



# **APPENDICES**

**(PART ONE)**

# **ORDINARY MEETING**

To Be Held

**Wednesday, 9 August 2017**  
**Commencing at 5.00pm**

At

**Shire of Dardanup**  
**ADMINISTRATION CENTRE EATON**  
**1 Council Drive - EATON**

This document is available in alternative formats such as:  
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~ Electronic Format [disk or emailed]

Our Ref: BMRRA01  
via email: [records@dardanup.wa.gov.au](mailto:records@dardanup.wa.gov.au)



24 July 2017

Mr Mark Chester  
Chief Executive Officer  
Shire of Dardanup  
1 Council Drive  
EATON WA 6232

Dear Mark

**BUSSELTON MARGARET RIVER REGIONAL AIRPORT – FUTURE AIRPORT MARKETING FUND**

On behalf of the City of Busselton, I wish to thank you and the Shire of Dardanup for the ongoing support of the Busselton Margaret River Regional Airport (BMRRR) Development Project.

I am now writing to request that the Shire of Dardanup continue this support through a financial contribution of \$10,000 over five years for a future Airport Marketing fund. The Airport Marketing Fund will assist in the attraction and retention of Airlines to service the East Coast to South West route, the outcomes of which will provide direct benefits to all regional South West Local Governments.

As you are aware, the City has made significant progress on the project to date in terms of infrastructure development and airline engagement, resulting in positive responses from domestic airlines including interest to commence services by the end of 2017. The opportunity for an airline to be a first-mover into the South West region with a fully serviced terminal and ancillary services has been critical to this response.

To assist in securing direct interstate and international flights into the South West region, the City has committed \$3.5 million over five years towards the Airline Marketing fund, with the Margaret River Busselton Tourism Association (MRBTA) committing \$100,000 over two years. In addition, the City, in partnership with Tourism Western Australia, has engaged an Airline Engagement Consultant to assist in securing and retaining airlines to service the East Coast to South West route. These ongoing financial and in-kind commitments by stakeholders represent a significant commitment to the South West region and more importantly, to driving significant economic growth opportunities and expansive social benefits.

A redeveloped BMRRR capable of facilitating direct interstate and international flights is poised to play a key role in the increase of visitation to the region, bolstering the tourism industry, increasing occupancy and event attendance and providing incentive to invest in the development of major tourism infrastructure. The ability of the City of Busselton to secure a national carrier with the assistance of an Airport Marketing Fund will only further increase the profile the South West region on the national and international stage.

All Communications to:

The Chief Executive Officer  
Locked Bag 1  
BUSSELTON WA 6280  
T: (08) 9781 0444 E: [city@busselton.wa.gov.au](mailto:city@busselton.wa.gov.au)  
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*Events Capital WA*

## (Appendix ORD: 12.1.2)

The wider regional benefits of a developed airport include a construction workforce of 126; 94 new direct and indirect ongoing jobs over a 30 year period; \$95.5m in Gross Value Add to the South West Region over a 30 year period; \$55m in additional income; and \$220m in additional economic output.

BMRRA also represents a significant opportunity for air freight cargo. The region is renowned as a producer of high calibre horticultural and agricultural produce and is a substantial contributor to Western Australia's export figures. It is estimated that well over half of all airfreight out of Perth Airport comes from the South West region and the South West region is poised to take advantage of maturing markets with a growing emphasis on effectively managing the supply chains and shortening time to markets. Establishing a 'Paddock to Plate' supply chain via underbelly cargo on domestic and international regular passenger transport (RPT) services will provide direct and indirect economic benefits for the whole region.

In addition, the prospect of residing in the idyllic South West region and maintaining a desirable work life balance presents opportunities for the entire South West region to diversify its current workforce and attract new residents. This can be achieved through the redevelopment of BMRRA and increased FIFO services. As the amount of FIFO workers in Western Australia is expected to expand through newly commissioned projects and expansion of existing activities, a significant portion of this additional workforce demand will be met by skilled labour from towns in regional WA, presenting opportunities for the entire South West region to diversify its current workforce and attract new residents.

I ask that the Shire of Dardanup Council consider this request and provide a letter confirming a financial contribution toward the Airport Marketing fund and the continued support for the Busselton-Margaret River Regional Airport development project as one of the most regionally significant and transformational infrastructure projects in the South West.

Please feel free to contact me for further information.

Yours sincerely



**Mike Archer**  
CHIEF EXECUTIVE OFFICER

All Communications to:



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# LOCAL DEVELOPMENT PLAN LOT 9106 ILLAWARRA DRIVE, EATON



### LEGEND

-  1.8m High Back Fence
-  2.2m High Noise Barrier

### Noise Affected Lots:

-  Upper Floor - Package A  
Ground Floor - Not Mandatory
-  Upper Floor - Package B  
Ground Floor - Package A

### NOISE AFFECTED LOTS

Quiet house design requirements are applicable to all noise affected lots identified on this Local Development Plan. Detail of quiet house design requirements (A & B) are included as Attachment 1.

Modifications to the quiet house design requirements may be approved by the Shire where it can be demonstrated that proposed development will be provided within the acceptable level of acoustic amenity and subject to the development proposal being accompanied by a Transportation Noise Assessment undertaken by a suitably qualified professional.

Building Permit Applications for dwellings on 'noise affected lots' shall be accompanied by a written statement from the applicant demonstrating that the relevant components of the Quiet House Design requirements have been complied with in accordance with this Local Development Plan.



### Approval

This LDP has been approved by the Shire of Dardanup pursuant to Sch. 2, Pt. 6, Cl. 52(1)(a) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

Signature \_\_\_\_\_

Date \_\_\_\_\_

### Quiet House Design Requirements

Area	Orientation to road or rail corridor	<b>Package A</b> LAeq,Day up to 60dB LAeq,Night up to 55dB	<b>Package B</b> LAeq,Day up to 63dB LAeq,Night up to 58dB
Bedrooms	Facing	<ul style="list-style-type: none"> <li>• Walls to <math>R_w+C_{tr}</math> 45dB</li> <li>• Windows and external door systems: Minimum <math>R_w+C_{tr}</math> 28dB (Table 6.4), total glazing area up to 40% of room floor area. [if <math>R_w+C_{tr}</math> 31dB: 60%] [if <math>R_w+C_{tr}</math> 34dB: 80%]</li> <li>• Roof and ceiling to <math>R_w+C_{tr}</math> 35dB (1 layer 10mm plasterboard)</li> <li>• Mechanical ventilation as per Section 6.3.1</li> </ul>	<ul style="list-style-type: none"> <li>• Walls to <math>R_w+C_{tr}</math> 50dB</li> <li>• Windows and external door systems: Minimum <math>R_w+C_{tr}</math> 31dB (Table 6.4), total glazing area up to 40% of room floor area. [if <math>R_w+C_{tr}</math> 34dB: 60%]</li> <li>• Roof and ceiling to <math>R_w+C_{tr}</math> 35dB (1 layer 10mm plasterboard)</li> <li>• Mechanical ventilation as per Section 6.3.1</li> </ul>
	Side-on	<ul style="list-style-type: none"> <li>• As above, except glazing <math>R_w+C_{tr}</math> values for each package may be 3dB less, or max % area increased by 20%</li> </ul>	
	Opposite	<ul style="list-style-type: none"> <li>• No requirements</li> </ul>	<ul style="list-style-type: none"> <li>• As per Package A 'Side On'</li> </ul>
Indoor living and work areas	Facing	<ul style="list-style-type: none"> <li>• Walls to <math>R_w+C_{tr}</math> 45dB</li> <li>• Windows and external door systems: Minimum <math>R_w+C_{tr}</math> 25dB (Table 6.4), total glazing area limited to 40% of room floor area. [if <math>R_w+C_{tr}</math> 28dB: 60%] [if <math>R_w+C_{tr}</math> 31dB: 80%]</li> <li>• External doors other than glass doors to <math>R_w+C_{tr}</math> 26dB (Table 6.4)</li> <li>• Mechanical ventilation as per Section 6.3.1</li> </ul>	<ul style="list-style-type: none"> <li>• Walls to <math>R_w+C_{tr}</math> 50dB</li> <li>• Windows and external door systems: Minimum <math>R_w+C_{tr}</math> 28dB (Table 6.4), total glazing area up to 40% of room floor area. [if <math>R_w+C_{tr}</math> 31dB: 60%] [if <math>R_w+C_{tr}</math> 34dB: 80%]</li> <li>• External doors other than glass doors to <math>R_w+C_{tr}</math> 26dB (Table 6.4)</li> <li>• Mechanical ventilation as per Section 6.3.1</li> </ul>
	Side-on	<ul style="list-style-type: none"> <li>• As above, except the glazing <math>R_w+C_{tr}</math> values for each package may be 3dB less, or max % area increased by 20%</li> </ul>	
	Opposite	<ul style="list-style-type: none"> <li>• No requirements</li> </ul>	<ul style="list-style-type: none"> <li>• As per Package A 'Side On'</li> </ul>
Other indoor areas	Any	<ul style="list-style-type: none"> <li>• No requirements</li> </ul>	<ul style="list-style-type: none"> <li>• No requirements</li> </ul>
Outdoor living areas	Any	<ul style="list-style-type: none"> <li>• At least one outdoor living area located on the opposite side of the building from the transport corridor and/or</li> <li>• At least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2 metres height above ground level</li> </ul>	<ul style="list-style-type: none"> <li>• At least one outdoor living area located on the opposite side of the building from the transport corridor and/or</li> <li>• At least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level</li> </ul>

Building element	Type	$R_w+C_{tr}$ , dB	Example constructions
External wall	Steel framed	45	One row of 92mm studs at 600mm centres with – <ul style="list-style-type: none"> <li>• resilient steel channels fixed to the outside of the studs; and</li> <li>• 9.5mm hardboard or 9mm fibre cement sheeting or 11mm fibre cement weatherboards fixed to the outside of the channels; and</li> <li>• 75mm thick glass or mineral wool insulation with a density of 11kg/m<sup>3</sup> or</li> <li>• 75mm thick polyester insulation with a density of 14kg/m<sup>3</sup>, positioned between the studs; and</li> <li>• two layers of 16mm fire-protective grade plasterboard fixed to the inside face of the studs.</li> </ul>
			One row of 92mm studs at 600mm centres with – <ul style="list-style-type: none"> <li>• resilient steel channels fixed to the outside of the studs; and</li> <li>• one layer of 19mm board cladding fixed to the outside of the channels; and</li> <li>• 6mm fibre cement sheets fixed to the inside of the channels; and</li> <li>• 75mm thick glass or mineral wool insulation with a density of 11 kg/m<sup>3</sup> or</li> <li>• 75mm thick polyester insulation with a density of 14 kg/m<sup>3</sup>, positioned between the studs; and</li> <li>• two layers of 16mm fire-protective grade plasterboard fixed to the inside face of the studs.</li> </ul>
	Single leaf masonry, brick veneer	45	• Single leaf of 150mm brick masonry with 13mm cement render on each face.
		50	Single leaf of 90mm clay brick masonry with – <ul style="list-style-type: none"> <li>• a row of 70mm x 35mm timber studs or 64mm steel studs at 600mm centres; and</li> <li>• a cavity of 25mm between leaves; and</li> <li>• 75mm thick glass or mineral wool insulation with a density of 11kg/m<sup>3</sup> or 75mm thick polyester insulation with a density of 14kg/m<sup>3</sup> positioned between studs; and</li> <li>• one layer of 10mm plasterboard fixed to the inside face.</li> </ul>
			Single leaf of 220mm brick masonry with 13mm cement render on each face.
			150mm thick unlined concrete panel. 200mm thick concrete panel with one layer of 13mm plasterboard or 13mm cement render on each face.
	Double brick	45	Two leaves of 90mm clay brick masonry with a 20mm cavity between leaves.
		50	Two leaves of 90mm clay brick masonry with – <ul style="list-style-type: none"> <li>• a 50mm cavity between leaves; and</li> <li>• 50mm thick glass wool insulation with a density of 11kg/m<sup>3</sup> or 50mm thick polyester insulation with a density of 14 kg/m<sup>3</sup> in the cavity; and</li> <li>• Where wall ties are required to connect leaves, the ties are of the resilient type.</li> </ul>
	Two leaves of 110mm clay brick masonry with – <ul style="list-style-type: none"> <li>• a 50mm cavity between leaves; and</li> <li>• 50mm thick glass wool insulation with a density of 11kg/m<sup>3</sup> or 50mm thick polyester insulation with a density of 14 kg/m<sup>3</sup> in the cavity.</li> </ul>		

Building element	Type	Airborne weighted sound reduction rating with traffic correction $R_w+C_{tr}$ , dB	Example constructions, with airtight seals according to Section 6.3.3
Window, uPVC, aluminium or timber frame	Sliding or double hung opening	23	<ul style="list-style-type: none"> <li>4mm monolithic glass</li> </ul>
		26	<ul style="list-style-type: none"> <li>Single pane glazing to <math>R_w</math> 33dB</li> <li>6mm monolithic or laminated glass</li> <li>6mm toughened safety glass</li> <li>'6-12-6' double insulated glass unit (IGU))</li> </ul>
		29	<ul style="list-style-type: none"> <li>Single pane glazing to <math>R_w</math> 36dB</li> <li>10mm monolithic (aka float) glass</li> <li>10mm laminated or toughened safety glass</li> <li>6mm-12mm-10mm double insulating</li> </ul>
	Fixed sash, awning or casement type opening	26	<ul style="list-style-type: none"> <li>4mm monolithic glass</li> </ul>
		31	<ul style="list-style-type: none"> <li>Single pane glazing to <math>R_w</math> 33dB</li> <li>6mm monolithic or laminated glass</li> <li>6mm toughened safety glass</li> <li>'6-12-6' double insulated glass unit (IGU))</li> </ul>
		34	<ul style="list-style-type: none"> <li>Single pane glazing to <math>R_w</math> 36dB</li> <li>10mm monolithic (a.k.a. float) glass</li> <li>10mm laminated or toughened safety glass</li> <li>6mm-12mm-10mm double insulated glass unit (IGU))</li> </ul>
Single external door, aluminium uPVC or timber frame	Fully glazed sliding door	24	<ul style="list-style-type: none"> <li>6mm monolithic or laminated</li> <li>5 or 6mm toughened safety glass</li> </ul>
		27	<ul style="list-style-type: none"> <li>10mm monolithic or laminated</li> <li>10mm toughened safety glass</li> </ul>
	Fully glazed hinged door	28	<ul style="list-style-type: none"> <li>Certified <math>R_w</math> 31dB acoustically rated door and frame including seals</li> <li>6mm monolithic or laminated</li> <li>5 or 6mm toughened safety glass</li> </ul>
		31	<ul style="list-style-type: none"> <li>Certified <math>R_w</math> 34dB acoustically rated door and frame including seals</li> <li>10mm monolithic or laminated</li> <li>10mm toughened safety glass</li> </ul>
	Solid core timber frame, side hinged	26	<ul style="list-style-type: none"> <li>Certified <math>R_w</math> 28dB acoustically rated door and frame system including seals</li> <li>35mm solid core timber</li> </ul>
		30	<ul style="list-style-type: none"> <li>Certified <math>R_w</math> 32dB acoustically rated door and frame system including seals</li> <li>40mm solid core timber without glass insert</li> <li>40mm solid core timber with not less than 6mm</li> </ul>

**EXTRACTIVE INDUSTRIES LICENCE APPLICATION  
AND  
ENVIRONMENTAL MANAGEMENT PLAN (EMP)**

**LOT 1 ON DEPOSITED PLAN 56443  
(927 CROOKED BROOK ROAD)  
SHIRE OF DARDANUP**

PREPARED FOR

**CARBONE BROS PTY LTD**

By

**LUNDSTROM ENVIRONMENTAL CONSULTANTS PTY LTD**

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**MARCH 2017**



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## **1. INTRODUCTION**

### **1.1 GENERAL DESCRIPTION OF THE PROPOSAL**

The purpose of this report is to provide all the necessary information in support of an extractive industries licence (EIL) application by the Proponent, Carbone Bros Pty Ltd. Information contained in this report is also aimed at fulfilling the requirements for Town Planning Consent. The Planning Consent and EIL application forms are included with this report as Appendix 1.

The report sets out the details for the extraction of laterite gravel within an area of approximately 3.5ha on the property. It also provides an environmental assessment of the proposal and a rehabilitation plan.

### **1.2 PROPERTY DESCRIPTION, OWNERSHIP AND LOCALITY**

Land Description: Lot 1 on Deposited Plan 56443

Volume: 2760

Folio: 590

Area: 36.773 ha

Ownership: Christopher Edward Bouteloup and Zoe Nicole Bouteloup

The property is located approximately 10km south-east of Dardanup town site and is accessed directly from Crooked Brook Road.

Figure 1 shows the regional location of the property.

A letter of authorisation from the landowner is included in Appendix 1.

## **2. PLANNING ISSUES**

### **2.1 PRESENT LAND USE**

Lot 1 consists of cleared grazing land, and small areas of remnant native vegetation. The surrounding area comprises farming land and DEC Estate.

The property lies within a "General Farming" zone as defined by the Shire of Dardanup's Town Planning Scheme No. 3. It is anticipated that the extraction area will be returned to grazing on completion of extraction.

An application for gravel extraction was applied for by another operator in 2010. However as the requirements of the Council resolution were not met, a valid Development Approval and Extractive Industries Licence were never issued for the site

Figure 2 shows the site and surrounds and indicates the proposed Extractive Industries Licence (EIL) area covered by this application.

### **3. EXISTING ENVIRONMENT**

#### **3.1 CLIMATE**

The proposed extraction area is located within the Shire of Dardanup which experiences a mild, temperate climate with hot, dry summers and cool, wet winters.

#### **3.2 TOPOGRAPHY AND DRAINAGE**

The majority of the property comprises medium to steep slopes of between 5% and 30% and drainage is mainly towards the west, south and south-east towards Crooked Brook. The proposed extraction area has medium slopes between 5% and 25% and an elevation of between approximately 107 and 150m AHD.

The property lies within the Ferguson River sub-catchment of the Leschenault Estuary-Preston River hydrographic catchment, within the Preston River basin. The property does not fall within a Public Drinking Water Source Area or within Surface Water or Groundwater Proclamation Areas under the Rights in Water Irrigation Act 1914 (RIWI) (Western Australian Land Information System [WALIS] 2017). The property lies within two RIWI Act River Systems (Preston River & Tributaries and Ferguson River & Tributaries).

No Ramsar, Environment Protection Policy (EPP) wetlands or EPP lakes exist on Lot 1 or within 1 000 metres of the proposed operation. No wetlands, streams or other expressions of surface water have been identified within the proposed EIL area.

A minor streamline runs from near the southern boundary of the proposed EIL towards Crooked Brook which runs approximately 350m south of the property westward towards Preston River. Another minor streamline runs approximately 160m north of the proposed EIL westward towards Crooked Brook (Figure 1). There are three small farm dams within the property but none are located within the proposed extraction area.

Surface runoff within the proposed project area will require management and this is discussed in Section 5.5.1 of this document.

#### **3.3 GEOLOGY AND SOILS**

The proposed extraction area falls within the Donnybrook Sunkland soil-landscape zone. The soil-landscape system is classified as the Goodwood Valleys system which is characterised by low (mostly 20 to 50m deep) valley systems which have formed as a result of the dissection of the Blackwood plateau by major river systems such as the Preston River as is the case in this area. The valley sideslopes (Rosa subsystems) have gradients between 3 and 25% and are covered with gravels and sands (Tille 1996).

The soils are predominantly yellow-brown loamy gravels of colluvial origin with outcropping laterite areas on higher ground.

### 3.4 ACID SULPHATE SOILS

A search of the CSIRO's Australian Soil Resource Information System (ASRIS) database determined there were no acid sulphate soil (ASS) sites (associated with previous wetland environments) identified in the proposed EIL area and the area is classified as having an 'Extremely Low Probability of Occurrence' of ASS (ASRIS 2017).

### 3.5 GROUNDWATER AND HYDROLOGY

The site lies immediately to the west of the Darling Fault which separates the Shield granite's from the Superficial and Leederville formations of the Perth Basin. Groundwater resources are limited and information obtained from a Department of Water (DoW) database bore log (from private bore located approximately 1km west of the proposed EIL) indicates the water table is approximately 21m below ground level. The proposed extraction depth is approximately one metre below ground level, greatly exceeding the minimum clearance from the water table required under current regulatory policies and guidelines (DoW 2014).

### 3.6 WETLANDS

There is a Palusplain Multiple Use Wetland (Crooked Brook) located approximately 250m south of the proposed extraction area on the southern side of Crooked Brook Road (Figure 2). The separation distance to the wetland exceeds the 50m buffer recommended by the Department of Parks and Wildlife (DPaW) (DPaW 2016).

### 3.7 VEGETATION

The native vegetation on this property has been cleared extensively. The proposed extraction area has been mapped as the Preston Vegetation Complex (Heddle et al., 1980). The vegetation within this complex is described as consisting of a woodland of marri-jarrah on the slopes. The understorey consists of pasture grasses. The condition of the vegetation in this area can be described as "parkland cleared" and hence classified as being 'completely degraded' (Keighery 1994).

A clearing permit has been applied for with the Department of Environment Regulation (DER) (CPS 7509/1).

There are no threatened ecological communities, nor are there any threatened flora within the proposed extraction area.

### 3.8 FAUNA

A search of the EPBC Protected Matters Database identified the area as potential breeding habitat for *Calyptorhynchus latirostris* (Carnaby's Black-Cockatoo) and *Calyptorhynchus baudinii* (Baudin's Cockatoo) and potential habitat for *Calyptorhynchus banksia naso* (Forest Red-tailed Black-Cockatoo) (DoEE2017).

### 3.9 DIEBACK DISEASE

Dieback mapping has not been undertaken for the site. Due to the large areas of cleared land within the proposed extraction area, the site should be classified as uninterpretable and managed as such. Methods to manage dieback on this site are discussed in Section 5.8 of this report.

### **3.10 CURRENT ZONING**

The area is zoned as "General Farming" in accordance with the Shire of Dardanup's Town Planning Scheme No.3.

### **3.11 ABORIGINAL HERITAGE SITES**

A search of the Department of Aboriginal Affairs Aboriginal Heritage Inquiry System (AHIS) did not identify any sites of Aboriginal significance on Lot 1. In the event that during the course of mining an Aboriginal cultural heritage site is discovered, the Proponent will immediately advise the Department of Aboriginal Affairs and abide by the *Aboriginal Heritage Act 1972*.

## 4. THE DEVELOPMENT PROPOSAL

### 4.1 PROPOSED EXTRACTION ACTIVITIES

It is proposed to extract gravel from the 3.5ha site in in a single campaign, using a front-end loader and bulldozer. This will result in the extraction of approximately 35,000 cubic metres (m<sup>3</sup>) of material in total.

The proposed extraction licence is required for the purpose of commencing the following activities on the site:

- Extraction of gravel from an area of 3.5ha in as shown in Figure 3. This will involve extraction of approximately 35,000m<sup>3</sup> (70,000 tonnes) of gravel.
- Topsoil will be removed from the area prior to the commencement of extraction and stockpiled separately along the edges of the extraction area, with stockpiles being no higher than two metres. Topsoil/overburden depth is approximately 20cm on average across the proposed extraction area.
- A bulldozer will rip and blade material to a stockpile. A mobile crushing and screening plant will be used on site for approximately six weeks per year. Trucks will enter the pit via an unsealed, existing access road off Crooked Brook Road and be loaded from the stockpile by a front-end loader.
- The crusher and stockpile positions have been identified by the proponent and are illustrated in Figure 3.
- Excavation will proceed until the laterite has been removed, resulting in a reduction in ground level of one metre.
- On completion of extraction, topsoil will be replaced and seeded with pastures prior to the commencement of winter.

Table 1 summarises the activities of the extraction operation and provides an estimated timeframe for these activities.

**Table 1. Timeframe of Activities associated with the Extraction Operation**

Action	2017	2018	2019	2020	2021	2022	2023	2024
Strip, crush and stockpile 35,000m <sup>3</sup>								
Load and truck out 35,000m <sup>3</sup>								
Rehabilitation of 3.5ha								
Monitoring and Maintenance								



## **4.2 SITE ACCESS AND EGRESS ROADS**

It is proposed to enter and exit the site from Crooked Brook Road. An existing formed, unsealed property road will provide access to the proposed extraction area. The transport route from site will be along Crooked Brook Road to Boyanup Road.

### **4.2.1 School Bus Schedules**

Information in regard to school bus routes has been obtained from the Public Transport Authority's School Bus Services. A map showing the Dardanup South school bus route is included in Appendix 2. Information extracted is as follows:

The bus service along Crooked Brook Road may potentially be affected in both the morning and afternoon:

- The Dardanup South school bus stops directly outside the proposed extraction property in the morning and afternoon
- The Dardanup South school bus travels along the Boyanup-Picton Road and Crooked Brook Road in the morning

Any disruption to school bus schedules can be resolved by imposing a curfew on truck movements to and from the pit between 7:30am and 8:30am and between 3:30pm and 4:00pm during school terms.

## **4.3 ESTIMATED TRAFFIC TO BE GENERATED**

The following estimates are made:

Total annual gravel removal:	70,000 tonnes
Number of working days per month:	22 days
Vehicle payloads (GAVs <sup>1</sup> ):	Standard semi- tipper truck (24 tonnes)

The above factors suggest a maximum of 11 loaded truck movements per day but this will be dependent on demand.

---

<sup>1</sup> General Access Vehicle (in terms of Road Traffic Rules and Regulations 2002)

## **5. POTENTIAL ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT**

Short term negative environmental impacts are to be expected in the process of all mining actions. However, these can largely be mitigated over the medium to long term provided that operating procedures are in accordance with acceptable standards and that rehabilitation measures are implemented as proposed. The following listed potential impacts are used as a check list to ensure that all potential major impacts are addressed.

### **5.1 FLORA AND FAUNA**

Since the majority of the area is already cleared, there will be no significant impact to indigenous flora and fauna. An investigation of FloraBase showed that there are no known records of flora species protected under the EPBC Act which were identified as having the potential to occur within the proposed extraction area.

A walkover of the site concluded that vegetation within the proposed extraction area may provide foraging and roosting habitat for the Black Cockatoos. The four trees identified as needing to be cleared for the proposed extraction area were not classified as suitable nesting trees. More suitable cockatoo habitat can be found in the Conservation Estate located directly north of the proposed extraction area in the adjacent Lot.

The proposed extraction area has been planned to avoid the larger stands of trees and remnant forest on the property.

### **5.2 WEEDS**

A weed management plan will be implemented as described in Appendix 3 of this report.

### **5.3 ALTERATION OF THE LAND SURFACE**

No steep slopes will remain after extraction and this will ensure that the extraction area will blend into the surrounding landscape. The final land surface will be approximately two metres below the original ground level and the edges will be battered back to a gradient of 1:6.

### **5.4 VISUAL IMPACT**

The extraction area is not considered to be in a visually sensitive area as roadside vegetation along Crooked Brook road will provide some screening of the operations.

Once rehabilitation has been completed and pastures established, there will be little evidence that extraction has taken place.

### **5.5 WATER**

In all extraction operations, the potential exists for impacts to be incurred on surrounding water resources, or by stormwater erosion of exposed areas. This is dependent on the slopes associated with the site, the nature of the ground materials and the proximity of the site to sensitive receptors such as productive aquifers, wetlands, lakes or rivers.

Management measures to mitigate potential impacts to or from water are contained in the Water Management Plan included as Appendix 4 and summarised below.

## **5.5.1 Water Management**

### **5.5.1.1 Surface Water Management**

Surface drainage within the proposed EIL area is towards Crooked Brook, mainly to the west and south with some minor drainage towards the east and north at the eastern end of the EIL. There are drainage lines near the EIL area (Figure 2) with the closest near the southern boundary. There is a Palusplain Multiple Use Wetland (Crooked Brook) approximately 250m south of the proposed extraction area on the southern side of Crooked Brook Road (Figure 2). The separation distance to the wetland exceeds the 50m buffer recommended by the DPaW (DPaW 2016).

The proposed extraction site does not include any expressions of surface water such as lakes, wetlands, dams, rivers or creeks, and no surface drainage lines have been identified within the proposed project areas.

### **5.5.1.2 Stormwater Management**

The eastern part of the proposed EIL occurs on a ridge and therefore the pit will not accrue significant amounts of stormwater from surrounding areas. Stormwater generated within the pit has the potential to cause erosion and will require management measures.

The management of stormwater on this site will be as follows:

- Any surface runoff from unmined areas outside the EIL area will be diverted around the workings by means of stockpiles placed along the eastern boundaries of each stage acting as diversion bunds.
- The runoff generated by direct rainfall onto the working stage will be managed through use of a number of measures which include:
  - Four stormwater detention pond will be constructed as part of the extraction process, with all stormwater generated from the active cell being directed to it by the use of contour bunds. These will serve as effective silt traps in times of high surface runoff.
  - Strategically placed stockpiles
  - Contour banks
- On completion of the extraction stage, contour banks will be constructed with an average fall of approximately 1:400 and at intervals of 30m with the outfall being directed into the detention ponds.

### **5.5.1.3 Groundwater Management**

The project does not involve abstracting groundwater for operational purposes. No groundwater will be exposed by this development since extraction will only lower the ground level by a meter and depth to groundwater has been calculated as approximately 21m (See Water Management Plan in Appendix 4).

Due to the low scale nature of the operations, no groundwater contamination is anticipated. No fuel or lubricant storage will occur on the site. Refuelling will take place using a mobile refuelling vehicle which is equipped with a “snap-on snap-off, fast-fill and auto shut-off” facility. Plant will be refuelled each morning, leaving the vehicles almost empty overnight. No major servicing, which could lead to fuel and oil spills, will take place on the site.

Contaminated material resulting from any minor spills will be extracted and disposed of offsite at an appropriate landfill facility.

## 5.6 NOISE

The proposed development will generate some operational noise during periods of stripping, crushing and screening, but this will be limited to approximately six weeks per year. Mitigation measures will be implemented which will limit the impact of operational noise. A Noise Management Plan has been prepared and is included as Appendix 5 of this report. An assessment of noise emissions associated with the extraction, crushing, screening and loading of gravel for the proposed operations was undertaken and is included in this report as the Noise Management Plan. Computer modelling was used to predict the noise levels, under worst case conditions, to each of the external sensitive receiver locations.

The site is surrounded by farming land and conservation estate. The closest residences to the outer boundaries of the extraction area are summarised in Table 2 and mapped on Figure 2.

The following management measures will be implemented to mitigate potential noise:

- Hours of operation will be restricted to between 0700 and 1700 on weekdays and between 0700 and 1200 on Saturdays
- Late model equipment will be utilised with reduced noise level outputs
- The crushing and screening plant will be positioned such that the topsoil and product stockpiles will provide noise attenuation
- Only broad-band reversing warning devices (croakers) will be utilised.

**Table 2: Structures within 1000m of the Extraction Area**

Reference No. on Figure 1	Street/ Lot No.	Occupants Name	Distance to closest area of pit (metres)
1	828 Crooked Brook Rd	Unknown	965
2	927 Crooked Brook Rd	Owner	140
3	934 Crooked Brook Rd	Unknown	240
4	2 Mountford Rd	Unknown	340
5	Ratcliffe West Rd /2464	Unknown	600
6	285 Ironstone Rd	Unknown	940
7	1039 Crooked Brook Rd	Unknown	860
8	Crooked Brook Rd /2236	Unknown	745

## 5.7 DUST

There is potential for dust to be generated from active working areas, stockpiles and unsealed access roads under dry, windy conditions. A Dust Management Plan has been prepared to

address dust management during the operational and rehabilitation stages of the extraction project and is included in Appendix 6.

A summary of dust control measures to be implemented for the extraction project are given in Table 3.

**Table 3: Summary of Dust Control Measures to be implemented for the Extraction Project**

Activity	Action	Control measure	Result
<b>Daily</b>			
Gravel extraction and product loading.	Visual inspection of site and access road for dust generation that is moving off site.	Water cart application over dust prone areas to reduce dust lift off.	Reduced dust generation. No dust leaving the property.
Product transport.	All loads covered before leaving the property.	Cover loads.	Reduced dust generation from product transport.
<b>As Required</b>			
Training.	Induct all employees and contractors working on site.	Site induction includes awareness of dust generation and management measures to be utilised by all personnel on site.	Activities undertaken to minimise dust generation on site.
Progressive rehabilitation / stabilisation of completed areas.	Undertake progressive rehabilitation using pasture species on completed areas.	Progressive rehabilitation to be undertaken as per Section 6 of this report.	Reduced dust generation from the property.
Dust complaints.	Provide a contact number for dust complaints.	Undertake review of potential complaints and implement appropriate action to reduce dust generation from site.	Reduced dust generation from the property.

## 5.8 DIEBACK

Since the majority of the area to be extracted is cleared, it is not possible to ascertain the dieback status of the area. The area should thus be classified as “uninterpretable” and managed as per the guidelines applicable for this classification (Dieback Working Group 2010).

### 5.8.1 Dieback Management

The following management measures will be put in place to minimise future spread of dieback:

- The site will be fenced at all times.
- Access to the site will be via a single entrance gate.
- All machinery, trucks and other vehicles will arrive in a clean condition free of soil and organic matter that may contain dieback fungus.
- Any soil or plant material brought to site for rehabilitation purposes should be free from dieback sources.
- Employees and contractors working on the site will be informed of the purpose of the above measures and their responsibilities in relation to dieback prevention.
- The site will not be worked during wet periods.

## 5.9 HERITAGE SITES

A search of the Department of Aboriginal Affairs AHIS (Aboriginal Heritage Inquiry System) did not identify any sites of Aboriginal significance on Lot 1. In the event that during the course of mining an Aboriginal cultural heritage site is discovered, the Proponent will immediately advise the Department of Aboriginal Affairs and abide by the *Aboriginal Heritage Act 1972*.

## 6. REHABILITATION

### 6.1 PROPOSED REHABILITATION MEASURES

On completion of extraction, the area will be returned to pastures. The following steps will be implemented:

- Topsoil and overburden stripped at the commencement of extraction will be stored in stockpiles placed along the edges of the operational area to be used in rehabilitation.
- On completion of extraction, compacted areas will be ripped to facilitate water infiltration and root penetration.
- Batters will be smoothed to 1:6 and the base of the pit levelled out.
- Stockpiled topsoil and overburden will be spread over the completed areas.
- The area will be fertilised and seeded with pasture species.
- Contour bunds with a fall of 1:400 will be constructed at elevation intervals of approximately 4 metres.
- Monitoring and maintenance of rehabilitated areas.

The final rehabilitated surface will be one metre below the original surface (dependent on the position in the landscape) and is shown in Figure 4.

### 6.2 MONITORING AND MAINTENANCE

Monitoring will be carried out on an annual basis to assess:

- the physical stability of the landform in the rehabilitated areas.
- the success of germination of pasture grasses.
- the emergence of weeds.

Monitoring will continue until the completion criteria presented in Section 6.3 have been fulfilled.

Maintenance procedures will be carried out where necessary and will include:

- repair of any erosion damage.
- replanting/seeding areas that may not have regenerated.
- weed control.

### 6.3 COMPLETION CRITERIA

Completion criteria should be set at a high enough standard to ensure that the overall objectives of the rehabilitation have been met. These criteria should allow for efficient reporting and auditing so that rehabilitation works can be tracked and finalised within an appropriate timeframe.

The completion criteria proposed for extractive operations on Lot 1 on Deposited Plan 56443 are presented in Table 4.

**Table 4: Closure Criteria and Interim Targets**

<b>Criteria</b>	<b>Objective</b>	<b>Interim Targets</b>
1. Safety	The site is safe to humans.	The site is safe to humans during operations
2. Sustainability	The site is sustainable in the long term without additional management inputs.	N/A
3. Suitability	The site is suitable for agricultural purposes.	N/A
4. Visual amenity and heritage	The rehabilitated extraction area blends into the surrounding environment.	N/A
5. Off-site impacts	Significant adverse off-site impacts are prevented.	N/A
6. Hydrology	<ul style="list-style-type: none"> <li>• Site hydrology does not prevent the establishment of desired vegetation.</li> <li>• Site hydrology does not reduce the stability of the landform.</li> <li>• Stormwater is contained within the site.</li> </ul>	<ul style="list-style-type: none"> <li>• Stormwater is contained within the site during operations.</li> <li>• Identification and mitigation of any hydrology related issues during operations.</li> </ul>
7. Soils and stability	<ul style="list-style-type: none"> <li>• Soil profiles and structures are sufficient to ensure vegetation establishment.</li> <li>• The landform is stable.</li> </ul>	<ul style="list-style-type: none"> <li>• Topsoil is respread in all rehabilitation areas.</li> <li>• Identification and mitigation of potential erosion scars and scours during operations.</li> </ul>
8. Vegetation	<ul style="list-style-type: none"> <li>• Pasture grasses cover the entire targeted area.</li> <li>• Pasture grass cover is sufficiently resilient to sustain grazing pressure.</li> <li>• Monitoring will be conducted on an annual basis just prior to the wet season and will include pasture grass cover and stability of the constructed batters.</li> </ul>	<ul style="list-style-type: none"> <li>• After one year pasture grasses cover 30% of target area increasing by 20% per annum thereafter.</li> </ul>
9.	<ul style="list-style-type: none"> <li>• Declared pest weeds are absent.</li> <li>• The level of weed species should not be detrimental to the pasture grasses.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed species removed systematically during operations.</li> </ul>



## 7. REFERENCES

- ASRIS. (2011). ASRIS - Australian Soil Resource Information System. <http://www.asris.csiro.au>. Accessed February 2017.
- Department of Aboriginal Affairs (2017). Aboriginal Heritage Inquiry System (AHIS). Website: <http://www.daa.wa.gov.au/en/Site-Search/>. Accessed: February 2017.
- Department of Parks and Wildlife (DPaW) (2016). Website: <https://www.dpaw.wa.gov.au/management/wetlands/conserving-and-managing-our-wetlands>.
- Department of Water (DoW) (2014). South West Region Guideline, Water Resource Considerations for Extractive Industries.
- Dieback Working Group (2010). Management of *Phytophthora* Dieback in Extractive Industries. Available on [www.dec.wa.gov.au/](http://www.dec.wa.gov.au/)
- Tille PJ, Wilson G and National Landcare Program (Australia) (1996) *Wellington-Blackwood Land Resources Survey*. Department of Agriculture and Food, Western Australia, Perth. Report 14
- Western Australian Land Information System (WALIS) (2017). WA Atlas map viewer. Website: <https://www2.landgate.wa.gov.au/bmvf/app/waatlas/>. Accessed: February 2017.

**FIGURES**



**Lundstrom Environmental  
Consultants Pty Ltd**

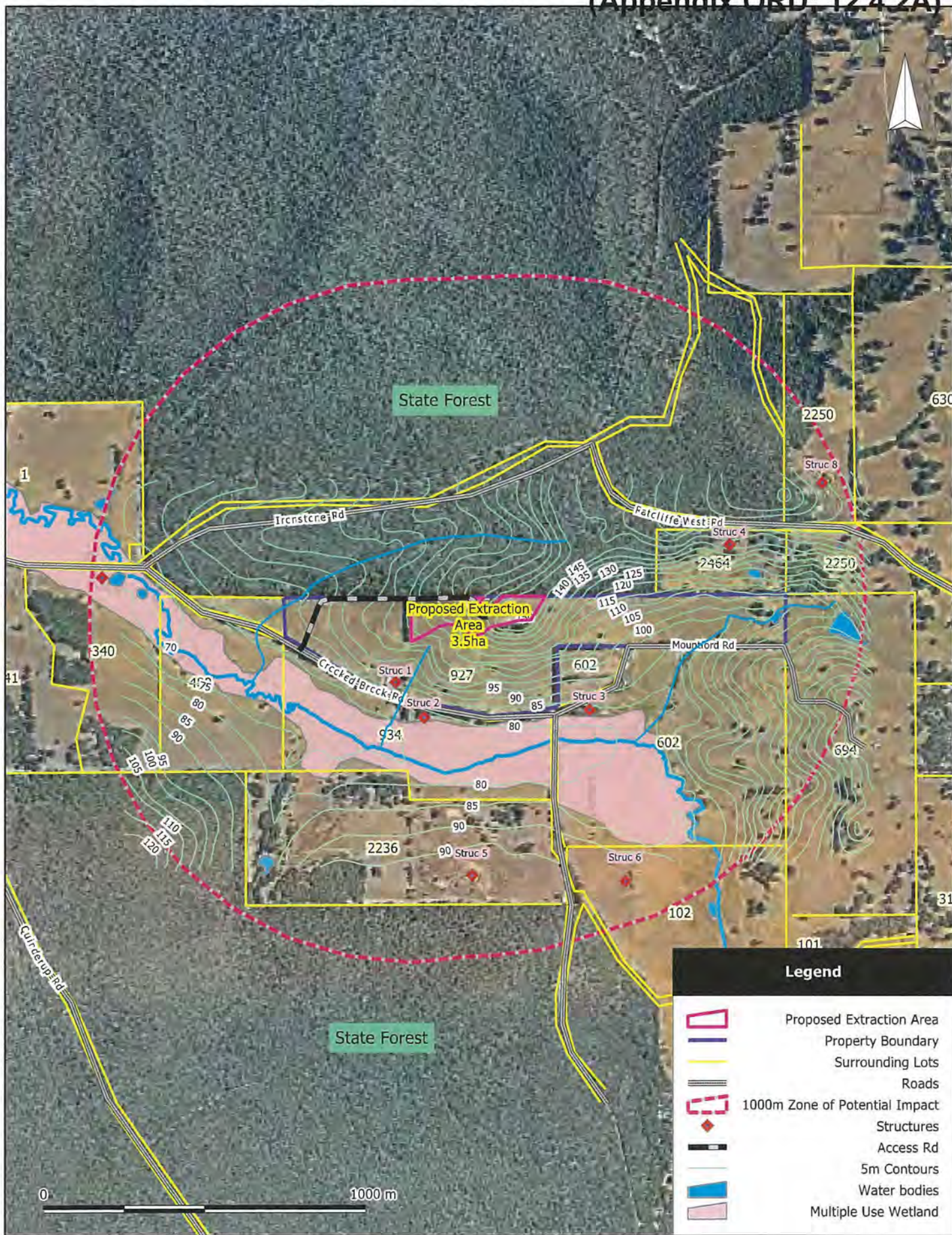
21 Sellen Court, Leeming 6149  
Mobile: 0417934863  
mikelund1@bigpond.com

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Air Photo Date: 2008  
Datum: Australian Geocentric 1994 (GDA94)

**Carbone Bros Pty Ltd  
Proposed Gravel Pit  
927 Crooked Brook Rd  
Dardanup**

**Locality Map**

**Figure 1**



**Lundstrom Environmental Consultants Pty Ltd**

21 Sellen Court, Leeming 6149  
Mobile: 0417934863  
mikelund1@bigpond.com




Scale: 1:15000  
Original Size: A4  
Air Photo Date: Nearmap 6 Feb 2017  
Datum: Australian Geocentric 1994 (GDA94)

**Carbone Bros Pty Ltd**  
**Proposed Gravel Pit**  
**927 Crooked Brook Rd**  
**Dardanup**

**Site and Surrounds**

**Figure 2**



-  Topsoil Stockpiles
-  Proposed Clearing
-  Proposed Extraction Area

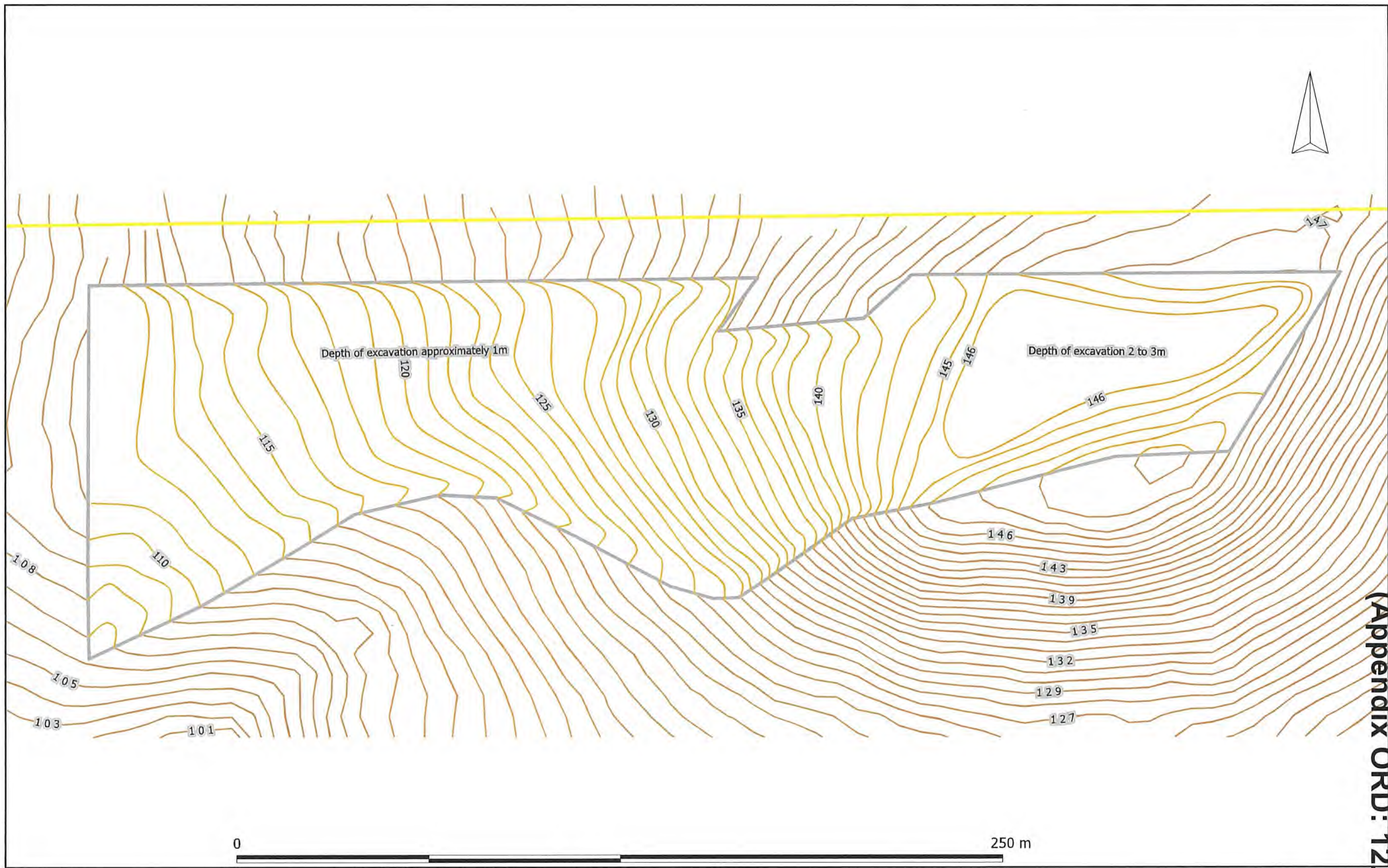
**Lundstrom Environmental Consultants Pty Ltd**  
 21 Sellen Court, Leeming 6149  
 Mobile: 0417934863; Email: mikelund1@bigpond.com  
 www.lundstrom-environmental.com.au

Scale: 1:1600  
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 Datum: Australian Geocentric 1994 (GDA94); GDA94

**Carbone Bros Pty Ltd**  
**Proposed Gravel Pit**  
 927 Crooked Brook Road  
 Dardanup

Extraction Area  
**Figure 3**

Appendix ORD: 12.4.2A)



Appendix ORD: 12.4.2A)

**Lundstrom Environmental Consultants Pty Ltd**  
 21 Sellen Court, Leeming 6149  
 Mobile: 0417934863; Email: mikelund1@bigpond.com  
 www.lundstrom-environmental.com.au

Scale: 1:1600  
 Original Size: A4  
 Air Photo Date: 2008  
 Datum: Australian Geocentric 1994 (GDA94): GDA94

**Carbone Bros Pty Ltd**  
**Proposed Gravel Pit**  
**927 Crooked Brook Road**  
**Dardanup**

**Final Landsurface**  
**Figure 4**

**APPENDIX 1**  
**PLANNING CONSENT AND EIL APPLICATION FORMS AND**  
**LANDOWNERS' LETTER OF AUTHORISATION**



**APPLICATION FORM  
TO COMMENCE DEVELOPMENT**  
*Town Planning Scheme No. 3*  
**FORM 110**

Date stamp

**Part 1 Applicant Details**

Name in Full

Carbone Bros Pty Ltd

Postal Address

PO Box 61 BRUNSWICK WA 6224

Email

carbon1@bigpond.com

Phone

9726 1178

Mobile

Phone A/H

Fax

**Part 2 Premises Details on which development is proposed**

Owner(s) Name

Christopher Edward Bouteloup and Zoe Nicole Bouteloup

Lot No

Street No

Street Name

927

Crooked Brook Road

Suburb

Crooked Brook

Post Code

6236

Plan or Diagram Number

Lot 1 on Dep Plan 56443

Certificate of Title - Vol/Fol

Vol 2760 Folio 590

Current Site Use

Agriculture

Services Available

Storm Water

Water

Sewerage

**Part 3 Owner(s) Consent**

I/We the owner(s) of the property (as described in Part 2) hereby consent to the Applicant (as described in Part 1) commencing the proposed development with the required approval from the Shire of Dardanup.

*Chris Boutley*      *Zoe Bouteloup*

Owner(s) Signature

13-3-17

Date

**Part 4 The type of development proposed and the nature of the proposed buildings**

Extractive Industry - Gravel Extraction



Part 5 Approximate cost of proposed development

Cost

If your development costs are between \$3 million and \$7 million, do you want your application assessed by a Development Assessment Panel (DAP)?

Yes

No

Part 6 Additional Details

Estimated time of completion

5 years (dependant on demand for gravel)

Approximate number of persons to be housed/employed when development is completed

Any further information:

Part 7 Declaration

I, the person making this application declare that:

The information contained in this application is true and correct in every particular;

I have accompanied this application with two copies of the relevant plans and the application fee.

*Amanda Colby*

Signature of Applicant

14/03/2017

Date

Part 8 Return form to

Shire of Dardanup  
Planning Department  
1 Council Drive/PO Box 7016  
EATON WA 6232

Phone: (08) 9724 0000 Fax: (08) 9724 0091  
Email: [records@dardanup.wa.gov.au](mailto:records@dardanup.wa.gov.au)

Please note:

- This is not an application for a building licence. Separate application forms are to be submitted for the building licence
- This form is to be submitted together with the application fee and two (2) copies of the relevant plans (one of which is to be no bigger than A3 size) to the Council office
- Attach a copy of the Offer and Acceptance if applicable
- All 'Working from Home' and 'Advertising Signage' applications require a supplementary form to be completed in addition to this form. Please complete either Form 110A (Working from Home) or Form 110B (Advertising Signage) and submit with your completed application.



SCHEDULE 3  
SHIRE OF DARDANUP

Clause 7

APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENCE

1. Name Carbone Bros Pty Ltd.....(the "applicant")
2. Address PO Box 61, BRUNSWICK WA 6224.....
3. Telephone 9726 1178..... Fax : .....
4. Address and locality of proposed excavation site  
927 Crooked Brook Rd, Crooked Brook 6236.....  
.....
5. Lot 1 ..... No
6. Location No .....
7. Plan or Diagram No DP 56443.....
8. Certificate of Title Volume: 2760..... Folio : 590.....
9. Owner of the land  
Christopher Edward Bouteloup and Zoe Nicole Bouteloup.....  
.....
10. Address of owner of the land  
927 Crooked Brook Road, Crooked Brook WA 6236.....  
.....
11. Material to be excavated  
Gravel.....
12. If the application covers land that is the subject of an existing licence:  
Date of issue of that licence  
.....  
Date of expiration of that licence  
.....  
Conditions applicable to that licence  
.....  
.....
13. Term of licence sought  
.. 5 years.....
14. Submitted with this application are :  
(a)3 copies of excavation site plan (cl.7(1)(a))  
(b)3 copies of works and excavation programme (cl.7(1)(b))  
(c)3 copies of rehabilitation and decommissioning programme (cl.7(1)(c))  
(d)datum peg evidence (cl.7(1)(d))  
(e)licensed surveyor's certificate (cl.7(1)(e))  
(f)evidence of compliance with cl.6(1) and (2) (cl.7(1)(f))  
(g)copies of all land use planning approvals (cl.7(1)(g))

- (h)written consent of the owner of the excavation site (cl.7(1)(h))
- (i)any other information that the Council has required (cl.7(1)(i))
- (j)licence application fee of \$250 (cl.7(1)(j)).

The applicant applies for a licence in respect of the proposed excavation site in accordance with and subject to the Shire of Dardanup Extractive Industries Local Law.

Dated this .....13th.. day of ...March..... 2017.....

*[Signature]*  
.....

Signature of Applicant

*[Signature]*  
.....

Signature of Owner of the land

.....

Signature of existing licensee

(if applicable)

**SCHEDULE 4**  
**SHIRE OF DARDANUP**  
**EXTRACTIVE INDUSTRY LICENCE**

Clause 8(3)(b)

Licensee

.....

Address

.....

.....

...

.....

...

Land

Description

.....

.....

...

Material

to

be

Excavated

.....

Term of Licence

Date of Expiry

This licence is issued in accordance with the Shire of Dardanup Extractive Industries Local Law subject to the following conditions :

.....

...

.....

...

.....

...

Dates

this

day

of

19

.....

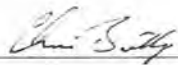
.....

Christopher and Zoe Bouteloup  
927 Crooked Brook Road  
Crooked Brook WA 6236

21 February 2017

To Whom It May Concern

We are the registered owners of Lot 1 (H927) Crooked Brook Road, Crooked Brook, Shire of Dardanup, and hereby give permission for Carbone Bros Pty Ltd and their Consultant, Lundstrom Environmental Consultants Pty Ltd to make applications for all the necessary licences and permits and authorise them to access and clear native vegetation and extract gravel on this property.

  
\_\_\_\_\_  
Christopher Edward Bouteloup

  
\_\_\_\_\_  
Zoe Nicole Bouteloup




**(Appendix ORD: 12.4.2A)**

**Greater Bunbury Region Scheme**  
**Form 1**  
**Application for Planning Approval**

**Owner/s details**

Registered proprietor/s (landowner/s) or the authorised agent's details **must** be provided in this section. If there are more than two landowners please provide all relevant information on a separate page. Signature/s must be provided by all registered proprietors or by an authorised agent. **Alternatively**, a letter of consent, which is signed by all registered proprietors or by the authorised agent, can be provided.

Full name Christopher Edward Bouteloup & Zoe Nicole Bouteloup  
 Company/agency (if applicable) Lundstrom Environmental Consultants Pty Ltd  
 ACN/ABN (if applicable) ACN 600 398 945  
 Postal address 21 Sellen Court  
 Town/suburb LEEMING Postcode 6149  
 Signature  Date 17/03/17  
The landowner/s or authorised agent consents to the applicant submitting this application  
Refer to landowners letter of consent attached  
 Print name and position Michael Lundstrom, Principal Consultant  
 (if signing on behalf of a company or agency)

**Applicant details**

Name/company Carbone Bros. Pty Ltd  
 Contact person Fred Carbone  
 Postal address PO Box 61  
 Town/suburb Brunswick Junction WA Postcode 6224  
 Fax Email carbon1@bigpond.com  
 Applicant signature   
 Print name and position Amanda Carbone, Director Date 17/03/17  
 (if signing on behalf of a company or agency)

**Property details**

Certificate of title description of land:	Lot No	1	Location No
Plan or Diagram 56443	Vol	2760	Folio 590
Certificate of title description of land:	Lot No		Location No
Plan or Diagram	Vol		Folio

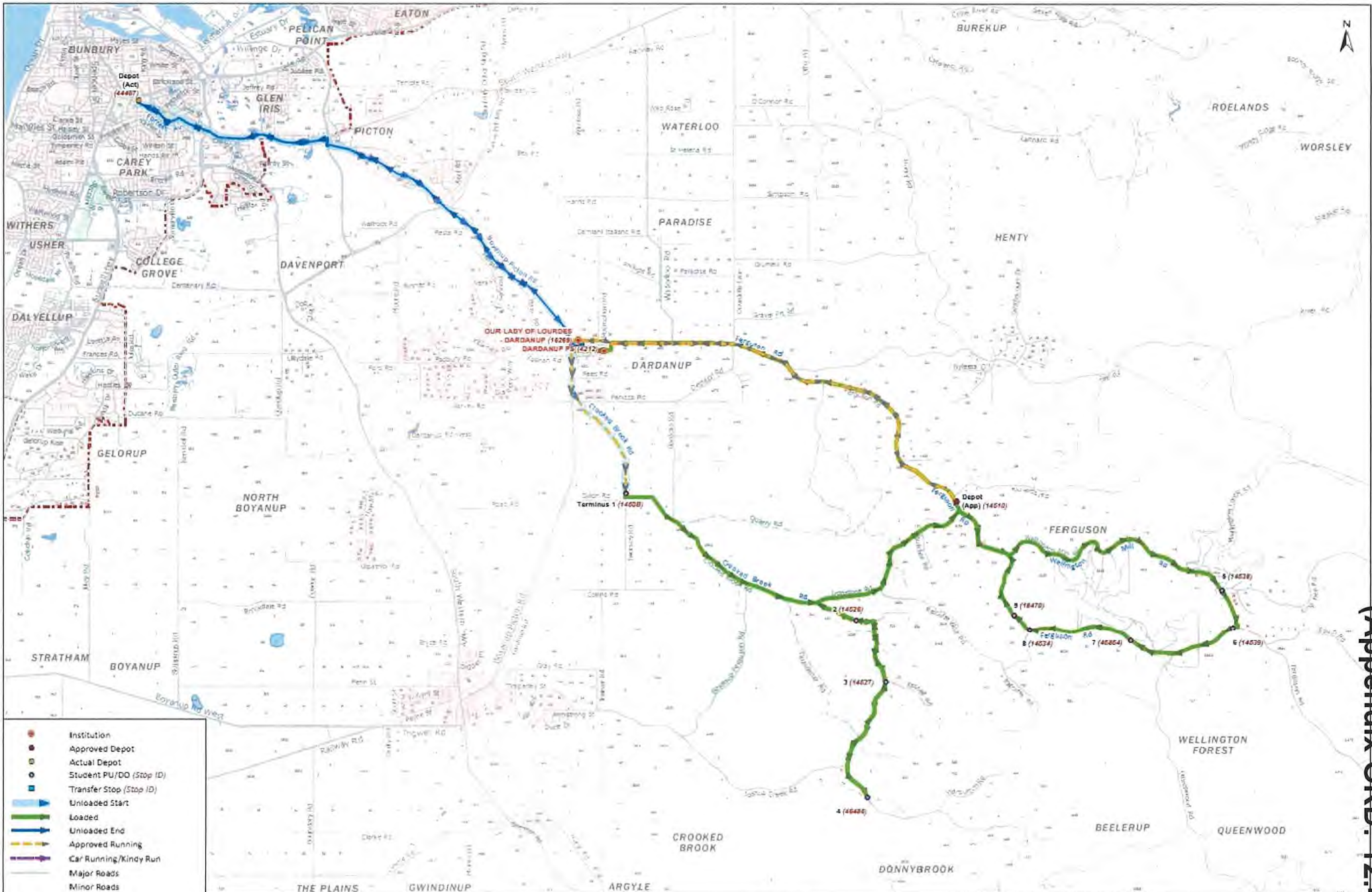
Title encumbrances (e.g. easements, restrictive covenants)  
 Locality of development (house no., street name, suburb, etc) 927 Crooked Brook Rd, Crooked Brook, Shire of Dardanup  
 Nearest street intersection Mountford Rd  
 Existing building/land use General farming / grazing  
 Description of proposed development and/or use Gravel extraction over 3.5ha  
 Nature of any existing buildings and/or use Residential dwelling and farm sheds  
 Approximate cost of proposed development (excl. gst) \$  
 Estimated time of completion 2-3 years  
 Is the development within a designated bushfire prone area? **Y/N**  
 If yes, please provide either a BAL Assessment or BAL Contour map to assist in the assessment of this application.

**Office use only**

Acceptance Officer's Initials Date Received  
 Local government reference No. Commission reference No.

## **APPENDIX 2**

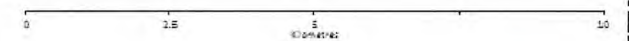
### **SCHOOL BUS ROUTES**

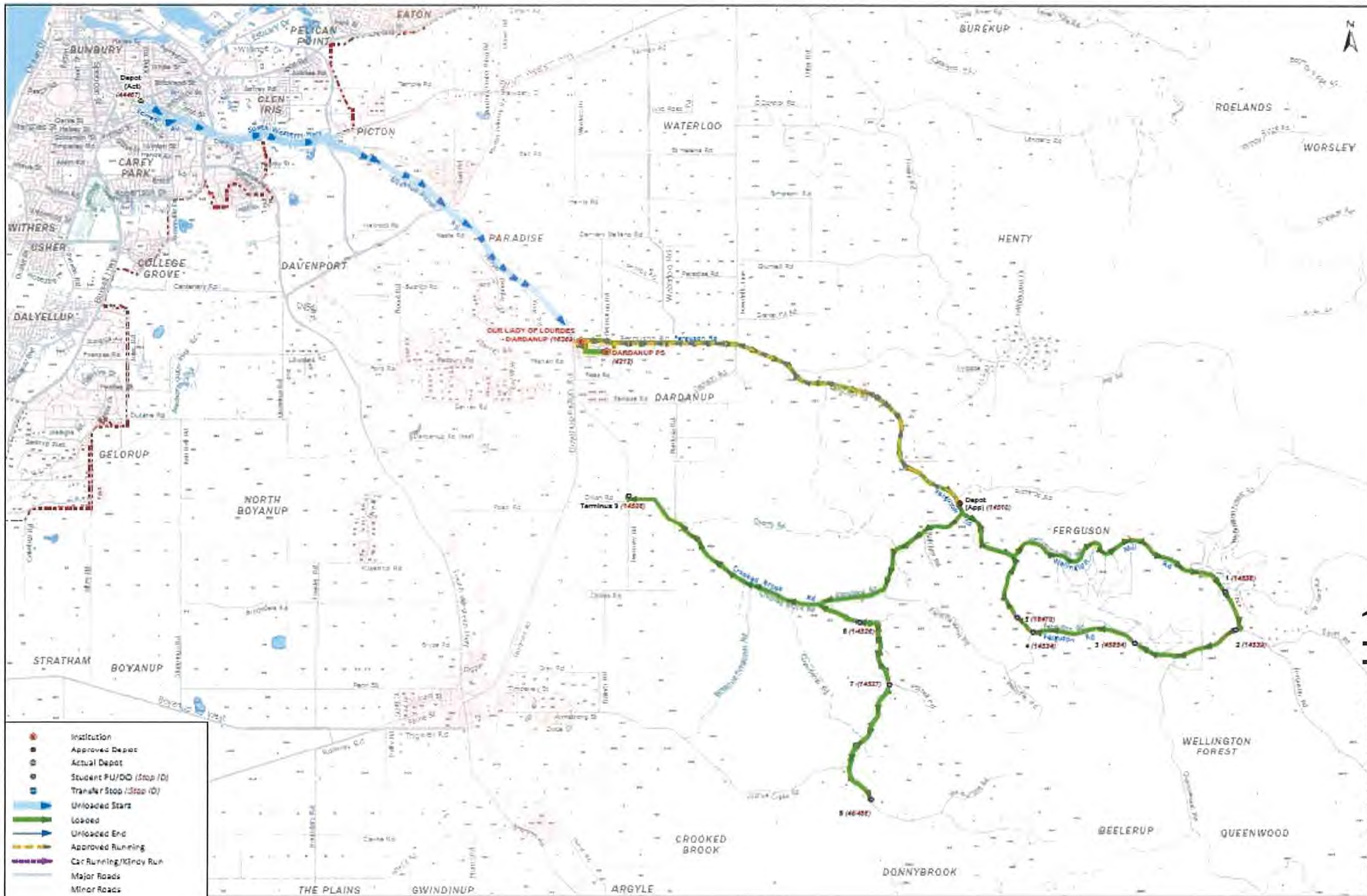


Appendix ORD: 12.4.2A

**Contract Name: Dardanup South**  
 AM MAIN - Effective from 20/02/2017  
 Contract Number: 8927

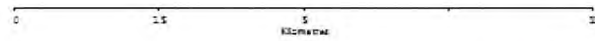
	Approved	Actual
Unloaded Start	15.11 km	16.8 km
Loaded	51.89 km	51.85 km
Unloaded End	10.5 km	13.07 km
Service Total	77.46 km	81.72 km
Unseated	2.74%	2.59%





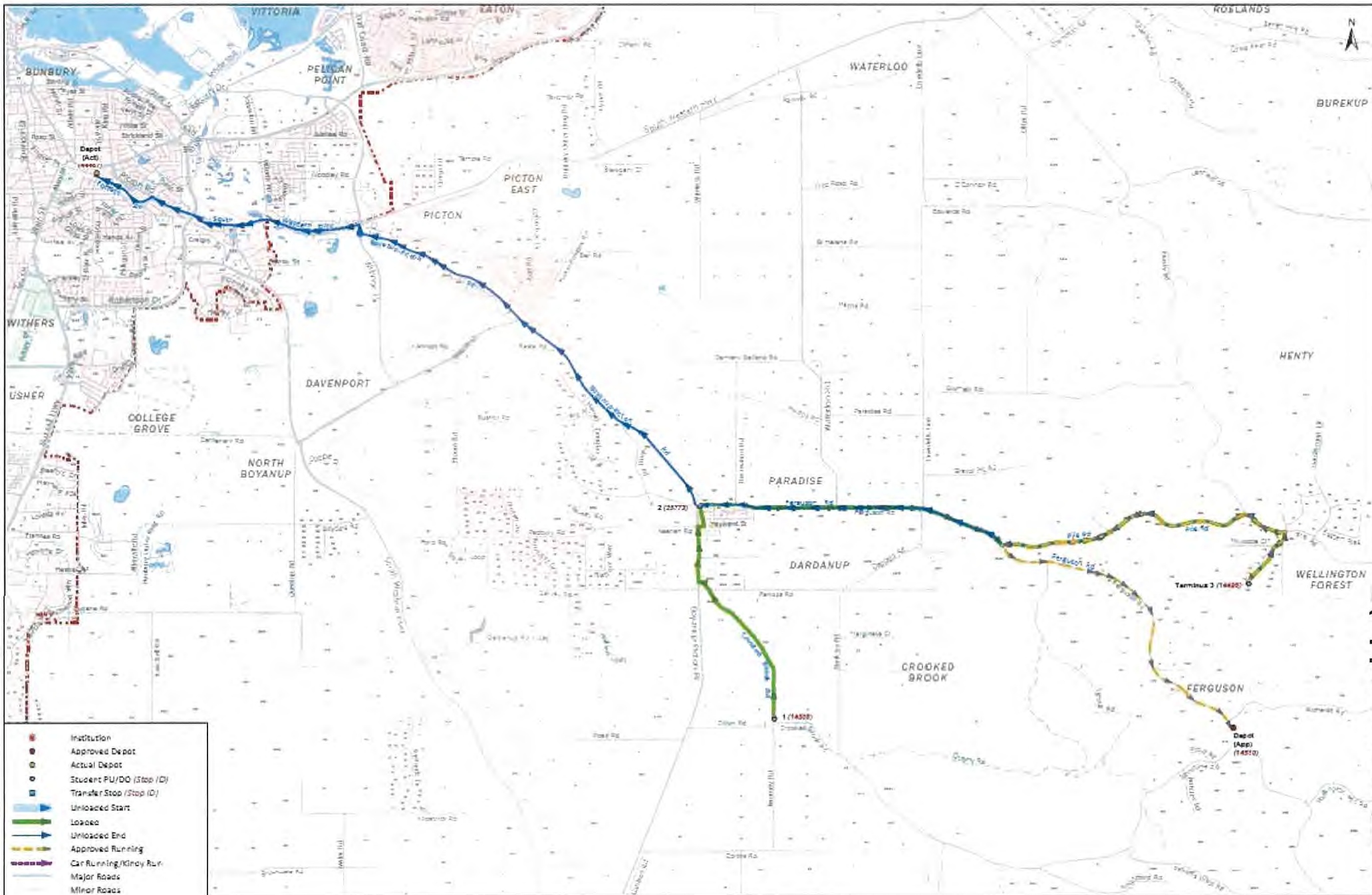
**Contract Name: Dardanup South**  
 PM MAIN RUN 1 - Effective from 20/02/2017  
 Contract Number: 9927

	Approved	Actual
Unloaded Start	20.85 km	22.54 km
Loaded	21.95 km	22.96 km
Unloaded End	0 km	0 km
Service Total	42.80 km	45.49 km
Usage %	9.32%	1.24%



(Appendix ORD: 12.A.2A)





- Institution
- Approved Depot
- Actual Depot
- Student PU/DO (Stop /D)
- Transfer Stop /Stop (D)
- Unloaded Start
- Loaded
- Unloaded End
- Approved Running
- Car Running/Kinoy Run
- Major Roads
- Minor Roads
- Tracks
- Proposed Roads
- Public Transport Area Boundary
- Property Boundary

**Contract Name: Dardanup South**  
 PM MAIN RUN 2 - Effective from 20/02/2017  
 Contract Number: 8927

	APPROX	ACTUAL
Unloaded Start	0 km	0 km
Loaded	15.8 km	15.8 km
Unloaded End	11.7 km	23.14 km
Service Total	27.5 km	38.14 km
Unloaded	0%	0%



(Appendix ORD: 12.4.2A)

**APPENDIX 3**  
**WEED MANAGEMENT PLAN**



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**WEED MANAGEMENT PLAN**  
Prepared for Carbone Bros Pty Ltd  
Lot 1, 927 Crooked Brook Road, Crooked Brook  
Shire of Dardanup

**1. INTRODUCTION**

This Weed Management Plan (WMP) has been prepared in accordance with guidelines published by the Department of Agriculture and Food (DAF) (DAF 2014). This WMP should be read in conjunction with the report entitled "*Extractive Industries Licence Application and Environmental Management Plan (EMP); Lot 1 on Deposited Plan 56443, 927 Crooked Brook Road, Crooked Brook, Shire of Dardanup*", prepared for Carbone Bros Pty Ltd by Lundstrom Environmental Consultants Pty Ltd.

**1.1 Locality and Ownership**

Locality: Lot 1 on Deposited Plan 56443, 927 Crooked Brook Road, Crooked Brook, Shire of Dardanup  
Ownership: Christopher Edward Bouteloup and Zoe Nicole Bouteloup

Figure 1 shows the site and its surrounds and indicates the proposed Extractive Industries Licence (EIL) area covered by this application.

**1.2 Development Proposal**

Carbone Bros Pty Ltd intend to extract 70,000 tonnes (35,00m<sup>3</sup>) of gravel from the areas that are indicated on Figure 1 over a period of five years. The total area to be disturbed is 3.5ha.

**2. RESPONSIBILITIES**

Carbone Bros Pty Ltd accepts responsibility for weed management within Zones A and B (as identified in Section 4.1 of this report) and any areas identified within the conditions of approval set by the Shire of Manjimup.

**3. CURRENT WEED STATUS OF THE PROPERTY**

No declared weeds or weeds of local or regional significance were observed during field investigations on site. It is acknowledged that the proposed ground disturbance may result in the germination of certain weeds, but the species will not be known until emergence.

**4. PROPOSED WEED MANAGEMENT ACTIONS**

The following is a general description of the actions that will be implemented by Carbone Bros Pty Ltd for weed management:

#### **4.1 Weed Management Zones on the Subject Land**

For the purpose of this WMP, the subject land has been allocated zones as follows:

Zone A: This is all the land within the extraction area and includes the base of the excavation, roadways and stockpiles of topsoil, overburden and all product stockpiles.

Zone B: This is all land that is at natural level which extends 100 meters beyond the perimeter of the extraction area and includes any stockpiles or overburden created by the excavation and rehabilitated areas.

#### **4.2 Weed Emergence Monitoring**

Monitoring of the emergence of weeds in Zones A and B will be undertaken by an experienced and licensed weed management contractor on a six monthly basis i.e. after the first seasonal rains and at the end of spring. In addition, Carbone Bros Pty Ltd personnel on the site will be instructed to report any infestations that may occur on other occasions. Based on the type of weeds that emerge, a control plan will be formulated by the licensed weed management contractor.

#### **4.3 Import and Export of Weeds**

Carbone Bros Pty Ltd will ensure that all plant and equipment is clean and free of any soil when moving any equipment to or from the site. Carbone Bros Pty Ltd will also ensure that any quarry products imported to the site will be free of weeds.

#### **4.4 Weed Control Program**

If a weed infestation occurs within Zones A or B, the licensed weed management contractor will apply the appropriate method of control, in accordance with the guidelines published by the DAF, whether chemical or mechanical, at the appropriate time. The weed management contractor will keep a record of all treatments.

### **5. REFERENCES**

Department of Agriculture and Food (DAF) (2014). Department of Agriculture and Food WA guidelines for weed control procedures for extractive industries licence.



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Scale: 1:15000  
Original Size: A4  
Air Photo Date: Nearmap 6 Feb 2017  
Datum: Australian Geocentric 1994 (GDA94)

**Carbone Bros Pty Ltd  
Proposed Gravel Pit  
927 Crooked Brook Rd  
Dardanup**

**Site and Surrounds**

**Figure 2**

**APPENDIX 4**  
**WATER MANAGEMENT PLAN**



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**WATER MANAGEMENT PLAN**  
**Prepared for Carbone Bros Pty Ltd**  
**Lot 1, 927 Crooked Brook Road, Crooked Brook**  
**Shire of Dardanup**

**1. INTRODUCTION**

This Water Management Plan (WMP) has been prepared to describe the measures that will be undertaken to achieve compliance with surface water and groundwater management requirements across the proposed Extractive Industries Licence (EIL) operations on Lot 1 Crooked Brook Road, Crooked Brook. This WMP should be read in conjunction with the report entitled "*Extractive Industries Licence Application and Environmental Management Plan (EMP); Lot 1 on Deposited Plan 56443, 927 Crooked Brook Road, Crooked Brook, Shire of Dardanup*", prepared for Carbone Bros Pty Ltd by Lundstrom Environmental Consultants Pty Ltd.

**1.1 Property Locality, Area and Ownership**

Locality: Lot 1 on Deposited Plan 56443, 927 Crooked Brook Road, Crooked Brook, Shire of Dardanup  
Area: 36.773 ha  
Ownership: Christopher Edward Bouteloup and Zoe Nicole Bouteloup

Figure A shows the property site and surrounds and indicates the proposed Extractive Industries Licence area covered by this application.

**1.2 Historic and Present Land Use**

Lot 1 consists of cleared grazing land, and small areas of remnant native vegetation. The surrounding area comprises farming land and Department of Environment and Conservation (DEC) Estate, now the Department of Environment Regulation (DER).

The property lies within a "General Farming" zone as defined by the Shire of Dardanup's Town Planning Scheme No. 3. It is anticipated that the extraction area will be returned to grazing on completion of extraction.

**1.3 Proposed Extraction Activities**

It is proposed to extract gravel from the 3.5ha site in a single campaign, using a front-end loader and bulldozer. This will result in the extraction of approximately 35,000 cubic metres (m<sup>3</sup>) of material in total.

The proposed extraction licence is required for the purpose of commencing the following activities on the site:

- Extraction of gravel from an area of 3.5ha in as shown in Figure 2. This will involve extraction of approximately 35,000m<sup>3</sup> (70,000 tonnes) of gravel.
- Topsoil will be removed from the area prior to the commencement of extraction and stockpiled separately along the edges of the extraction area, with stockpiles being no higher than two metres.
- A bulldozer will rip and blade material to a stockpile. A mobile crushing and screening plant will be used on site for approximately six weeks per year. Trucks will enter the pit via an unsealed, existing access road off Crooked Brook Road and be loaded from the stockpile by a front-end loader.
- Excavation will proceed until the laterite has been removed, resulting in a reduction in ground level of one metre on the western slopes and up to 4 metres on the top of the hill.
- On completion of extraction, topsoil will be replaced and seeded with pastures prior to the commencement of winter.

## 2. EXISTING ENVIRONMENT

### 2.1 Topography, Drainage and Wetlands

The majority of the property comprises medium to steep slopes of between 5% and 30% and drainage is mainly towards the west, south and south-east towards Crooked Brook. The proposed extraction area has medium slopes between 5% and 25% and an elevation of between approximately 107 and 150m AHD.

The property lies within the Ferguson River sub-catchment of the Leschenault Estuary–Preston River hydrographic catchment, within the Preston River basin. The property does not fall within a Public Drinking Water Source Area or within Surface Water or Groundwater Proclamation Areas under the *Rights in Water Irrigation Act 1914* (RIWI) (Western Australian Land Information System [WALIS] 2017). The property lies within two RIWI Act River Systems (Preston River & Tributaries and Ferguson River & Tributaries).

No wetlands, streams or other expressions of surface water have been identified within the proposed EIL area. There is a Palusplain Multiple Use Wetland (Crooked Brook) located approximately 250m south of the proposed extraction area on the southern side of Crooked Brook Road (Figure 1). The separation distance to the wetland exceeds the 50m buffer recommended by the Department of Parks and Wildlife (DPaW) (DPaW 2016). No Ramsar, Environment Protection Policy (EPP) wetlands or EPP lakes exist on Lot 1 or within 1,000 metres of the proposed operation.

A minor streamline runs from near the southern boundary of the proposed EIL towards Crooked Brook which runs approximately 350m south of the property westward towards Preston River. Another minor streamline runs approximately 160m north of the proposed EIL westward towards Crooked Brook (Figure A). There are three small farm dams within the property but none are located within the proposed extraction area.

Surface runoff within the proposed project area will require management and this is discussed in Section 3.2 of this document.

### 2.2 Geology and Soils

The proposed extraction area falls within the Donnybrook Sunkland soil-landscape zone. The soil-landscape system is classified as the Goodwood Valleys system which is characterised by low (mostly 20 to 50m deep) valley systems which have formed as a result of the dissection of the Blackwood plateau by major river systems such as the Preston River as is the case in this area. The valley sideslopes (Rosa subsystems) have gradients between 3 and 25% and are covered with gravels and sands (Tille 1996).



The soils are predominantly yellow-brown loamy gravels of colluvial origin with outcropping laterite areas on higher ground.

### 2.3 Groundwater Hydrology

The site lies very close to the Darling Fault which separates the Shield granite's from the Superficial and Leederville formations of the Perth Basin. Groundwater resources are limited and information obtained from Department of Water (DoW) database bore logs (from private bores located within 1.3 km of the proposed EIL as shown in Figure 2) indicates the superficial groundwater table can vary between 0 to 2.13m below ground level (BGL) (DoW 2017). However, all bores with available data in the local area (except bore 61111225) are located within the flood plain of Crooked Brook and do not reflect the water table at the proposed EIL area. Bore 61111225 is located at a higher elevation similar to the proposed EIL area (approximately 134m AHD), but only has one water level reading of 1.83m BGL recorded on an unknown date.

### 2.4 Climate and Rainfall

The proposed extraction area is located within the Shire of Dardanup which experiences a mild, temperate climate with hot, dry summers and cool, wet winters.

The closest rainfall recording stations are Ferguson Valley and Ferguson Valley Alert, however Ferguson Valley Alert only opened in 2005. Because Ferguson Valley has a more comprehensive rainfall record (since 1972), data from this station has been downloaded from the Bureau of Meteorology (BoM). Table 1 shows the average monthly rainfall, and a mean annual rainfall of 909.9mm, for Ferguson Valley (BoM 2017). The wettest months are June, July and August and the driest months are December, January and February. The highest recorded annual rainfall was 1 302.4mm in 1974 and the lowest was 527.2mm in 2010.

**Table 1: Mean Rainfall Data (mm) for Ferguson Valley 9912 for Period 1972 to 2017**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
14.6	16.0	20.1	50.9	126.7	160.5	173.1	137.6	102.3	54.1	40.2	16.5	909.9

For the design of stormwater management, rainfall intensity has been calculated using the BoM's Intensity-Frequency-Duration (IFD) data system (BoM 2017), which yields the two hour 10 year average return interval (ARI) storm event for the property as 19.4mm/hr. The DoW recommends that surface water runoff produced within the mined area from this rainfall event should be contained within the pit (DoW 2014). This aspect is discussed in Section 5.2 of this document.

## 3. WATER MANAGEMENT

In all mining operations the potential exists for impacts to be incurred on surrounding water resources, or by storm water erosion of exposed areas. The water management strategies outlined below will ensure the mitigation of potential impacts.

### 3.1 Surface Water Management

Surface drainage within the proposed EIL area is towards Crooked Brook, mainly to the west and south with some minor drainage towards the east and north at the eastern end of the EIL. A minor streamline runs from near the southern boundary of the proposed EIL towards Crooked Brook which runs approximately 350m south of the property westward towards Preston River. Another minor streamline runs approximately 160m north of the proposed EIL westward towards Crooked Brook (Figure A).

The proposed extraction site does not include any expressions of surface water such as lakes, wetlands, dams, rivers or creeks, and no surface drainage lines have been identified within the proposed project areas. There is a Palusplain Multiple Use Wetland (Crooked Brook) approximately 250m south of the proposed extraction area on the southern side of Crooked Brook Road (Figure A). The separation distance to the wetland exceeds the 50m buffer recommended by the DPaW (DPaW 2016).

The stormwater management measures described below will provide adequate mitigation of surface runoff from the extraction areas into the drainage lines in proximity of the EIL area.

### **3.2 Stormwater Management**

The erosion potential of storm events depends on rainfall and various other factors such as slope, soil properties and vegetation coverage. The eastern part of the proposed EIL occurs on a ridge and therefore the pit will not accrue significant amounts of stormwater from surrounding areas. Stormwater generated within the pit has the potential to cause erosion and will require management measures.

Erosion issues will be mitigated by the proposed stormwater management outlined below and proposed rehabilitation plan as outlined in the EIL Application and Environmental Management Plan for this project.

#### **3.2.1 Stormwater Runoff Generated in the Pits**

The DoW recommends that surface water runoff produced within the mined area from the 10 year two hour average return interval (ARI) storm event should be contained within the pit (DoW 2014). As shown in Section 2.4 above, this equates to a rainfall intensity of 19.4mm/hr. Runoff generated from this event has been calculated using the Rational Method over a two hour period. The runoff coefficient used for the calculation is 0.6 for disturbed areas (ODOT 2014). The runoff calculated over the proposed EIL area over the 2hr period of the recommended design storm is 815m<sup>3</sup>. However, because the proposed EIL is in a sensitive location near Crooked Brook and the property comprises of medium to steep slopes, a 25% safety factor will be applied to the recommended runoff to be contained within the pit.

Stormwater management structures will be designed to manage a runoff of 1 018m<sup>3</sup> at minimum and are described in the following section.

#### **3.2.2 Proposed Stormwater Control Measures**

The proposed EIL area will have four detention ponds. Topsoil and product stockpiles will be placed along the boundaries of the extraction area and cut-off drains will be used to assist in controlling stormwater runoff in the area and directing runoff into detention ponds. Detention ponds will serve as silt traps to avoid any sedimentation issues.

The two detention ponds on the western side of the proposed EIL will hold 340m<sup>3</sup> of runoff each, while the two detention ponds on the eastern side will hold 170m<sup>3</sup> of runoff each (Figure B). The detention ponds will be excavated as part of the extraction process, but deepened to approximately 1m, with the spoil being placed within the pit adjacent to the detention pond. Contour bunds will ensure all runoff is diverted into the ponds. Contour bund design methodology is discussed further in Section 3.2.3.

The DoW recommends that surface water runoff produced from areas outside the EIL area from the 10 year 2 hour ARI storm event should be prevented from entering the pit (DoW 2014). Due to the topography of the area, most runoff generated from areas outside the EIL area will not enter the pit. Cut-off bunds will be designed within the northern cut-in for the retained vegetation, along the western edge (Figure B). If during operations any runoff were to be found entering the pit, a diversion trench will be dug to divert this runoff around the extraction area.

After completion of the extraction phase, the base of the pit will be deep ripped along the contour (at 6 metre intervals) and the low mounds that this creates will be retained after seeding to serve as erosion control. Surface water detention ponds and cut-off drains will be retained until regenerated vegetation ground cover is sufficient to stabilise the ground surface and prevent erosion. The detention ponds will then be back-filled with the spoil to the average pit depth of one metre.

### 3.2.3 Contour Bank Design

Basic design parameters for the contour banks to be used for stormwater management on this property have been taken from the Queensland Department of Environment and Resource Management guideline (2004).

Contour bank design is dependent on the following factors:

- Land-use after rehabilitation
- Slope
- Soil erodibility

In this case, post extraction land-use will be pastures. The most suitable contour bank type in this situation is "narrow-based" i.e. approximately 4m across.

Slopes within the extraction area range between 5% and 25%, but average slopes are approximately 10%, and it is recommended that contour banks are spaced approximately 30m apart in this situation, and with an average fall of 0.4%. This report provides conceptual design only and the in-field implementation should be done only after more detailed, site specific calculations have been done.

### 3.3 Groundwater Management

DoW data from one bore (bore 61111225 shown in Figure 2) shows the groundwater table can be 1.83m BGL at the EIL area, although the date for this reading is unknown. The DoW guidelines (DoW 2014) require a minimum separation of 300mm to the maximum groundwater table. There will be compliance in this regard, for the following reasons:

- Mining operations will only be carried between December and May when groundwater levels are expected to be lowest. No mining operations will occur when the groundwater level is high (July to November).
- On the western section of the proposed extraction area (where groundwater level will mimic the slope), only 1m will be removed and if groundwater is intersected, operations will immediately cease in that area.
- On the top of the hill (eastern section) the final excavation depth will be up to 5m, but the water table will be lower in this section due to its topography.

Once mining is completed topsoil will be replaced for rehabilitation, increasing the final landsurface by approximately 200mm. Due to the high rainfall of the site and the slope/drainage conditions there is no possibility of increasing salinity in the soils below the excavation site. The post mining slope and drainage conditions will also result in no standing water occurring at the EIL site.

No dewatering activities will be undertaken and the project does not involve abstracting groundwater for operational purposes. Predicted water supply requirements are minor and restricted to localised dust suppression. Any water required will be sourced from commercial sources.

Due to the low scale nature of the operations, no groundwater contamination is anticipated. No fuel or lubricant storage will occur on the site. Refuelling will take place using a mobile refuelling vehicle which is equipped with a "snap-on snap-off, fast-fill and auto shut-off" facility. Additionally a Fuel Spill kit will be available on site at all times.

The plant will be refuelled each morning, leaving the vehicles almost empty overnight. No major servicing, which could lead to fuel and oil spills, will take place on the site. Such servicing will be undertaken at the Proponent's workshop in Brunswick Junction. Carbone Bros have a Hydrocarbon Spill Management Plan outlining their procedures for controlling, recovering, treating and reporting hydrocarbon spills and this will be implemented in the unlikely event of a spill occurring.

The use of fertilisers will be necessary during the rehabilitation process. At this time, the Department of Agriculture and Food will be consulted as to the appropriate levels of fertiliser requirement. The correct application of these products will serve to control leaching of nutrients into the groundwater.

Herbicides will be used only as required and their use is expected to reduce as vegetation is established. In choosing herbicides, preference will be given to substances that strongly adsorb to soil and have low potential to leach into groundwater.

### **3.4 Monitoring and Management Measures**

During the extraction and early rehabilitation phase, the pit will be inspected after every significant rainfall event to check erosion damage. If any repairs are required, this will be attended to immediately.

After pit closure and rehabilitation, monitoring of rehabilitated areas will ensure that any areas requiring remedial work are identified. Monitoring will be carried out on an annual basis to assess:

- The physical stability of the landform in the rehabilitated areas.
- The success of the sown pasture grasses.
- The emergence of weeds.

Monitoring will continue until the completion criteria have been fulfilled. Maintenance procedures will be carried out where necessary and may include:

- Repair of any erosion damage.
- Replanting/seeding areas that may not have regenerated.
- Weed control.

## **4. ACID SULPHATE SOILS**

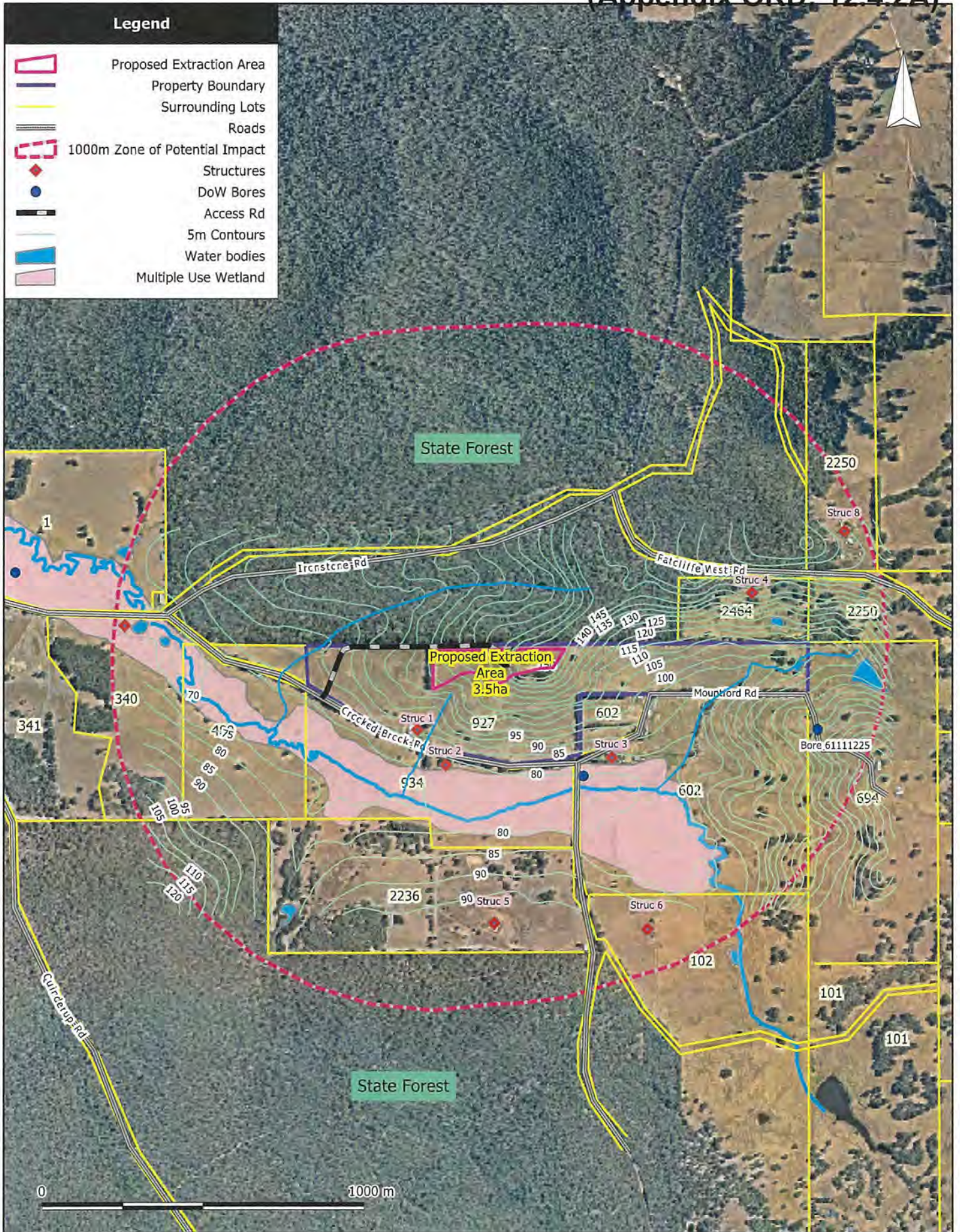
A search of the CSIRO's Australian Soil Resource Information System (ASRIS) database determined there were no acid sulphate soil (ASS) sites (associated with previous wetland environments) identified in the proposed EIL area and the area is classified as having an 'Extremely Low Probability of Occurrence' of ASS (ASRIS 2017).

ASS and potential acid sulphate soils (PASS) require the oxidation (or presence) of organically deposited pyrite ( $\text{FeS}_2$ ), which is generated in past wetland conditions, these conditions occur in soil types which are peaty, boggy or clayey and have a tendency to be poorly drained. Since the area to be mined is not within a previously wet area, it is unlikely that acid sulphate soils will be encountered.

Furthermore, the proposed extraction operation will only disturb the 1m of laterite caprock and gravel and therefore will not go below the water table nor involve dewatering. Therefore the risk of exposing potentially ASS soils to the atmosphere is very unlikely.

## 5. REFERENCES

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- Oregon Department of Transportation (ODOT) (2014). Hydraulics Design Manual. Chapter 7, Appendix F. April 2014 Version. Website: [ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Hydraulics/Hydraulics%20Manual/Chapter\\_07/Chapter\\_07\\_appendix\\_F/CHAPTER\\_07\\_appendix\\_F.pdf](ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Hydraulics/Hydraulics%20Manual/Chapter_07/Chapter_07_appendix_F/CHAPTER_07_appendix_F.pdf). Accessed: March 2017.
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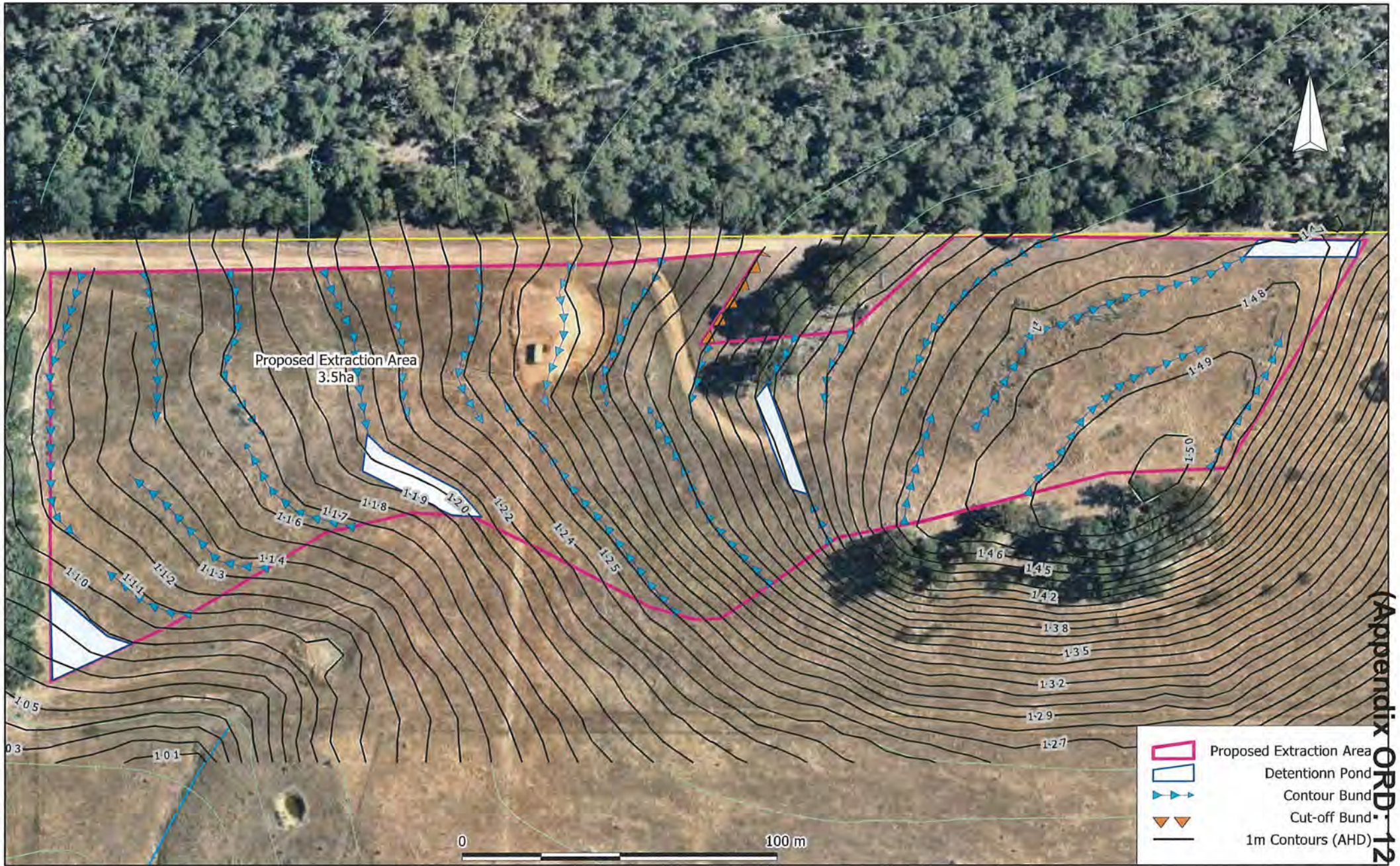
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**Carbone Bros Pty Ltd**  
**Proposed Gravel Pit**  
**927 Crooked Brook Rd**  
**Dardanup**

**Site and Surrounds**

**Figure A**



Appendix ORD: 12.4.2A)

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Scale: 1:1600  
 Original Size: A4  
 Air Photo Date: 2008  
 Datum: Australian Geocentric 1994 (GDA94): GDA94

**Carbone Bros Pty Ltd**  
**Proposed Gravel Pit**  
 927 Crooked Brook Road  
 Dardanup

**Water Management Plan**  
**Figure A**

**APPENDIX 5**  
**NOISE MANAGEMENT PLAN**





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**NOISE MANAGEMENT PLAN**  
**Prepared for Carbone Bros Pty Ltd**  
**Lot 1 on Deposited Plan 65443**  
**927 Crooked Brook Road, Shire of Dardanup**

**1. INTRODUCTION**

This Noise Management Plan (NMP) has been prepared in accordance with guidelines published by Department of Environmental Protection, Government of Western Australia *Environmental Protection (Noise) Regulations 1997*. This NMP should be read in conjunction with the report entitled "*Extractive Industries Licence Application and Environmental Management Plan (EMP); Lot 1 on Deposited Plan 56443, 927 Crooked Brook Road, Crooked Brook, Shire of Dardanup*", prepared for Carbone Bros Pty Ltd by Lundstrom Environmental Consultants Pty Ltd.

**2. LOCALITY AND OWNERSHIP**

Locality: Lot 1 on Deposited Plan 56443, 927 Crooked Brook Road, Shire of Dardanup  
Ownership: Christopher Edward Bouteloup and Zoe Nicole Bouteloup

Figure 1 is a recent aerial photograph showing the property and its surrounds.

**3. CRITERIA**

**3.1. The Regulations**

Environmental noise is governed in Western Australia by the *Environmental Protection (Noise) Regulations 1997* (the Regulations). The Regulations set noise standards to ensure that noise from other premises is kept to assigned noise levels as follows:

- "7. (1) Noise emitted from any premises or public place when received at other premises —
- (a) must not cause, or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind; and
  - (b) must be free of —
    - i. tonality; and
    - ii. impulsiveness; and
    - iii. modulation"
- "9. (3) Noise is taken to be free of the characteristics of tonality, impulsiveness and modulation if —
- (a) the characteristics cannot be reasonably and practicably removed by techniques other than attenuating the overall level of the noise emission; and

(b) the noise emission complies with the standard prescribed under regulation 7(1)(a) after the adjustments in Table 1 to this sub-regulation are made to the noise emission as measured at the point of reception.”

Table 1 Adjustments for intrusive characteristics

Adjustment where noise emission is not music		
Tonality	Modulation	Impulsiveness
+5 dB	+5 dB	+10 dB

3.2. Assigned Noise Levels

The Regulation 8 describes assigned levels for sensitive areas for day and night time as follows:

Table 2 Assigned noise levels

Type of premises receiving noise	Time of day	Assigned level (dB)		
		L <sub>A10</sub>	L <sub>A1</sub>	L <sub>A MAX</sub>
Noise sensitive premises: highly sensitive area	0700 to 1900 hours Monday to Saturday	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holiday	35 + influencing factor	45 + influencing factor	55 + influencing factor
Noise sensitive premises: any other are other than highly sensitive area	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial and utility premises	All hours	65	80	90

Influencing factor in this case is assumed to be 0 dB.

4. METHODOLOGY

4.1. Software

To assess noise levels in surrounds a software SoundPlan Essential ver. 4.0 has been used. The software is a version of SoundPlan which can be used for acoustic modelling and simulations for small projects.

4.2. Modelling assumptions and input data

- Outdoor noise propagation has been modelled using international standard ISO 9613-2 model. The model includes the influence of meteorological information.
- The ground surface was developed using contour lines in 1m and 5m intervals.
- Due to rural location, the ground surface was assumed to be acoustically absorptive.
- Source sound power levels from manufacturers’ data or from previous experience have been used.
- For modelling purposes, it has been assumed that all equipment works simultaneously to show the worst-case scenario.

## 5. PROPOSED WORKS AND POTENTIAL IMPACTS

### 5.1. Proposed Mining Actions

It is proposed to extract gravel from the 3.5ha site in a single campaign, using a front-end loader and bulldozer. This will result in the extraction of approximately 35,000 cubic metres (m<sup>3</sup>) of material in total. The bulldozer will rip and blade raw material to a stockpile where it will be loaded into a crusher and be processed. This will result in the extraction of approximately 70 000 tonnes of processed material.

Table 3 provides a description of all activities, their duration and an assessment of potential for noise impacts.

**Table 3 Summary of Noise Generating Activities**

Activity	Duration	Equipment to be used	Comments
Strip and stack topsoil. Excavate gravel to processing site.	1 week per year from	D8 Bulldozer CAT 988 front end loader (FEL)	No impact as specified by Noise Regulations to closest residents
Screening and stockpiling of gravel.	6 weeks	Finlay Screen 693 Striker 25m Stacker	No impact as specified by Noise Regulations to closest residents
Loading of trucks from stockpiles.	18 months at an average of 11 loaded trucks per day	Single Semi-loader (24 tonnes) CAT 988 FEL	No impact as specified by Noise Regulations to closest residents
Rehabilitation of completed stages.	2 weeks	D8 Bulldozer CAT 988 FEL	No impact as specified by Noise Regulations to closest residents

### 5.2. Plant and Equipment to be used

Equipment to be used and the estimated maximum sound pressure of the equipment are summarized in Table 4.

**Table 4 Equipment used on Site and source sound power levels**

Equipment	Sound Power Level dB(A)
D8 Bulldozer <sup>1</sup>	116
Caterpillar 988 <sup>1</sup>	111
Mobile Finlay Crusher <sup>2</sup>	113
Mobile Stacker <sup>2</sup>	100
Truck <sup>1</sup>	100

X<sup>1</sup> manufacturers noise data

X<sup>2</sup> noise data estimated from previous experience

### 5.3. Potentially Sensitive Receptors

#### 5.3.1. Residential Dwellings

There are eight residential buildings within a distance of less than 1000 m from the extraction area (measured from the closest point) which can be exposed to high noise levels. Residences that are more than 1000m from the extraction area are unlikely to be exposed to high noise levels.

**Table 5 Dwellings within 1000 m of the extraction area**

Reference No. on Figure 1	Street/ Lot No.	Occupants Name	Distance to closest area of pit (metres)
1	828 Crooked Brook Rd	Unknown	965
2	927 Crooked Brook Rd	Owner	140
3	934 Crooked Brook Rd	Unknown	240
4	2 Mountford Rd	Unknown	340
5	Ratcliffe West Rd /2464	Unknown	600
6	285 Ironstone Rd	Unknown	940
7	1039 Crooked Brook Rd	Unknown	860
8	Crooked Brook Rd /2236	Unknown	745

## 6. RESULTS

Predicted  $L_{A\text{ MAX}}$  (dB) levels, under the worst-case scenario, are presented as a contour noise map on Figure 1.

Table 6 represents predicted  $L_{A\text{ MAX}}$  (dB) levels calculated near each residential building.

**Table 6 Predicted noise levels**

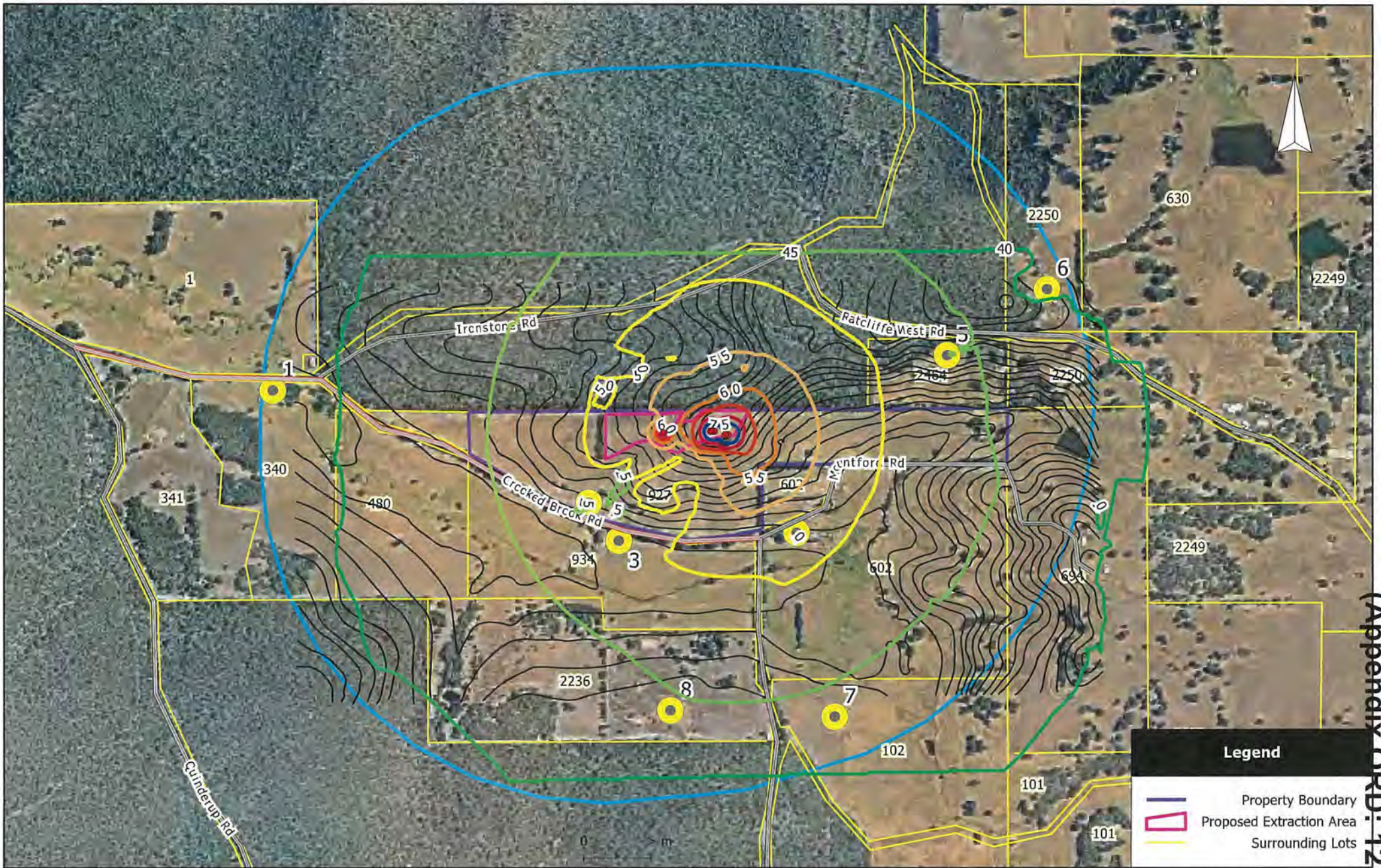
Reference No. on Figure 1	Street/ Lot No.	$L_{A\text{ MAX}}$ (dB)	Compliant with assigned levels at any time of day
1	828 Crooked Brook Rd	41.2	YES
2	927 Crooked Brook Rd	49.1	YES
3	934 Crooked Brook Rd	51.2	YES
4	2 Mountford Rd	52.5	YES
5	Ratcliffe West Rd /2464	46.4	YES
6	285 Ironstone Rd	40.5	YES
7	1039 Crooked Brook Rd	43.9	YES
8	Crooked Brook Rd /2236	47.0	YES

The noise contour map as well as calculations at points near residential buildings indicates that predicted  $L_{A\text{ MAX}}$  (dB) levels do not exceed assigned levels at any residential premises. The results are therefore compliant with the Environmental Protection (Noise) Regulation 1997.

## 7. REFERENCES

Department of Environmental Protection, Government of Western Australia. *Environmental Protection (Noise) Regulations 1997*.

**FIGURES**



Appendix ORD: 12.4.2A)

**Lundstrom Environmental Consultants Pty Ltd**

21 Sellen Court, Leeming 6149  
 Mobile: 0417934863  
 mikelund1@bigpond.com

Scale: 1:14000  
 Original Size: A4  
 Air Photo Date: Neamap 6 Feb 2017  
 Datum: Australian Geocentric 1994 (GDA94): GDA94

**Carbone Bros Pty Ltd**  
**Proposed Gravel Pit**  
**927 Crooked Brook Road**  
**Dardanup**

Site and Surrounds

Figure 1

**APPENDIX 6**  
**DUST MANAGEMENT PLAN**



**LUNDSTROM ENVIRONMENTAL CONSULTANTS  
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**DUST MANAGEMENT PLAN**  
**Prepared for Carbone Bros Pty Ltd**  
**Lot 1, 927 Crooked Brook Road, Crooked Brook**  
**Shire of Dardanup**

**1. INTRODUCTION**

This Dust Management Plan (DMP) has been prepared in accordance with guidelines published by the Department of Environment and Conservation (DEC) (Jan. 2011), now the Department of Environment Regulation (DER). This DMP should be read in conjunction with the report entitled "*Extractive Industries Licence Application and Environmental Management Plan (EMP); Lot 1 on Deposited Plan 56443, 927 Crooked Brook Road, Crooked Brook, Shire of Dardanup*", prepared for Carbone Bros Pty Ltd by Lundstrom Environmental Consultants Pty Ltd.

The requirement for this DMP is derived from the Shire of Dardanup's Town Planning Scheme No. 3 and *Mines Safety and Inspection Act 1994* and Mines Safety and Inspection Regulations 1995.

The objectives of this DMP are as follows:

- To describe the nature of the proposed operation;
- To identify any sources of dust that might arise from these operations;
- To identify the proximity of any sensitive premises in this regard;
- To identify measures that will limit the generation of dust from the operations;
- To identify measures that will limit the impact of dust on sensitive premises.

**2. SITE BACKGROUND**

Locality: Lot 1 on Deposited Plan 56443, 927 Crooked Brook Road, Crooked Brook, Shire of Dardanup  
Ownership: Christopher Edward Bouteloup and Zoe Nicole Bouteloup

Figure 1 shows the site and its surrounds and indicates the proposed Extractive Industries Licence (EIL) stages covered by this application.

**2.1 Land Use**

Lot 1 consists of cleared grazing land, and small areas of remnant native vegetation. The surrounding area comprises farming land and DEC Estate.

**2.2 Geology and Soils**

The soils at this site are predominantly yellow-brown loamy gravels of colluvial origin with outcropping laterite areas on higher ground.

The crushed material texture will be predominantly gravel with minor sand and trace amounts of fines (clays and silts).



Although there will be some uplift of the finer particle component of this soil during stripping and stockpiling operations, this will be limited due to the low proportion of fines. During strong winds the potential exists for fine particles (including fine sand) to become airborne especially when they are disturbed by excavation activities and further discussion on mitigation measures in this regard is contained in Section 4 below.

In its *in-situ* state, the laterite is a cemented pisolitic material and has no loose fines. However, during the crushing operation very fine particles of less than PM50 (particulate matter with a diameter less than 50 micrometers) are produced as fugitive dust and require suppression as is discussed in Section 4. The proportion of the PM50 particles expected would be less than 3%.

### 2.3 Potentially Sensitive Receptors

#### 2.3.1 Prevailing Winds

The nearest weather station to the property with wind rose data is Donnybrook. Winds are strongest in this area in the morning with prevailing winds from the east occurring between 20-30% of the time during the summer months. Prevailing winds in the afternoon during summer are predominantly from the west to south-west occurring between 10 and 20% of the time. Wind roses for the summer months at Donnybrook have been included as Annexure 1 (Bureau of Meteorology, 2017).

#### 2.3.2 Residential Dwellings

The site is surrounded by cleared farm land and DEC Conservation Estate. There are eight residences within the 1000m zone of potential impact, the closest being the property owner's residence (Structure 1) located approximately 140m south of the extraction area. The prevailing winds are unlikely to cause dust problems for the majority of residents within this 1000m zone of potential impact. Structures 1 and 5 lie approximately 965m west and 600m east of the proposed extraction area, respectively. Prevailing winds could potentially carry fine particles, but with the mitigation measures proposed, the likelihood of nuisance dust at these properties would be low. Mitigation measures are discussed in Section 4 below.

#### 2.3.3 Crooked Brook Road

The extraction area is located approximately 250m north of Crooked Brook Road at its closest point. Fugitive dust from extractive operations would only be expected to affect traffic along Crooked Brook Road when the prevailing winds are from the east in the morning. However, the distance between the extraction area and the western section of Crooked Brook Road is at least 600m, with verge side vegetation along Crooked Brook Road providing some screening. Furthermore, Crooked Brook Road is a minor road and not heavily trafficked.

### 3. PROPOSED WORKS AND POTENTIAL IMPACTS

Carbone Bros intend to extract 70,000 tonnes (35,000m<sup>3</sup>) of gravel from the areas that are indicated on Figure 1 in one campaign. The total area to be disturbed is 3.5ha. Table 2 provides a description of all activities, their duration, aspect and an assessment of potential for dust impacts.

**Table 2: Aspects and Impacts of Dust Generating Activities**

Activity	Duration	Aspect	Impact
Topsoil Stripping and stockpiling	1 week	Disturbance of grass and soil exposes ground to wind erosion	Dust may create an amenity issue with nearby resident
Rip and blade laterite to crusher site	1 week	Actions may release dust into the atmosphere	Fine red dust may create an amenity issue with nearby resident
Crushing, screening and	6 weeks	Crushing and screening	Fine red dust may create

stockpiling of gravel		actions may release dust into the atmosphere	an amenity issue with nearby resident
Rehabilitation of completed stages	2 weeks	Disturbance of topsoil could release dust into the atmosphere	Dust may create an amenity issue with nearby resident
Loading of trucks from stockpiles	18 months at an average of 11 loaded trucks per day	Loading of gravel may release dust into the atmosphere.	Fine red dust may create an amenity issue with nearby resident
Transport of gravel from site	18 months at an average of 11 loaded trucks per day	Dust may escape from loaded trucks during transport	Amenity, health or traffic safety issue

### 3.1 Plant and Equipment to be used

The list of Equipment to be used is as follows:

D8 Bulldozer  
Caterpillar 988 Front End Loader  
Mobile Finlay Crusher  
Mobile Stacker  
24 tonne Semi-tipper trucks

### 3.2 Summary of Mining Actions

Proposed mining actions are as follows:

- The extraction of gravel from an area of 3.5ha as shown on Figure 1 (70 000 tonnes).
- Topsoil and overburden will be removed from the extraction area and will be stockpiled separately along the edges of the extraction area, with stockpiles being no higher than two metres.
- A bulldozer will rip the laterite and then blade it into the crusher sites until a large raw material stockpile has accumulated. It is anticipated that the ripping and blading phase of the operation will be undertaken for approximately one week per year.
- There will be no blasting.
- Once all the raw material has been stockpiled, a crusher, screen and stacker unit will be deployed for a period of approximately six weeks. At the end of this period all material will be processed and ready for use. Trucks as required will enter and cart material out of the cell over the remainder of the five year licence period.
- After extraction, the land surface will be approximately 1.0 metre lower than original height, apart from the batters which will be at a maximum gradient of 1:6.
- The first stage of rehabilitation is topsoil replacement and contour ripping. This will be conducted immediately after completion of extraction.

### 3.3 Site Risk Assessment and Classification

The site risk assessment is based on the format provided in the Appendices of the DEC guideline document referred to in this DMP. Based on the risk assessment conducted (Annexure 3), the classification derived is "low risk" (Classification 2). Measures for managing dust impacts are discussed in Section 4 below.

### 4. MEASURES PROPOSED FOR MANAGING DUST

This report has identified the potential dust generating activities associated with the proposed development and has also identified the potentially sensitive receptors. The measures that are proposed to manage dust impacts are listed below:

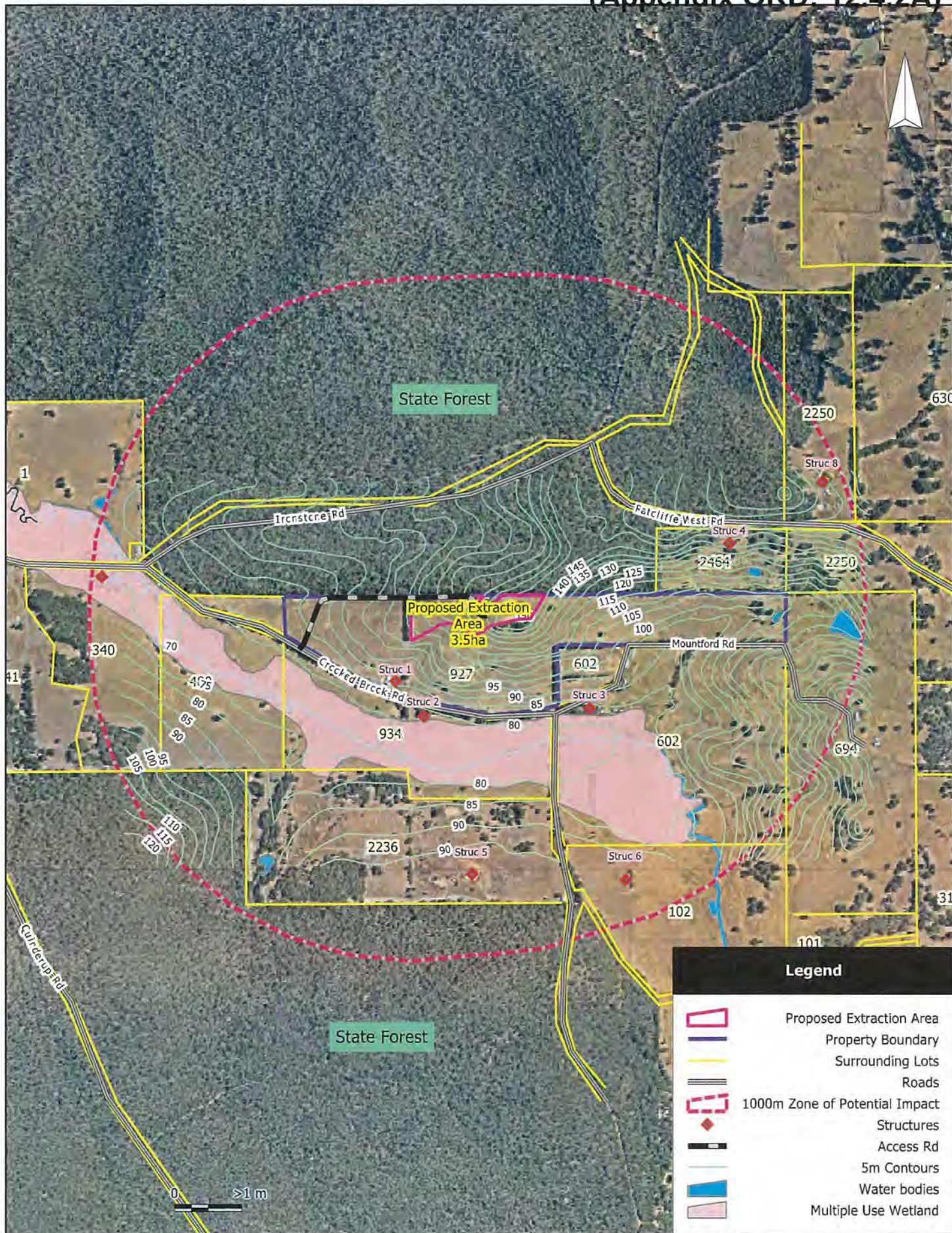
- A 15kL water cart will be on site during all periods when earth is being moved or crushing is being conducted. If and when dust is caused to occur during these periods, the water cart will be employed to damp down the areas of concern. During crushing, a spray bar is employed at all times.
- If the wind is blowing strongly in the direction of the closest residences and conditions are dusty, then operations will be stopped until such time as adequate wetting down has occurred.
- Crushing and stockpiling activities will be located in topographic low points with raw and processed stockpiles arranged such that windbreaks are created to further shield sensitive receptors from fugitive dust.
- A polymer based spray-on soil stabilizer will be applied to topsoil and overburden stockpiles if they do not stabilize by crusting and grass regrowth.
- Internal roads will be surfaced with gravel.
- Traffic speed will be restricted to 30km on site, reducing dust lift-off from trucks.
- Truck loads will always be covered so that no dust is generated in transit.
- Employees and contractors working on site will be provided with information on how to minimise dust emissions.
- A complaints system will be put in place and these will be recorded by the Quarry Manager and acted on promptly.
- A notice will be erected at the front gate and this will provide emergency contact details for the Quarry Manager.

### 5. REFERENCES

Bureau of Meteorology (BOM) 2017. Wind roses for Donnybrook. Accessed from [www.bom.gov.au](http://www.bom.gov.au).

Department of Environment and Conservation (DEC), 2011. A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities.

**FIGURES**



**Lundstrom Environmental Consultants Pty Ltd**

21 Sellen Court, Leeming 6149  
 Mobile: 0417934863  
 mikelund1@bigpond.com

Scale: 1:15000  
 Original Size: A4  
 Air Photo Date: Nearmap 6 Feb 2017  
 Datum: Australian Geocentric 1994 (GDA94)

**Carbone Bros Pty Ltd**  
**Proposed Gravel Pit**  
**927 Crooked Brook Rd**  
**Dardanup**

**Site and Surrounds**

**Figure 1**

**ANNEXURE 1**

**Wind Roses for Donnybrook**

# Rose of Wind direction versus Wind speed in km/h (01 Jan 1957 to 30 Sep 2016) (Appendix ORD: 12.4.2A)

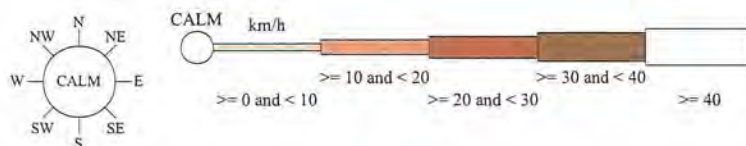
Custom times selected, refer to attached note for details

## DONNYBROOK

Site No: 009534 • Opened Jan 1900 • Still Open • Latitude: -33.5719° • Longitude: 115.8247° • Elevation 63m

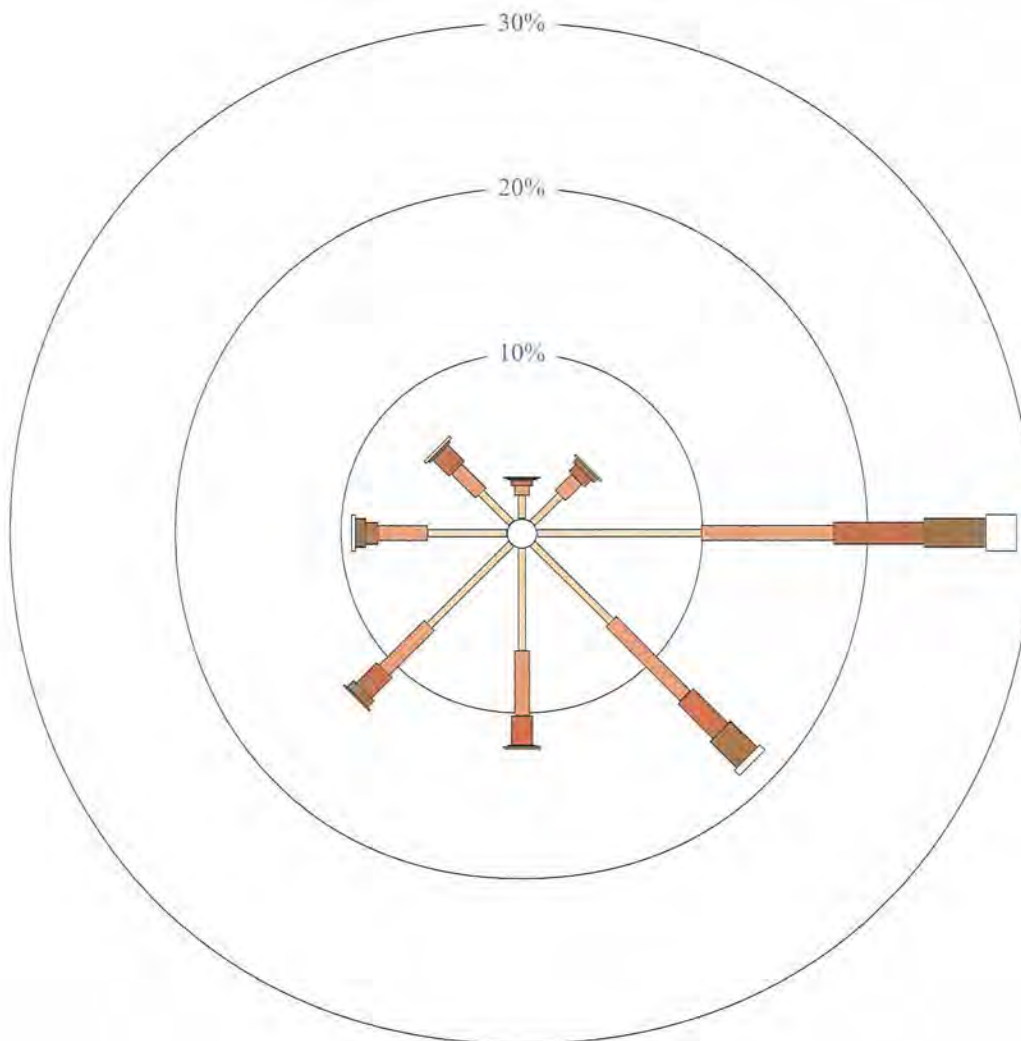
An asterisk (\*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am Dec  
1474 Total Observations

Calm 4%



# Rose of Wind direction versus Wind speed in km/h (01 Jan 1957 to 30 Sep 2016) (Appendix ORD: 12.4.2A)

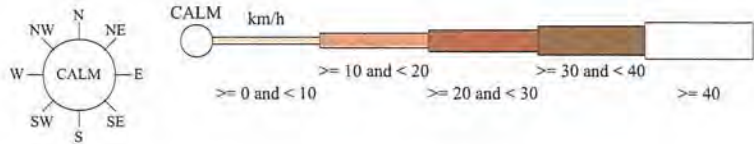
Custom times selected, refer to attached note for details

## DONNYBROOK

Site No: 009534 • Opened Jan 1900 • Still Open • Latitude: -33.5719° • Longitude: 115.8247° • Elevation 63m

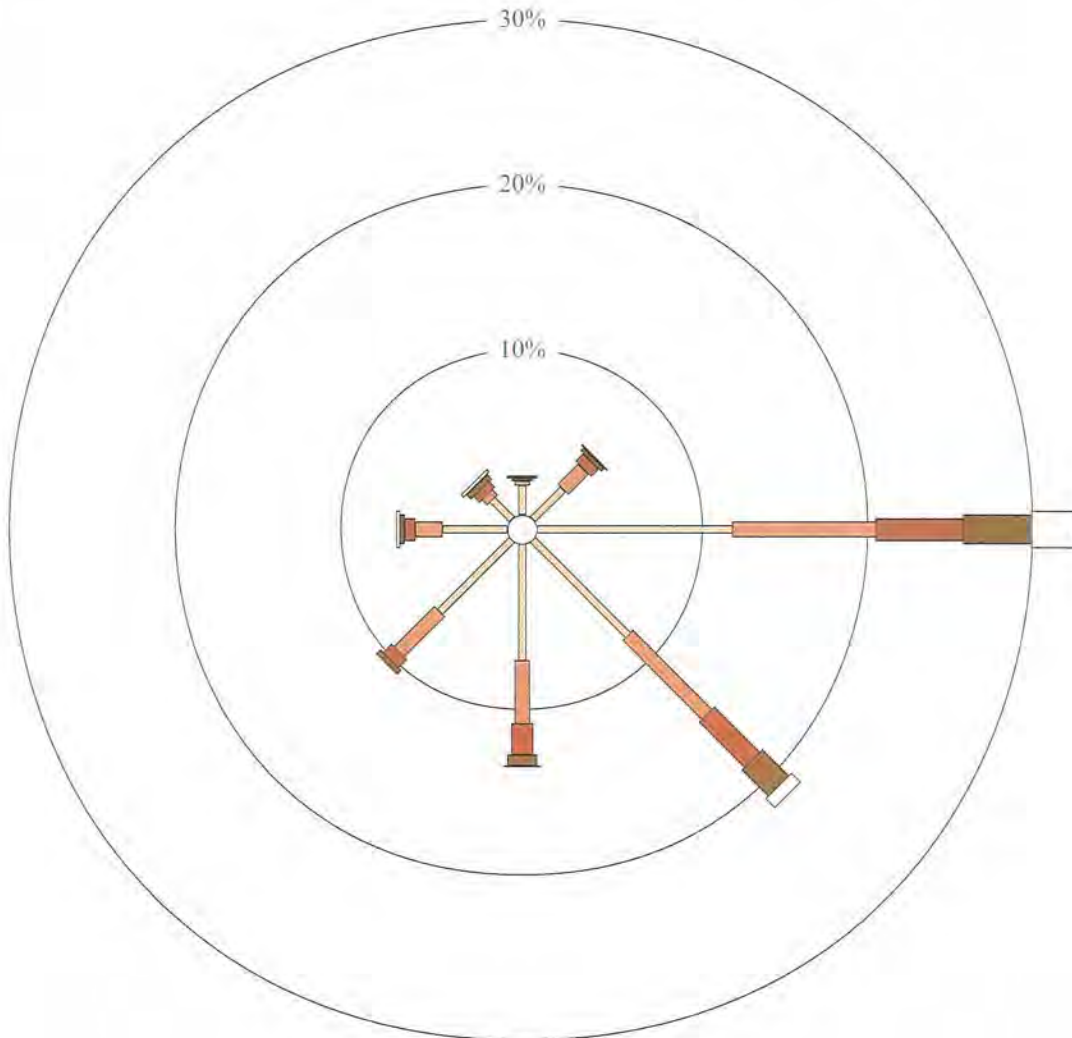
An asterisk (\*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am Jan  
1558 Total Observations

Calm 4%





# Rose of Wind direction versus Wind speed in km/h (01 Jan 1957 to 30 Sep 2016) (Appendix ORD: 12.4.2A)

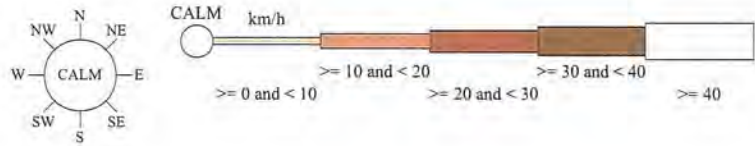
Custom times selected, refer to attached note for details

## DONNYBROOK

Site No: 009534 • Opened Jan 1900 • Still Open • Latitude: -33.5719° • Longitude: 115.8247° • Elevation 63m

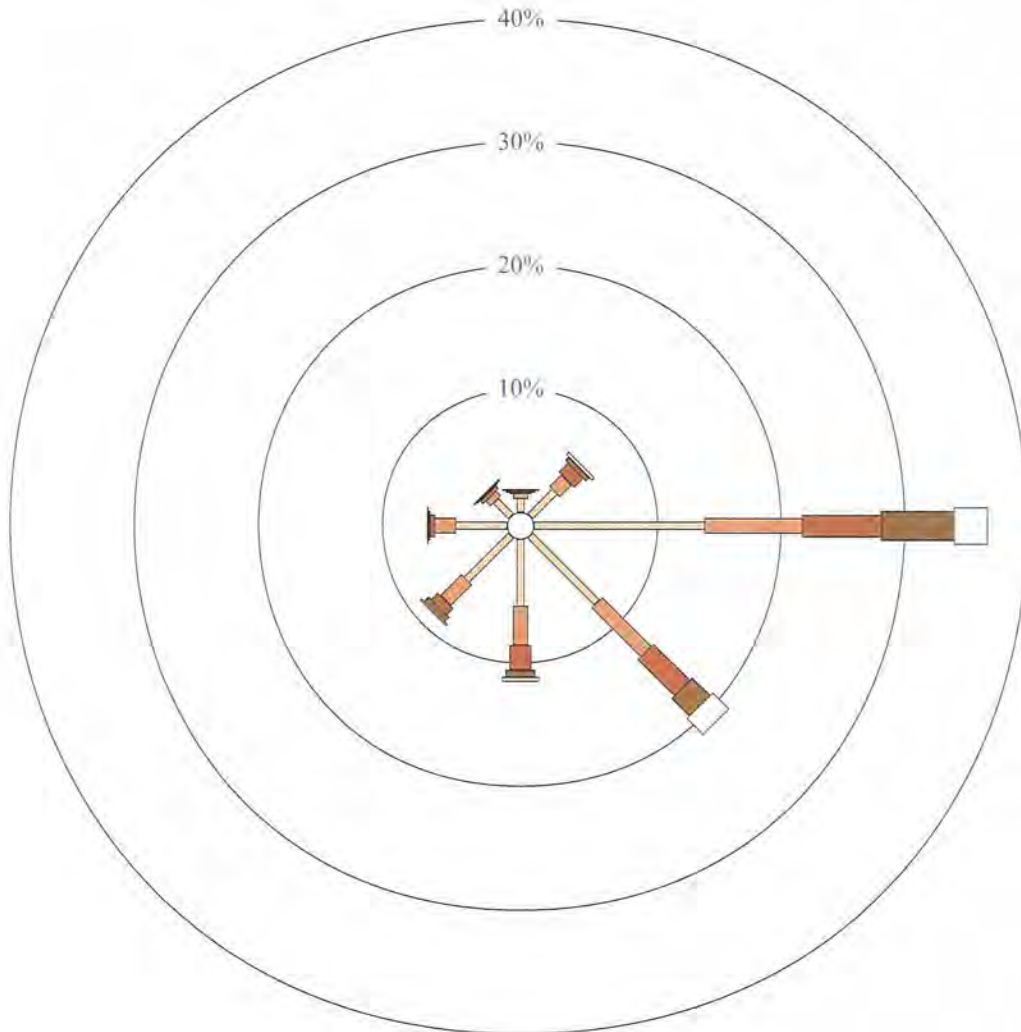
An asterisk (\*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am Feb  
1444 Total Observations

Calm 5%



# Rose of Wind direction versus Wind speed in km/h (01 Jan 1957 to 30 Dec 2016) (Appendix ORD: 12.4.2A)

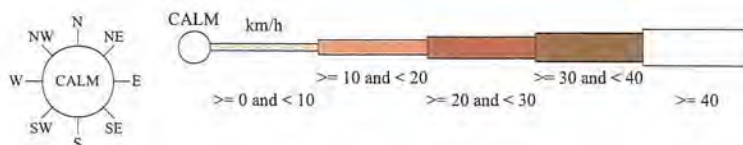
Custom times selected, refer to attached note for details

## DONNYBROOK

Site No: 009534 • Opened Jan 1900 • Still Open • Latitude: -33.5719° • Longitude: 115.8247° • Elevation 63m

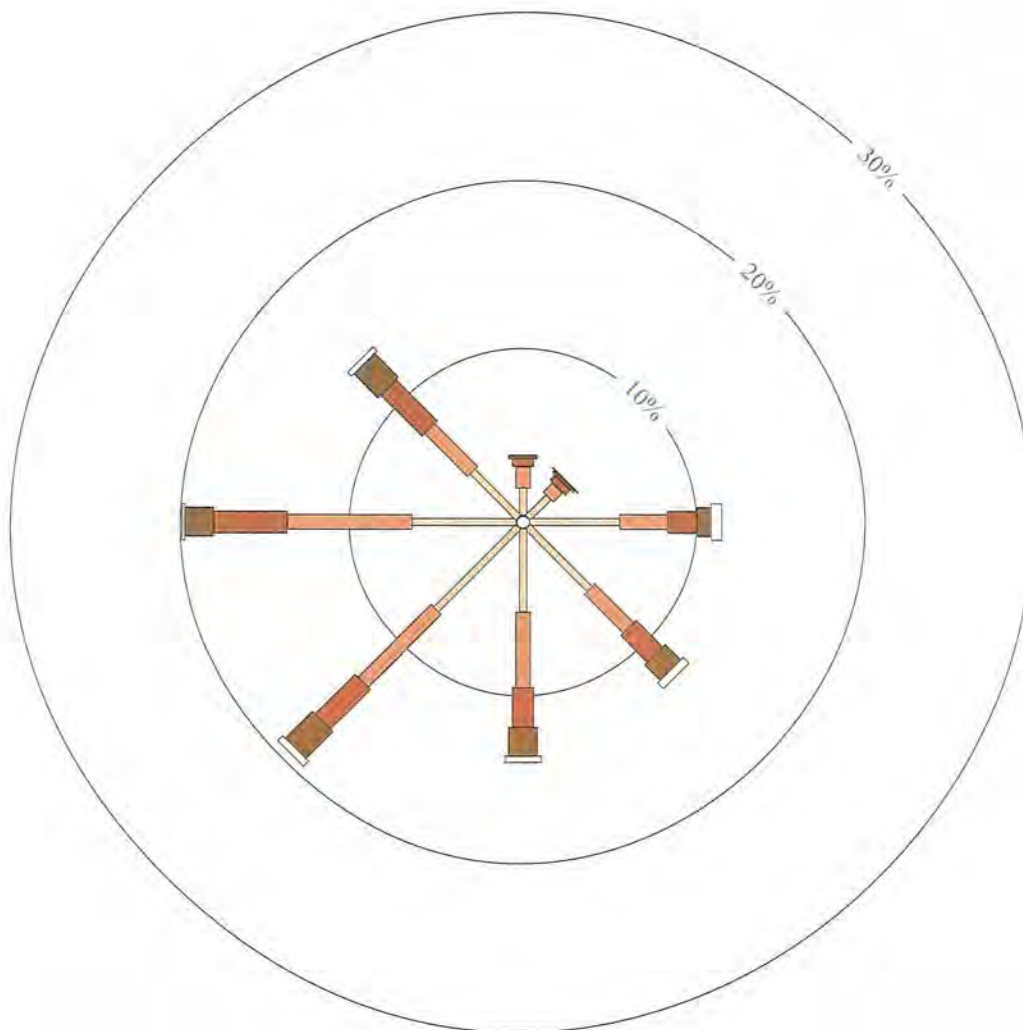
An asterisk (\*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm Dec  
1436 Total Observations

Calm 2%



# Rose of Wind direction versus Wind speed in km/h (01 Jan 1957 to 30 Sep 2016) (Appendix ORD: 12.4.2A)

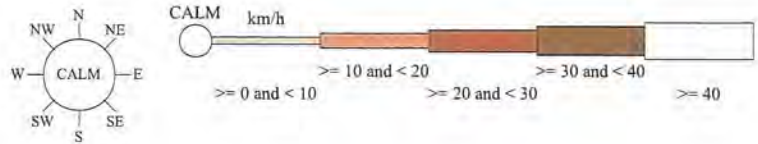
Custom times selected, refer to attached note for details

## DONNYBROOK

Site No: 009534 • Opened Jan 1900 • Still Open • Latitude: -33.5719° • Longitude: 115.8247° • Elevation 63m

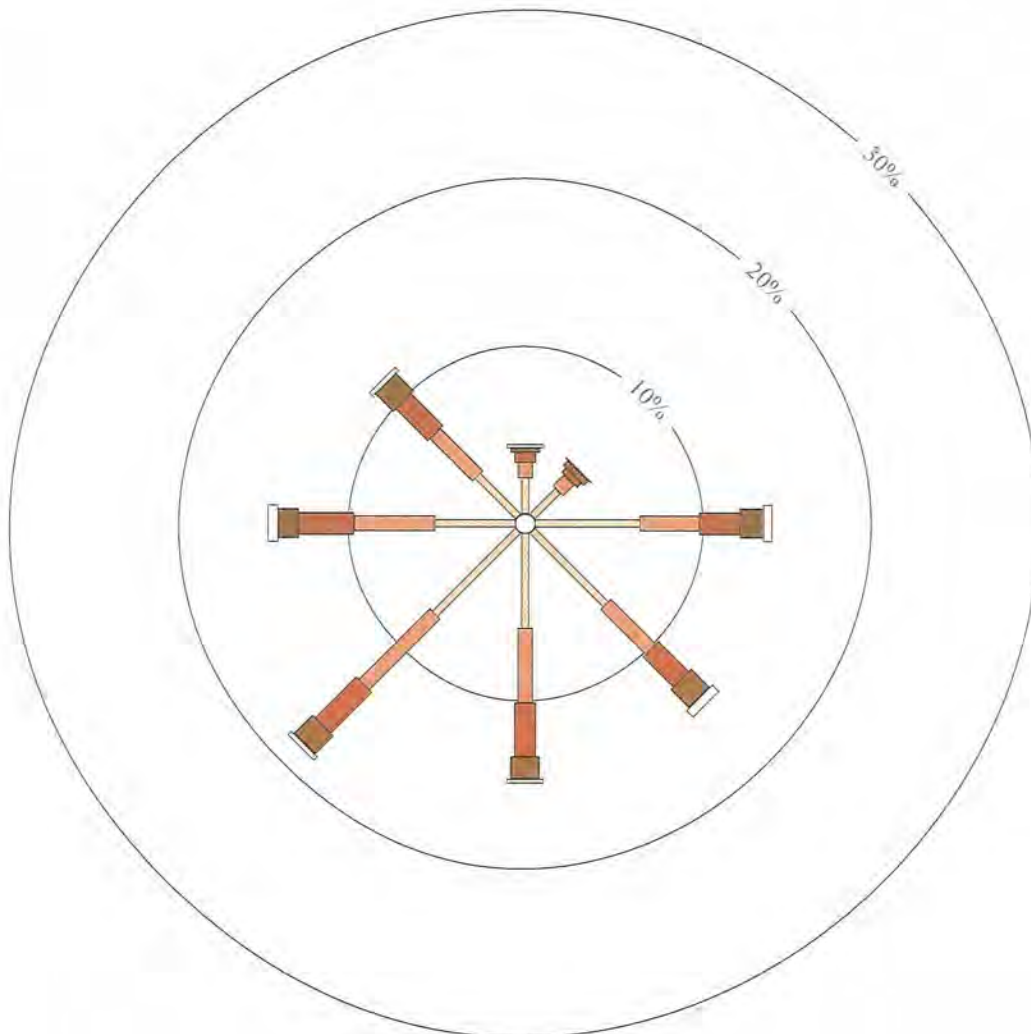
An asterisk (\*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm Jan  
1516 Total Observations

Calm 3%



# Rose of Wind direction versus Wind speed in km/h (01 Jan 1957 to 30 Sep 2016) (Appendix ORD: 12.4.2A)

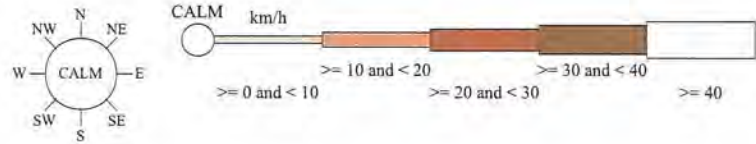
Custom times selected, refer to attached note for details

## DONNYBROOK

Site No: 009534 • Opened Jan 1900 • Still Open • Latitude: -33.5719° • Longitude: 115.8247° • Elevation 63m

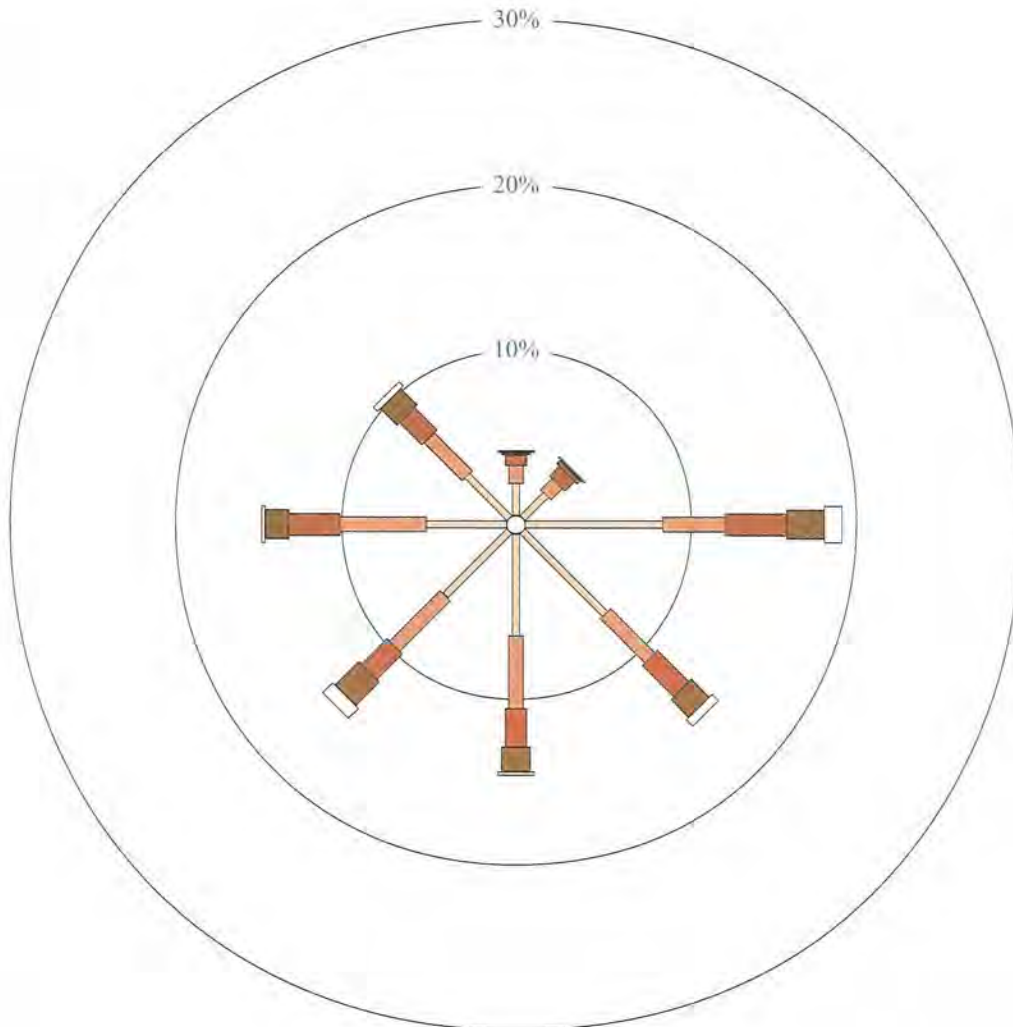
An asterisk (\*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm Feb  
1430 Total Observations

Calm 3%



**ANNEXURE 2**

**Site Classification Assessment Chart**

## Appendix 1: Site risk assessment/classification for activities generating uncontaminated dust

### Sheet 1: Site classification assessment chart

#### Part A. Nature of site

Item	Score options				Allocated score
1. Nuisance potential of soil, when disturbed	Very low.....1	Low.....2	Medium.....4	High.....6	2
2. Topography and protection provided by undisturbed vegetation	Sheltered and screened.....1	Medium screening....6	Little screening.....12	Exposed and wind prone.....18	12
3. Area of site disturbed by the works	Less than 1ha.....1	Between 1 and 5ha..3	Between 5 and 10ha.....6	More than 10ha.....9	3
4. Type of work being done	roads or shallow trenches.....1	roads, drains and medium depth sewers.....3	Roads, drains, sewers and partial earthworks.....6	Bulk earthworks and deep trenches.....9	9
<b>TOTAL score for Part A</b>					<b>26</b>

#### Part B. Proximity of site to other land uses

Item	Score options				Allocated score
1. Distance of other land uses from site	More than 1km.....1	Between 1km and 500m.....6	Between 100m and 500m.....12	Less than 100m.....18	6
2. Effect of prevailing wind direction (at time of construction) on other land uses	Not affected.....1	Isolated land uses affected by one wind direction.....6	Dense land uses affected by one wind direction.....9	Dense/sensitive land uses highly affected by prevailing winds.....12	6
<b>TOTAL score for Part B</b>					<b>12</b>

**SITE CLASSIFICATION SCORE (A X B) = 312**

## (Appendix ORD: 12.4.2B)

**From:** WONG Daniel <Daniel.WONG@water.wa.gov.au>  
**Sent:** Wednesday, 7 June 2017 1:09 PM  
**To:** Jake Whistler  
**Subject:** Extractive Industry ( Gravel ) – Lot 1 on Deposited Plan 56443 ( 927 Crooked Brook Road )  
**Attachments:** Attachment 1\_extraction site, contours and waterways.jpg; crooked brook - Lundstrom enquiry.jpg; FW: Extractive Industry (Gravel) - Lot 1 on Deposited Plan 56443 (927 Crooked Brook Road); Bore 61111225 details.pdf; Access route confirmation.jpg

7<sup>th</sup> June 2017

Our Reference: PA 013951, WRD356571

Your Reference: P33/17

To: Shire of Dardanup

From: Department of Water

Attention: Jake Whistler

**RE: Extractive Industry (Gravel) – Lot 1 on Deposited Plan 56443 (927 Crooked Brook Road)**

Dear Jake,

Thank you for referring this proposal to the Department of Water (DoW) for our comment.

Proposal site situation

This proposal is for the extraction of 35,00 m<sup>3</sup> of gravel over about 3.5ha of land, and the land will be rehabilitated and returned to its current grazing landuse after extraction activities cease.

Extraction will be via bulldozer, and a mobile crushing and screening will be carried out.

Our GIS shows that the extraction area slopes towards Crooked Brook to the south, and there a tributary of this waterway in the vicinity of the subject area (Attachment 1).

The subject property is located within the Preston River and Tributaries Surface Water Area as proclaimed under the *Rights in Water and Irrigation Act 1914*, and any interference with the waterway (such as the construction of a dam or crossing, or excavation of the watercourse) at the north east corner of the block would require a permit to 'interfere with bed and banks' from DoW.

## (Appendix ORD: 12.4.2B)

Any taking or diversion of surface water in this proclaimed area (whether by direct pumping, construction of a dam, or excavation) can be subject to licensing.

The subject property is located within a 'non-proclaimed' area for ground water under the *Rights in Water and Irrigation Act 1914*.

The project does not involve abstracting groundwater for operational purposes.

It is noted from the proposal that water supply requirements are minor and restricted to localised dust suppression, and any water required will be sourced commercially.

No information has been provided in maps on the access track to the extraction site, but our imagery shows that the access track avoids the waterway (see attachment 'Access route confirmation').

### Proposal data situation

The proponent has now included groundwater information in the revised Water Management Plan, where a nearby shallow bore (Bore 61111225) level of 1.83 m AHD was recorded, but at an unknown date (see attachment 'Bore61111225 details').

The assumption is that groundwater levels at Bore 61111225 would be similar to the extraction site (due to the extraction site and bore being at the same orange contour dotted line as seen in the attachment 'crooked brook – Lundstrom enquiry').

However, as 'Bore 61111225' is noted to be only 2.44m deep, and being drilled into granite (see attachment 'Bore61111225 details'); the groundwater data at this bore is unlikely to be suitable to establish the MSGL.

The following statements in the revised Water Management Plan indicate that there is a possibility that extractive activities may intersect the MSGL:-

"Mining operations will only be carried between December and May when groundwater levels are expected to be lowest. No mining operations will occur when the groundwater level is high (July to November)."

"On the western section of the proposed extraction area (where groundwater level will mimic the slope), only 1m will be removed and if groundwater is intersected, operations will immediately cease in that area."

"On the top of the hill (eastern section) the final excavation depth will be up to 5m, but the water table will be lower in this section due to its topography."

### Identified risks



## (Appendix ORD: 12.4.2B)

- The potential for minesite water to drain into the tributary resulting in sediment transport and turbidity in the Crooked Brook, if bunds are not maintained and heavy machinery/vehicles traverse over the waterways.
- The potential for hydrocarbon contamination of Crooked Brook if refuelling or maintenance works are carried out in the vicinity the waterways on site.
- The potential for extractive activities to intersect the watertable

### Risk mitigation – general

To mitigate against the above risks, DoW recommends that the following conditions be applied by the Shire of Dardanup on the extractive industry licence (if approved):-

- No major servicing, which could lead to fuel and oil spills, is to take place on the site.
- No fuel or lubricant storage is to occur on the site.
- Stormwater runoff should be fully contained within the mining area up to the 10 year two hour average return interval (ARI) storm event; and DoW supports the storage of volumes over and above this event (as stated in the Water Management Plan) given the vicinity of a tributary of Crooked Brook and sloping nature of the landscape.
- Bunds to divert clean stormwater away from extraction sites;
- Avoiding any refuelling, maintenance works or stockpiling of materials in the vicinity of the waterways, or on the pit floor.
- Adherence to the Stormwater Management Plan

### Risk mitigation – groundwater intersection and MSGL

In accordance with DoW's South West Region Guideline 'Water resource considerations for extractive industries' (June 2014), the minimum acceptable separation depth between the base of a proposed excavation and the maximum seasonal groundwater level (MSGL) is to be 300 mm.

Therefore prior to the extractive industry licence being approved, DoW recommends that the Shire require the proponent to install 1 piezometer at the lower area of the extraction site, to measure and establish the MSGL and set the minimum 300 mm separation distance to the MSGL. Data on the MSGL should be collated prior to issuing the licence to ensure that this separation to MSGL can be met.

### Summary of recommendations

## (Appendix ORD: 12.4.2B)

1. DoW recommends that a piezometer be installed at the lower area of the extraction site to establish the maximum seasonal groundwater level, prior to the extractive industry licence being approved.
2. Data on the MSGL should be collated prior to issuing the licence.

The following general conditions apply to the extractive activity:-

- Extractive activities should not occur below 300 mm of the MSGL
- The operations must not expose groundwater at any time.
- All refuelling and maintenance must be carried out outside of the pit area in bunded areas, and away from waterways.
- It should be confirmed by the proponent that the access route would not intersect or interfere with any waterways, noting if there is any interference, conditions should be set to protect the waterway
- The siting of heavy machinery that have the potential to leak oil or contribute to dust and/or erosion such as bulldozers and the mobile crushing facility should be away from waterways.
- No stockpiles are to be placed in areas that can affect the waterways
- No fuel or lubricant storage is to occur on the site
- The pit to be rehabilitated with clean free draining fill overlain by topsoil to create a minimum separation to the MSGL of 0.5m where the final landuse would be pasture in the rural zoned land.
- The proponent is to adhere to their stormwater management and pollution prevention measures as stipulated in the revised Water Management Plan.

Should you have any further inquiries, please do not hesitate to contact this office at the number below.

Thank you.

Yours faithfully,

*Daniel Wong*

Environmental Officer  
Department of Water  
South West Region

Email: [daniel.wong@water.wa.gov.au](mailto:daniel.wong@water.wa.gov.au)  
Phone: 08 9726 4113  
Fax: 08 9726 4100  
Postal: PO Box 261, Bunbury, WA 6231  
Location: 35-39 McCombe Road, Bunbury, WA 6230

#### Save time with Water Online

As your organisation is registered to use Water Online, we encourage you to lodge future referrals electronically via the Water Online customer portal at [www.water.wa.gov.au](http://www.water.wa.gov.au). **Water Online** provides the fastest and most efficient process for submitting referrals or requests for planning advice. If you have any questions regarding the Water Online portal please contact our Business Support Unit on 1800 508 885 (select Option 2) or [planning.enquiries@water.wa.gov.au](mailto:planning.enquiries@water.wa.gov.au).





Site reference (AWRC): 61111225 - 611 - PRESTON RIVER BASIN - BORE

WIN Site ID: 20012336

## Alternative Site References

Numbering System	Reference Code	Context Name	Name
AWRC	61111225	611 - PRESTON RIVER BASIN	BORE
AQWAB	2031-2-SW-0083	611 - PRESTON RIVER BASIN	

## General Details (Site reference: 61111225 WIN Site ID: 20012336)

<b>Site Type</b> Ground	<b>Sub Type</b> Unknown	<b>Site Geofeature</b> Ground
<b>Northing</b> 6296761	<b>Easting</b> 391580	<b>Zone</b> 50
<b>Latitude</b> -33.463118122	<b>Longitude</b> 115.833278404	<b>Spheroid</b> GDA94
<b>Thou250 Map Index</b> SI5006	<b>Assessment Method</b> GDA94 Conversion (Accuracy of 0.05 - 0.9m)	<b>Geographic Precision(+/- m)</b> +/-100m
<b>Local Govt Authority</b> SHIRE OF DARDANUP	<b>Locality</b> CROOKED BROOK	<b>DOW Region</b> South West
<b>Catchment</b> Leschenault Estuary_Preston River	<b>Estuary</b>	<b>BOM Rainfall District</b> South Coast
<b>Groundwater Area</b> Karri	<b>Groundwater Subarea</b> Karri	<b>Groundwater Province</b> Yilgarn-Southwest
<b>Surface Water Area</b> Preston Area	<b>Surface Water SubArea</b> Crooked Brook	<b>GgStn Catchment Area(km2)</b> N/A
<b>Site Purpose</b>		
<b>Site Comment</b> Good quality. Into granite. Rept qual: no salt noticeable. Swl 6ft summer. C4-1		

## Fixed Infrastructure Status (Site reference: 61111225 WIN Site ID: 20012336)

Start Date	End Date	Status	Comments
01/01/1900	02/01/1900	Operational	
03/01/1900		Unknown	



**Stakeholders** (Site reference: 61111225, WIN Site ID 20012336)

Start Date	End Date	Role	Stakeholder
01/01/1900		Owning authority	Unknown Party (Person or Org)

**Depth Reference Points** (Site reference: 61111225 WIN Site ID: 20012336)

Measurement Point	Elevation (m as per Datum Plane)	Measurement Method	Date	Comments
Ground level	0 (mNA)	(none)	01/01/1900 (Unknown)	

**Construction** (Site reference: 61111225 WIN Site ID: 20012336)

**Events**

**Completed Date** 01/01/1900 (Unknown)

**Driller** Authority Not Known

**Depth Reference Point** Ground level

**Construction Method**

**Developed By**

**Drill Comments**

**Pump Test Occured**

**Pumping Details**

**Total Drilled Depth (m)** 2.440

**Drill Method** (none)

**Elements**

From (m)	To (m)	Element	Material	Grain Size	Fill Vol	Min Dia. (mm)	Max Dia. (mm)	Aperture (mm)	Thickness (mm)	Comments

Aquifers - No Data Available

Log Event Lithology - No Data Available

Log Event Summary - No Data Available



## Site Details Report

**Advanced Data Summary** (Site reference: 61111225 WIN Site ID: 20012336)

**Readings by Project**

Default Site Reference	Project Code	Project Name	First Measurement	Last Measurement	No of Measurements
61111225	WA-G-UNKNOWN	Misc Data from GW Investigations for AQWABase	1/01/1900	1/01/1900	1

**Readings by Data Category**

Default Site Reference	Data Category	First Measurement	Last Measurement	No of Measurements
61111225	Water levels - discrete	1/01/1900	1/01/1900	1

**Readings By Variable Type**

Default Site Reference	Variable Type	First Measurement	Last Measurement	No of Measurements
61111225	Water Level (discrete)	1/01/1900	1/01/1900	1



(Appendix ORD: 12.4.2B)



Government of **Western Australia**  
Department of **Agriculture and Food**



Chief Executive Officer  
Shire of Dardanup  
PO Box 7013  
EATON WA 6232  
[submissions@dardanup.wa.gov.au](mailto:submissions@dardanup.wa.gov.au)

Your ref: P33/17  
Our ref: LUP 162  
Enquiries: Heather Percy  
Date: 31-May-17

Dear Sir/Madam

**Application for Development Approval Proposed Extractive Industry (Gravel)  
Lot 1 (927) Crooked Brook Road, Crooked Brook**

Thank you for the opportunity to comment on the proposed gravel extraction at Lot 1 (927) Crooked Brook Road, Crooked Brook.

The Department of Agriculture and Food, Western Australia (DAFWA) does not object to the proposed extraction of gravel at the abovementioned lot. DAFWA assessed the Weed Management Plan and found that it satisfies our guidelines.

We note that a number of residences are located in the vicinity of the proposed development but no agricultural land uses will be adversely impacted if the proposal proceeds as per the application.

I trust you find these comments inform your decision on this matter. If you have any questions regarding these comments please contact Ms Heather Percy on (08) 9780 6262 or [heather.percy@agric.wa.gov.au](mailto:heather.percy@agric.wa.gov.au).

Yours sincerely

Neil Guise  
Regional Director  
Southern Region





Government of **Western Australia**  
Department of **Mines and Petroleum**

Your ref:  
Our ref: A2129/201401  
Enquiries: Colleen Thomas - Ph 08 9222 3872 Fax 08 9222 3633  
Email: colleen.thomas@dmp.wa.gov.au

Chief Executive Officer  
Shire of Dardanup  
PO Box 7016  
EATON WA 6232

Dear Sir/Madam

**PROPOSED EXTRACTIVE INDUSTRY - GRAVEL - LOT 1 CROOKED BROOK ROAD, CROOKED BROOK - SHIRE OF DARDANUP**

I refer to the above proposal posted on the Shire of Dardanup website for public comment.

A continuing supply of low-cost basic raw materials is an important part of maintaining the lifestyle and infrastructure that all Western Australians enjoy.

Although Extractive Industry Licences fall outside the *Mining Act 1978*, information on mineral resources, including basic raw materials, is of importance to the Geological Survey of Western Australia (GSWA), a division of the Department of Mines and Petroleum (DMP). The information is used in our MINEDEX database (<http://www.dmp.wa.gov.au/Minedex>), which is a source of information for our State-wide resource mapping system (<http://www.dmp.wa.gov.au/GeoView>). The locations and status of basic raw materials extraction sites are also valuable inputs to the Geological Survey's resource assessment and land use planning role.

Our aim is for the database to be a comprehensive and up-to-date source of information on all mining-related activities throughout the State. It is a database that is used to inform other government agencies, as well as the general public, of the location of mines and mineral resources. You are encouraged to use it whenever researching information on mineral or petroleum resources, and including basic raw materials.

It would be appreciated if GSWA was notified of all applications for Extractive Industry Licences in the Shire. Please address future correspondence to the Executive Director of the Geological Survey of Western Australia.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Rick Rogerson'.

Rick Rogerson  
Executive Director  
GEOLOGICAL SURVEY OF WESTERN AUSTRALIA

17 May 2017



Government of Western Australia  
Department of Environment Regulation

## (Appendix ORD: 12.4.2B)

Your ref: P33/17  
Our ref: CEO1569/17  
Enquiries: Teresa Gepp  
Phone: 6467 5383  
Email: advice.coordinator@der.wa.gov.au

Mr Mark Chester  
Chief Executive Officer  
Shire of Dardanup  
Via email: [submissions@dardanup.wa.gov.au](mailto:submissions@dardanup.wa.gov.au)

Attention: Mr Jake Whistler

Dear Mr Chester

### PLANNING APPLICATION – LOT 1 (#927) CROOKED BROOK ROAD, CROOKED BROOK

I refer to the letter dated 8 May 2017 from Mr Jake Whistler, Senior Planning Officer, inviting comment from the Department of Environment Regulation (DER) in relation to the above extractive industry application. I apologise for the delay in responding.

Crushing and screening during extractive industry operations, may be a prescribed premises for the purposes of Part V Division 3 of the *Environmental Protection Act 1986* (EP Act) if it is carried out at a rate that meets or exceeds the specified production or design capacity of the relevant category under Schedule 1 of the *Environmental Protection Regulations 1987*.

Category 12 or 70 prescribed premises are premises on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated. The production or design capacity of Category 12 is 50,000 tonnes or more per year and Category 70 is more than 5,000 tonnes but less than 50,000 tonnes per year.

The applicant can be advised to determine if its proposal would make the premises prescribed, therefore requiring an application for a works approval. Further information on licensing is available at [www.der.wa.gov.au/our-work/licences-and-works-approvals](http://www.der.wa.gov.au/our-work/licences-and-works-approvals). Note that planning approvals may influence DER's determination of production or design capacity, where an approval has the effect of restricting capacity (such as constraining hours of operation).

The purpose of a works approval is to allow DER to assess the environmental acceptability of a proposal's potential to cause emissions and discharges against standards and policies. Note that any works approval or licence issued will only regulate emissions associated with the crushing and screening operation (such as dust, noise and contaminated stormwater). It does not extend to the environmental impacts of extracting the material from the ground or transport off-site.

Under section 51C of the EP Act, clearing of native vegetation is an offence unless undertaken under the authority of a clearing permit, or the clearing is subject to an exemption. Exemptions for clearing that are a requirement of written law, or authorised under certain statutory processes, are contained in Schedule 6 of the EP Act. Exemptions for low impact routine land management practices are contained in the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (the Regulations). Exemptions in the Regulations do not apply within environmentally sensitive areas declared by the Minister for Environment under s 51B of the EP Act.

DER has received an application for a clearing permit from Carbone Bros. Pty Ltd to clear four trees within the proposed extraction area (CPS 7509/1). The application was received on 27 February 2017, and a decision on the application is pending the applicant obtaining an extractive industry licence.

Guidelines and fact sheets on the regulation of native vegetation clearing can be found on DER's website at [www.der.wa.gov.au/your-environment/native-vegetation](http://www.der.wa.gov.au/your-environment/native-vegetation). Further information on the clearing permit process can be obtained by email at [info@der.wa.gov.au](mailto:info@der.wa.gov.au) or by telephone on 9333 7469.

Should your staff wish to discuss this matter, please contact DER's Planning and Advice Coordinator, Ms Teresa Gepp, on 6467 5383.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Dan Volaric', is written over the typed name and title.

Dan Volaric  
ACTING DIRECTOR GENERAL

21 June 2017



Your ref: P33/17  
Our ref: PRS 41083 2015/002856  
Enquiries: Tracy Teede  
Phone: 08 9725 4300  
Email: [swianduseplanning@dbca.wa.gov.au](mailto:swianduseplanning@dbca.wa.gov.au)

Chief Executive Officer  
Shire of Dardanup  
PO BOX 7016  
DARDANUP WA 6232

ATTENTION: Jake Whistler

**PROPOSED EXTRACTIVE INDUSTRY (GRAVEL) –  
LOT 1 (927) CROOKED BROOK ROAD CROOKED BROOK**

I refer to your letter dated 8 May 2017 forwarding an extractive industry application for the above property for the Department of Parks and Wildlife's (Parks and Wildlife) comment.

On 1 July 2017 Parks and Wildlife merged with the Botanic Gardens and Parks Authority, Zoological Parks Authority and Rottnest Island Authority to form the Department of Biodiversity Conservation and Attractions (DBCA). Parks and Wildlife has now become a service in DBCA, and any further correspondence will be provided under the banner of the new Department.

DBCA Parks and Wildlife Service South West Region provides the following comments on the proposal.

Biodiversity values

Lot 1 contains stands of remnant vegetation which is potential western ringtail possum (WRP) and black cockatoo habitat.

WRP and black cockatoos are listed as threatened species under the Commonwealth of Australia's *Environment Protection and Biodiversity Conservation Act 1999* and Western Australia's *Wildlife Conservation Act 1950*. Major threats to WRP and black cockatoos include habitat loss.

The Lot 1 northern boundary is adjacent to the Boyanup State forest.

The eastern portion of the Boyanup State forest is identified as Regional Open Space under the Greater Bunbury Region Scheme and as a proposed future Nature Reserve under the Conservation Commission of Western Australia's Forest Management Plan 2014-2023.

Nature Reserves are managed to maintain and restore the natural environment, and to protect, care for and promote the study of, indigenous flora and fauna.

Comments

Any development should aim to avoid impacts to native vegetation, potential threatened fauna habitat, State forest and proposed Nature Reserve areas.

**South West Region**  
South West Highway, Bunbury WA 6230  
Phone: 08 97254300 / Fax: 08 97254351  
PO Box 1693, Bunbury, WA 6230  
[www.dpaw.wa.gov.au](http://www.dpaw.wa.gov.au)

## (Appendix ORD: 12.4.2B)

Section 5.1 states that the proposed development has been planned to avoid the larger stands of trees and remnant forest on the property. Parks and Wildlife supports the retention of the Lot 1 stands of trees and remnant bushland.

Parks and Wildlife recommends that a buffer from the proposed extraction area boundaries be provided to protect any adjacent stands of trees from impacts associated with the proposed extraction activities.

Potential impacts include reduced tree root zone moisture levels due to hydrological alterations resulting from the proposed extraction activities. The trees are also at risk from accidental machinery damage and have an increased risk of being blown over.

Parks and Wildlife recommends that no extraction activities occur within 15m of any native tree crown drip zones along the boundaries of the proposed extraction areas.

Parks and Wildlife recommends that a suitable temporary demarcation barrier be erected 15m from the crown drip zone of retained trees to protect the trees and root systems from accidental machinery damage.

The proposed extraction boundaries should be located to provide a minimum 20m buffer to the boundary of the adjacent State forest and proposed Nature Reserve.

Section 4.1 refers to stockpiles of topsoil and extracted materials. It is recommended that a minimum 20m buffer is provided from stockpile locations to the adjacent State forest and proposed Nature Reserve boundaries to protect adjacent bushland areas.

The Lundstrom Environmental Consultants Pty Ltd Water Management Plan (Figure A) depicts proposed contour bunds and detention ponds associated with the proposed extraction works.

Drainage and/or detention ponds adjacent to the State forest and proposed Nature Reserve increase the risk for the introduction and/or intensification of *Phytophthora* dieback disease which would spread through the forest.

There should be no drainage from the proposed extraction site towards the the adjacent State forest or proposed Nature Reserve, and no detention basins which will seep, or overflow to, and beyond the Lot 1 northern boundary.

The Lundstrom Environmental Pty Ltd Site and Surrounds Map (Figure 2) depicts the location of the proposed access road, which is proposed to extend from Crooked Crook Road to the northern Lot 1 boundary and follows the Lot 1 northern boundary.

To minimise the potential spread and introduction of *Phytophthora* dieback disease to the adjoining forest, the haul road drainage should flow away from the State forest and proposed Nature Reserve. To achieve this, it is recommended that the haul road be no closer than 80m from the Lot 1 northern property boundary which abuts the State forest and proposed Nature Reserve.

Alternatively access could be from Crooked Brook Road to the south of the Lot 1 proposed extraction pit.

Table 4 states that the site is to be rehabilitated with pasture for grazing purposes. Parks and Wildlife Service recommends that the proposed extraction area's northern boundary is revegetated using local endemic species to provide a minimum 20m buffer from potential impacts, including weed intrusion, to the adjacent State forest and proposed Nature Reserve.

Parks and Wildlife trusts that environmental planning issues including those not specifically referred to in this letter will be appropriately managed through the planning system.

Thank you for the opportunity to comment on this application. Please contact Tracy Teede at the Parks and Wildlife Service's South West Region office if you have any queries regarding this advice.



TK

Regional Manager  
Parks and Wildlife Service

21 July 2017

Att.



Dardanup,6236

June 2<sup>nd</sup> 2017

Mr M. Chester  
Chief Executive Officer  
Dardanup Shire Council  
Eaton

Dear Mr Chester

Re: proposed gravel extraction from Lot 1 Crooked Brook Road, Dardanup

We write to express our concern at the possible extraction of gravel by Carbone's from lot 1 (9297) on Crooked Brook Road, Dardanup.

Our concerns centre particularly on the extremely negative impact on us personally but also include the road hazards created by extra large trucks on a minor road as well as the impact on local tourism.

Personal impact

While we are not the nearest neighbours of the proposed extraction plant, we believe that we will be the most adversely affected. The prospect of 120 trucks a week (possibly more) going past our front door for eighteen months or more was not what we envisaged when we chose our property in Crooked Brook Road. The proximity of the house to the road has never been an issue in the past.

While the actual extraction and crushing will be annoying (as there is not so much topsoil on the rise that it will make an effective wall as a noise barrier), it is the ongoing noise and dust of the trucks which will have an extremely negative impact upon us.

While we appreciate trucks will be covered, the road is narrow and every truck that passes throws up dust. There is also the noise. The bridge just along from us (about 840) is of uneven surface and the clatter of trucks is evident. We expect some trucks but not 120 plus per week.

Safety Hazards

Crooked Brook Road is very narrow in places. This is not an issue for the present users as it is only used by locals, the school bus and the occasional truck as well as cars and mini-buses visiting Crooked Brook Forest. And, of course, there are also the mountain bikers using the popular Munda Biddi Trail. We believe that having at least twenty two additional big truck movements a day, that is one approximately every twenty five minutes, constitutes a potentially dangerous situation.

We feel that minibuses bringing disabled or elderly people to Crooked Brook Forest, for example, will not relish having to share the road with even more trucks. We note it is considered important in the report that trucks not use the roads when school buses may be on them but no consideration has been given to the many small buses which

visit Crooked Brook Forest. These buses usually visit during the week. Nor is any consideration given to the many mountain bikers using the Munda Bidli Trail.

#### Tourism

At a time when Dardanup has the opportunity to develop its tourism potential it seems counter-productive to allow further industry, and particularly one such as a gravel extraction plant, to be located within the Ferguson tourist area. We believe our countryside should be renowned for its wineries, its forests and its farms.

Besides our own gallery, Lyndendale Gallery, there are also the tourism ventures of Crooked Brook Farm Stay and Crooked Brook Forest which will be negatively affected by having such a number of big trucks on the road.

The Munda Bidli cycle track also goes along Ironstone and Crooked Brook Roads. This amazing track, which equates to the Bibbulmen Walking Track, takes mountain bikers from Perth to Albany. Every day cyclists make use of it and enjoy its comparative peace and quiet - and safety.

Dardanup has the opportunity to remain 'clean' and to use the quality of the area as a drawcard. It is becoming increasingly difficult to find unspoiled areas in this southern part of the state. Not only do we *have* such an area but we have it close to a city and within two hours of a capital city. We would like to think this 'Paradise Country' could remain as such.

While the proposed gravel extraction plant may fall into 'the guidelines', we hope these guidelines are stringent enough and based on the best available data on the effects of the extraction plant and the consequent truck traffic on the environment, the people and the countryside.

Should it go ahead we would ask that:-

1 Trucks use Ironstone Road whenever possible. This road is wider and does not have the same number of houses along it. If this is not possible, perhaps trucks could return via the much wider Ferguson and Ironstone Roads. This would help considerably with safety issues and noise and dust issues for us personally.

2. The time frame be Monday to Friday till 6 pm and that there is no Saturday work.

3. The bridges along Crooked Brook Road be upgraded. The bridge near Lyndendale, for example, is narrow and its surface uneven. Only one vehicle can use it at a time. The noise of trucks is considerable.

4. We feel that if Crooked Brook Road is to be used that any upgrading that is necessary should not be at the expense of ratepayers. The extraction plant is a business. Other businesses, for example the proposed restaurant on Ferguson Road, would be required to make the entry to the property safe at the *businesses' expense* - not at the ratepayers'. Similarly the cost because of the extra wear on the roads - 120 big trucks a week over some eighteen months or longer - should be met substantially by the business.

In conclusion, we would like to see the response time to this issue extended and those who reside along Crooked Brook Road notified. As we tell people of the proposed extraction plant and possible truck movement they are surprised that they were not



notified. The trucks on our minor road will have a greater negative effect than the extraction plant itself.

Yours faithfully

WV

A handwritten signature consisting of a single, fluid, diagonal stroke.

## (Appendix ORD: 12.4.2B)

**From:** [REDACTED]  
**Sent:** Monday, 19 June 2017 9:22 AM  
**To:** Submissions Planning  
**Subject:** re Carbone Bros Gravel Extraction application

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Chief Executive Officer.

I have no objection to the proposed gravel extraction. My concern though is for inevitable increased truck movements on Crooked Brook Road! This became a problem when Giacci were extracting gravel, and using Crooked Brook Road from Banksia Road (West). They were eventually made to use Dillon Road to connect with Boyanup Picton Road.

The intersection of Panizza Road and Crooked Brook Road is already overly busy? with the increased traffic, constant refuse trucks accessing the Banksia Road Facility, plus Geographe Civil vehicles and semi-trailers also accessing the site! Depiazzi semi-trailers also use this road with random other trucks constantly using Panizza Road. This intersection, with its one lane bridge, has limited vision in any direction.

Crooked Brook Road is also a 'busy' road, with Spanners Engineering and many new people living out Crooked-Joshua Brook now!

It has always been mine and other residents concern that Panizza Road be closed to heavy vehicles.

Therefore I suggest Dillon Road be used as it was by Giacci Bros.

Thanking You  
Corner Crooked Brook and Panizza Roads

---

## (Appendix ORD: 12.4.2B)

**From:** [REDACTED]  
**Sent:** Monday, 12 June 2017 5:26 PM  
**To:** Submissions Planning  
**Subject:** Re; Proposed Extractive Industry - 927 Crooked Brook Rd, Crooked Brook

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Dear Mark,  
Re; Proposed Extractive Industry - 927 Crooked Brook Rd, Crooked Brook  
Because sections of Crooked Brook Rd are narrow and winding Tom and I would like to see a maximum speed limit on the trucks going to and out of 927 Crooked Brook Rd be limited to 60 km/hr.  
Regards . [REDACTED], Crooked Brook.

## (Appendix ORD: 12.4.2B)

**From:**  
**Sent:** Thursday, 15 June 2017 3:43 PM  
**To:** Jake Whistler  
**Cc:** 'Kaz'  
**Subject:** RE: Gravel pit

Hi Jake,

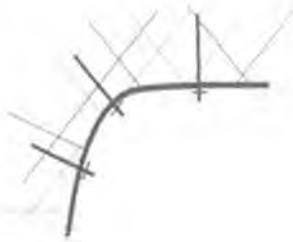
Thanks for your reply, my thoughts regarding operating the gravel pit are as follows.

To operate during daylight hours only, don't want large trucks travelling on the road during the hours of darkness

No articulated trucks used to transport the gravel along Crooked Brook road from the quarry / gravel pit, maximum heavy ridged truck.

The use of a rock breaker to be prohibited for the removal of hard digging, ( noise in the valley for extended periods of time ), the use of drill and blast acceptable for the removal of hard digging, ( noise is limited to a shorter time period ).

Regards



This message is intended for the named addressee only. It contains information which may be confidential and also privileged. Unless you are the named addressee you may neither copy nor use it nor disclose it to anyone else. If you have received this message in error, or it is unclear please notify us immediately by return email.

---

**From:** Jake Whistler [<mailto:Jake.Whistler@dardanup.wa.gov.au>]  
**Sent:** Monday, 12 June 2017 2:57 PM  
**To:**  
**Subject:** RE: Gravel pit

Hi

Apologies for the delay in response and missing your phone call. I have just returned from annual leave.

In response to your below queries, the details of the Extractive Industry application can be found on the Shire's website at the following link <http://www.dardanup.wa.gov.au/council/public-notices-2/>

To answer your questions below, I provide the following:

- The term of the Extractive Industry being applied for is 5 years;
- The application indicates that Crooked Brook Road to Boyanup-Picton Road will be used;
- The application indicates a maximum of 11 loaded truck movements per day;
- The application does not indicate operating hours, however, the local government may impose time restrictions when extractive operations can occur; and
- The application estimates 70,000 tonnes of gravel to be removed from the site.

I acknowledge that the above information was not provided to you during the standard advertising period. I can advise however that this advertising period has been extended to the 22<sup>nd</sup> June 2017.

If you wish to make a formal submission on this application for an Extractive Industry, please feel free to do so by the above date.

If you have any further questions, please don't hesitate to contact me.

Regards,

---

Jake Whistler

Senior Planning Officer

SHIRE OF DARDANUP | 1 Council Drive | PO Box 7016 | Eaton WA 6232  
p: 08 9724 0359 | e: [jakew@dardanup.wa.gov.au](mailto:jakew@dardanup.wa.gov.au)

 Shire of Dardanup [www.dardanup.wa.gov.au](http://www.dardanup.wa.gov.au)  Like us on Facebook

---

**From:** |  
**Sent:** Tuesday, 30 May 2017 7:03 AM  
**To:** Jake Whistler  
**Cc:**  
**Subject:** Gravel pit

Dear Jake Whistler

We have just received a letter from you regarding the Application for Development Approval Proposed Extractive Industry (Gravel) Lot1 (927) Crooked Brook Road and we would like to know:

- A. The estimated life span of the above.
- B. Approved access roads to be used to and from the above.

## (Appendix ORD: 12.4.2B)

C. Estimated number of truck movements, working hours, hours of operation

D. Volume of material to be mined

I look forward to hearing from you.

Thanks



This message is intended for the named addressee only. It contains information which may be confidential and also privileged. Unless you are the named addressee you may neither copy nor use it nor disclose it to anyone else. If you have received this message in error, or it is unclear please notify us immediately by return email.

“This message contains privileged and confidential information intended only for the use of the addressee or entity named above. Use of this information beyond this intended use is unauthorised”

Shire of Dardanup  
Box 7016  
Eaton 6232

Dardanup  
6236

Dear Sir,

My property adjoins Crooked Brook Rd. My main concerns are ground water, dust, & flooding.

- (1) The Crooked Brook runs through my property, could the movement of the gravel cause flooding if we have a heavy down pour?
- (2) Would the ground water be affected. Our ground water is very good & I don't want it to be contaminated.
- (3) What about the dust problem?

I hope you will address all these issues.

Yours faithfully

DARDANUP 6236

Mr Mark Chester  
CEO  
Shire of Dardanup

Dear Mr Chester,

RE: Application for gravel Extraction Crooked Brook Road

We have recently become aware that there is an application before Council for gravel extraction on a property along Crooked Brook Road. The application suggests that the gravel is planned to be carted along Crooked Brook Road. As we live on Crooked Brook Road there are three issues that we would draw to your attention; traffic volume, noise and breadth of advertising.

Traffic volume. Given the figures in the application, 11 loaded movements a day, 11 empty movements, times from 7.00am to 5.00pm, less 1.5 hours of school bus usage it can be calculated that there would be a semi trailer truck passing every 23 minutes. This is most probably a significant increase in volume. Whilst much of Crooked Brook Road has been upgraded in recent years (which is fantastic) there are two sections that may be substandard for this increased volume of heavy traffic; from approx 492 to 580 and from 690 to 900. These are not as wide as the recently improved sections and we suggest would be of concern in terms of safety for all on the road. If the application is approved we would request that these two sections be considered for upgrading on the grounds of safety.

Noise. Our home stands above the bridge (N<sup>o</sup> 3671) over the Crooked Brook. This bridge has suffered subsidence on either side. This means that trucks, particularly empty cattle trucks, clatter and clang as they pass. The clattering and clanging can be heard all over the neighbourhood. Empty semi trailer trucks are similar. We would request that as a matter of routine maintenance that the subsidence be rectified prior to any increased traffic volume.

Breadth of advertising. Crooked Brook Road is used by a significant number of families. Being an 'A' use in TPS3 the application was advertised to those residing with 1km of the quarry. This is relevant to amenity in terms of noise and dust but ignores a vast percentage of road users. We suggest that a true indication of locals' concerns or otherwise would be garnered from a wider advertisement of this application. A semi trailer truck movement every 23 minutes is significant.

We are not objecting to the application, rather we are drawing your attention to these concerns.

Yours sincerely,

1 June 2017





Government of **Western Australia**  
Department of **Planning**

Your Ref: A10798

Our Ref: DP/15/00508

Enquiries: Kath La Nauze (97910577)

11 May 2017

Jake Whistler  
Senior Planning Officer  
Shire of Dardanup  
PO Box 7016  
Eaton WA 6232



Dear Jake

**Proposal for extractive industry Lot 1 Crooked Brook Road, Crooked Brook.**

I refer to your email and attachment documentation dated 8 May 2017, requesting the Department of Planning's (DoP) comments on the above-mentioned proposal.

The application has been assessed in accordance with the provisions of the Greater Bunbury Region Scheme (GBRS), with particular reference to the Notice of Resolution (**RES2014/03**) made under Clause 27, Schedule 1, *Clauses 2, 4, & 10* and the Instrument of Delegation (**DEL2014/01**) under Section 16 of the Planning and Development Act 2005, Schedule 2, *Clauses 1 & 4*.

Whilst DoP has no objections to the proposal, DoP would like to make the following comments:

- Lot 1 is zoned Rural under the GBRS and abuts land reserved for Regional Open Space and State Forests.
- The development requires planning approval under the GBRS.
- The application should be referred to the Department of Water (DoW), Department of Parks and Wildlife (DPaW) and the Department of Environmental Regulation (DER) for comment.
- The proposed development is considered compatible with the purposes of the Rural zone and therefore does not require planning approval in regard to this clause.
- The subject lot is identified as being Bush Fire Prone, therefore additional planning and building requirements may apply to the development in accordance with SPP 3.7 Planning in Bushfire Prone Areas. Any queries on the application of SPP 3.7 should be directed to [bushfire@planning.wa.gov.au](mailto:bushfire@planning.wa.gov.au) or phone 6551 9000.

It should be noted that the Department's role in the assessment of this development application is an advisory role only unless Council does not accept the advice and/or

recommendation from DoP and/or DPaW in which case the determination will have to be made by the WAPC.

Should you have any enquiries please contact Kath La Nauze on Ph: 97910577

Yours sincerely



Fov.

**Marion Dandridge**  
Planning Manager GBRS  
South West Regions