan Coastal Plain, including in Baldvis, usually in Tuart trees (Johnstone *et al.* 2011). No evidence of black-cockatoo breeding was recorded in the study area by Kirkby (2010) or during this survey. As Carnaby's Black-Cockatoo breeds between early July and mid-December (Johnstone *et al.* 2011), even if a nest tree was present, there would not likely to be eggs or chicks present at the time of this survey.

Baudin's Black-Cockatoo

Baudin's Black-Cockatoo is only likely to occur occasionally in the study area, where it may forage on *Banksia*, *Corymbia* and *Eucalyptus* species. It is not likely to breed in the study area as it breeds further south.

Peregrine Falcon

The Peregrine Falcon may occur in the study area, but its presence would only be significant if it was found to be breeding in one of the tall trees. No nests were observed during the 2013 site visit, though it should be noted that these nests may be difficult to observe in the tree canopy.

Rainbow Bee-eater

The Rainbow Bee-eater is likely to be a common breeding visitor to the study area. It is likely to forage throughout the habitat present in the study area, and may breed in sandy ground on the edges of track and firebreaks. This species breeds in burrows between October to March (Johnstone and Storr 1998), so is not likely to be breeding at the time of the 2013 survey.

Fork-tailed Swift

The Fork-tailed Swift is largely an aerial species in Western Australia (Johnstone and Storr 1998) and is only likely to overfly the habitats in the study area.

Forest Red-tailed Black-Cockatoo

The Forest Red-tailed Black-Cockatoo was recorded overflying the study area in 2013 (Appendix 1) and foraging in the study area in 2010 (Kirkby 2010). This species is likely to forage in the *Corymbia*, *Eucalyptus* and *Allocasuarina* trees that are present. Although this species has been recorded breeding from February to December, the peak breeding period is October – November and on the Swan Coastal plain breeding has been recorded in November - December (Johnstone *et al.* 2011). Therefore, even if a nest tree was present, there would not likely to be eggs or chicks present at the time of this survey.

Appendix 1. Fauna observed during the 2013 site visit.

Birds

- Australian Raven (*Corvus coronoides*)
- Little Corella (*Cacatua sanguineus*)
- Whistling Kite (*Haliastur sphenurus*)
- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*) – 2 flying over site
- Australian Ringneck (*Platycercus zonarius*)
- Grey Fantail (*Rhipidura fuliginosa*)
- Red Wattlebird (*Acanthochaera carunculata*)
- Weebill (*Smicrornis brevirostris*)
- Australian Magpie (*Cracticus tibicen*)
- Grey Butcherbird (*Cracticus torquatus*)
- Western Spinebill (*Acanthorhynchus superciliosus*)
- Western Thornbill (*Acanthiza inornata*)
- Silvereeye (*Zosterops lateralis*)
- Spotted Pardalote (*Pardalotus punctata*)
- Striated Pardalote (*Pardalotus striatus*)
- Laughing Kookaburra (*Dacelo novaeguineae*)
- Galah (*Cacatua roseicapilla*)
- Grey Shrike-thrush (*Colluricincla harmonica*)

Mammals

- Western Grey Kangaroo (*Macropus fuliginosus*)
- Quenda (*Isodon obesulus*)

Appendix 8: City of Rockingham Tamworth Hill Swamp Revegetation Update
Report – June 2015



Tamworth Hill Swamp Revegetation Update - June 2015

The City of Rockingham remains committed to the revegetation of Tamworth Hill Swamp in accordance with the EPBC Decision Notice 2010/5649 and the Tamworth Hill Swamp Reserve Revegetation Plan.

In this regard, in June 2015, the City of Rockingham will be planting 4.3 hectares of habitat known to be primary feeding plants for Black Cockatoos, including cell trays and tubestock of *Acacia*, *Banksia*, *Corymbia*, *Eucalyptus*, *Hakea* and *Melaleuca* species. Forty advanced trees will be planted amongst the tubestock to provide an instant overstorey and future roosting and breeding habitat. Additional advanced tuarts will also be planted along the southern boundary of the reserve in association with the existing tuarts on site. The primary planting area for 2015 can be seen in Figure 1. The total planned revegetation area (>12 ha) to be achieved progressively over the next 2 years is indicated in Figure 2.

Since late 2014, site preparation works have been underway to prepare the 2015 planting area, including soil ripping, mounding and regular herbicide applications, with the final weed spray to be conducted 1 week prior to planting. A rabbit and kangaroo proof fence has been installed around the planting area to minimise predation during the seedling establishment phase (Figure 3). A number of photo monitoring points have also been identified to later evaluate the success of revegetation.

To inform the local community of the revegetation works, a large sign was placed along Nairn Drive directly adjoining the 2015 planting area (Figure 4) and an article was placed in the City Chronicle, which is distributed quarterly to all residents.

Complementary to the revegetation works, a 3m wide Bitumen Stabilised Limestone track has been installed around a portion of the reserve, spanning a total length of 1.5 km (Figure 5). This track will provide access for maintenance and fire suppression activities, while also providing a formalised track for nature walking. As part of these works, a new pedestrian and vehicle access gate have been installed along Safety Bay Road, including a new vehicle crossover to facilitate the safe movement of maintenance vehicles in and out of the reserve.

Furthermore, a Feral Animal Control Program has been undertaken at the reserve since October 2014 and will continue to be implemented in the 2015/2016 financial year. The program is focused on the integrated control of feral rabbits, cats and foxes, in accordance with control measures recommended for use in urban environments by the Department of Agriculture and Food and the Department of Parks and Wildlife. The program is coordinated by the City of Rockingham and is undertaken by a licenced feral animal control contractor.



Figure 1: Revegetation area for 2015 planting season

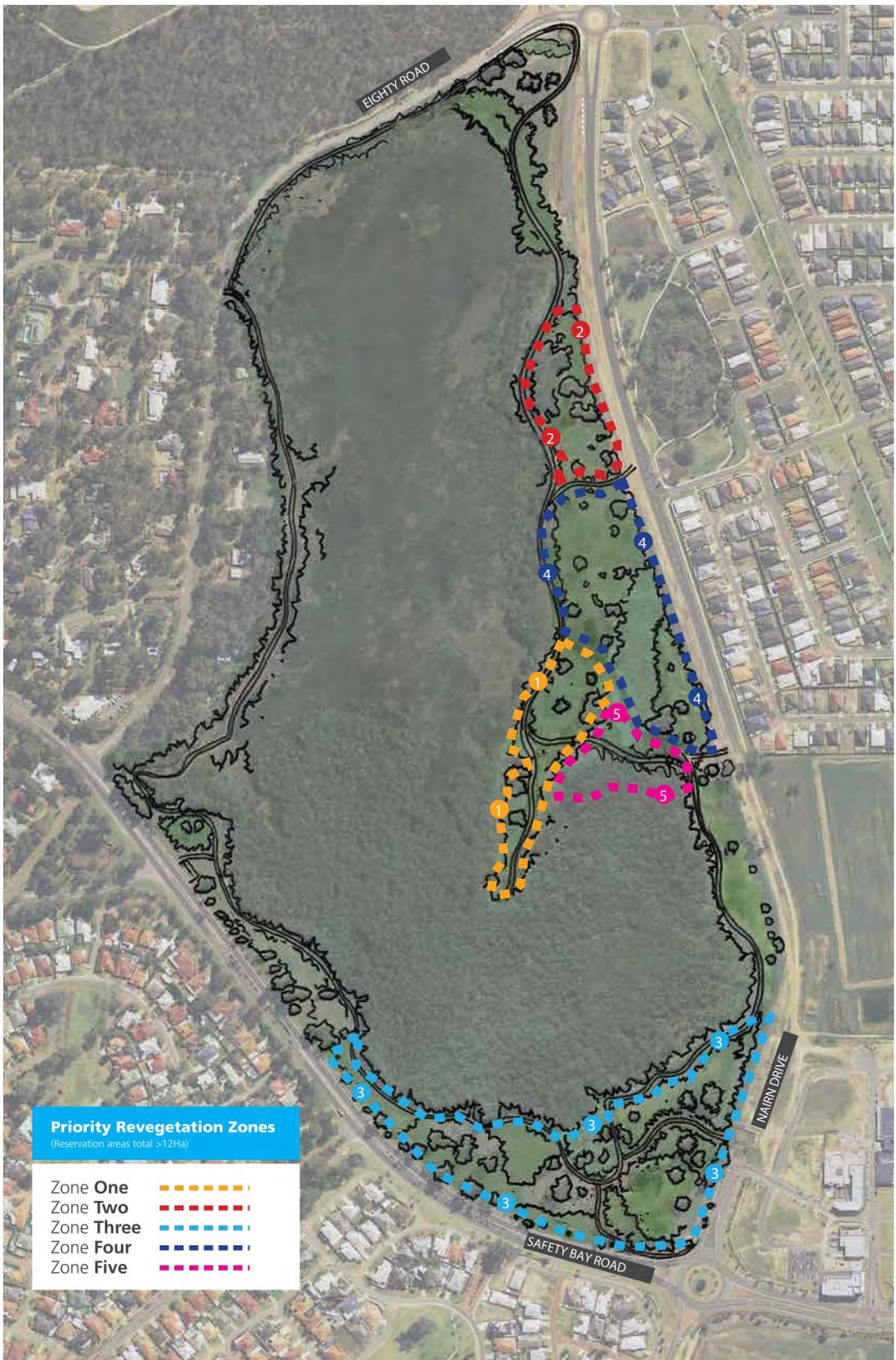


Figure 2: Priority revegetation zones



Figure 3: Rabbit and kangaroo proof fence around the perimeter of the 2015 primary planting area



Figure 4: Informative signage on the eastern side of Tamworth Hill Swamp along Nairn Drive

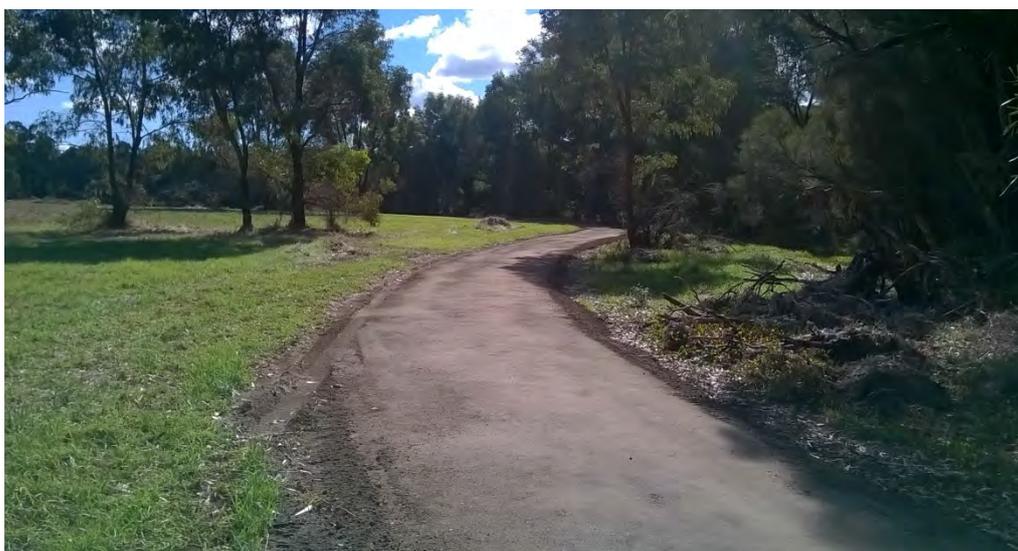


Figure 3: Bitumen Stabilised Limestone access track installed around 1.5km of the reserve

Figure 1: Approved Clearing Area

Figure 2: City of Rockingham Fire Management Treatments

