



# PUBLIC ATTACHMENTS

Special Council Meeting

9 November 2020

Item 8.2

## SHIRE OF VICTORIA PLAINS LOCAL PLANNING SCHEME NO.5



## FORM 1 - APPLICATION FOR DEVELOPMENT APPROVAL

**Owner Details**

Name/s: Mr Montrose Marinus Driessen

ABN (if applicable): Not applicable

Postal Address: c/- Wannamal Post Office

Postcode: 6505

Work Phone: Not applicable

Fax: Not applicable

E-mail: Not applicable

Home Phone: 9655 9023

Mobile Phone: Not applicable

Contact Person for Correspondence: As above

Signature:

M Driessen

Date:

15-7-2020

**NOTES:**

- i) Use and attach a separate copy of this page where there are more than two (2) landowners.
- ii) The signature/s of all registered owner(s) as listed on the land's Certificate of Title is required. This application cannot proceed without the required signature/s. For the purposes of signing this application an owner includes the persons referred to in the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 clause 62(2). Land owned by an incorporated body (i.e. a company) must be signed by:
- 1 director of the company, accompanied by the company seal; or
  - 2 directors of the company; or
  - 1 director and 1 secretary of the company; or
  - 1 director if a sole proprietorship company.
- Print the full names and positions of company signatories underneath the signatures.
- iii) A copy of the Certificate of Title for all land the subject of this application must be provided and can be purchased through Landgate directly if required.
- iv) Development Applications relating to Unallocated Crown Land, Unmanaged Crown Reserves, land under management order to the Shire of Victoria Plains where the development is not consistent with the reserve's purpose, or is used for commercial purposes, or land which is subject to a lease issued under the Land Administration Act 1997 need to be referred to the Lands Division of the Department of Planning, Lands and Heritage for consideration and signing.

**Applicant Details (if different from owner)**

Name/s: Menzies Quarries Pty Ltd

Address: PO Box 169 BENTLEY WA

Postcode: 6102

Work Phone: 9335 7473

Fax: Not applicable

E-mail: dylan@menziesquarries.com

Home Phone: Not applicable

Mobile Phone: 0497 777 227

Contact Person for Correspondence: **Mr Dylan Menzies - Director**

**Signature:**



**Date:** 15/07/2020

**NOTES:**

- i) Failure to provide a suitably completed development application form, a copy of the relevant Certificate/s of Title, sufficient plans and other supporting information and/or the correct application fee may result in the application being returned or placed on hold.
- ii) The application fee payable will be confirmed by the local government following receipt of the application. Processing of the application will not commence until the fee is paid in full.
- iii) As per Schedule 2 clause 64 of the Planning and Development (Local Planning Schemes) Regulations 2015 the information and plans provided with this application may be made available by the local government for public viewing in connection with the application.
- iv) If public advertising of the application is required by the local government an additional fee in accordance with the local government's adopted schedule of fees and charges will be payable by the applicant. Further processing of the application following completion of public advertising will not proceed until the additional fee is paid in full.
- v) The original of this application and supporting information and plans will be retained by the local government for its records and will not be returned to the applicant/landowner following final determination.

**Property Details**

*NOTE: The details provided must match those shown on the relevant Certificate/s of Title.*

Lot No: **127** House/Street No: **668** Location No: **Not applicable**

Survey Diagram or Plan No: <b>Deposited Plan 35464</b>	Certificate of Title Volume No: <b>1897</b>	Certificate of Title Folio No: <b>848</b>
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Title encumbrances (e.g. easements, restrictive covenants etc. as listed on the Second Schedule of the relevant Certificate/s of Title):

**Nil**

Street name:  
**Mogumber-Yarawindah Road**

Suburb:  
**Mogumber**

Nearest street intersection:  
**Mogumber-Yarawindah Road & Cocking Road**

**Proposed Development:**

Nature of development:  ~~Works (New construction works with no change of land use)~~  
 ~~Use (Change of use of land with no construction works)~~  
 **Works and Use**

*NOTE: If the proposal involves advertising signage the Additional Information for Development Approval for Advertisements form (i.e. a Form 2) must be completed and submitted with this application.*

Is an exemption from development claimed for part of the development? Yes  No

If yes, is the exemption for:  ~~Works~~  
 ~~Use~~

Description of proposed works and/or land use:

Proposed amendments to Conditions 3 and 17 of the original development approval issued by the Victoria Plains Shire Council at its Ordinary Meeting held on 14 June 2017 for the establishment and operation of an Extractive Industry (Lateritic Gravel Quarry) on the abovementioned property.

Description of exemption claimed (if relevant):

Not applicable

Nature of any existing buildings and/or land use:

1. Extractive Industry (Lateritic Gravel Quarry)
2. Waste Storage Facility (Recycling of Construction & Demolition Waste)
3. Extensive Agriculture (Cropping &/or Grazing)

Approximate cost of proposed development (excluding GST):

Not applicable

**OFFICE USE ONLY**

Date application received:

Received by: Joe Douglas – Shire Planner

Application reference number:

Application fee payable: Nil. Fee has been waived.

Date of receipt of application fee from applicant:

Receipt number for application fee: Not applicable



SHIRE OF VICTORIA PLAINS




APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENCE

1. Name: Menzies Quarries Pty Ltd.....("the applicant")
2. Address: PO Box 169, Bentley, WA, 6102  
.....
3. Telephone: 08 9335 7473..... Email: admin@menziesquarries.com.....
4. Address and locality of proposed excavation site  
668 Mogumber-Yarawindah Road, Mogumber  
.....
5. Lot No. 127.....
6. Location No. ....
7. Plan or Diagram No. 35464.....
8. Certificate of Title Volume: 1897..... Folio: 848.....
9. Landowner's Name: Montrose Marinus Drissen.....
10. Landowner's Address: Care of Post Office Wannamal  
.....
11. Material to be excavated: Lateritic Gravels.....
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: 20 years.....
14. Submitted with this application are:  
(a) 1 copy of the excavation site plan/s;  
(b) 1 copy of the works and excavation programme;

- (c) 1 copy of the rehabilitation and decommissioning programme;
- (d) datum peg evidence;
- (e) licensed surveyor's certificate;
- (f) copies of all land use planning approval/s;
- (g) any other information that the local government has required; and
- (h) licence application fee of \$300.

The applicant hereby applies for a licence in respect of the proposed excavation site in accordance with and subject to the Shire of Victoria Plains Extractive Industries Local Law 2018.

Dated this 5th ..... day of January ..... 2020.....

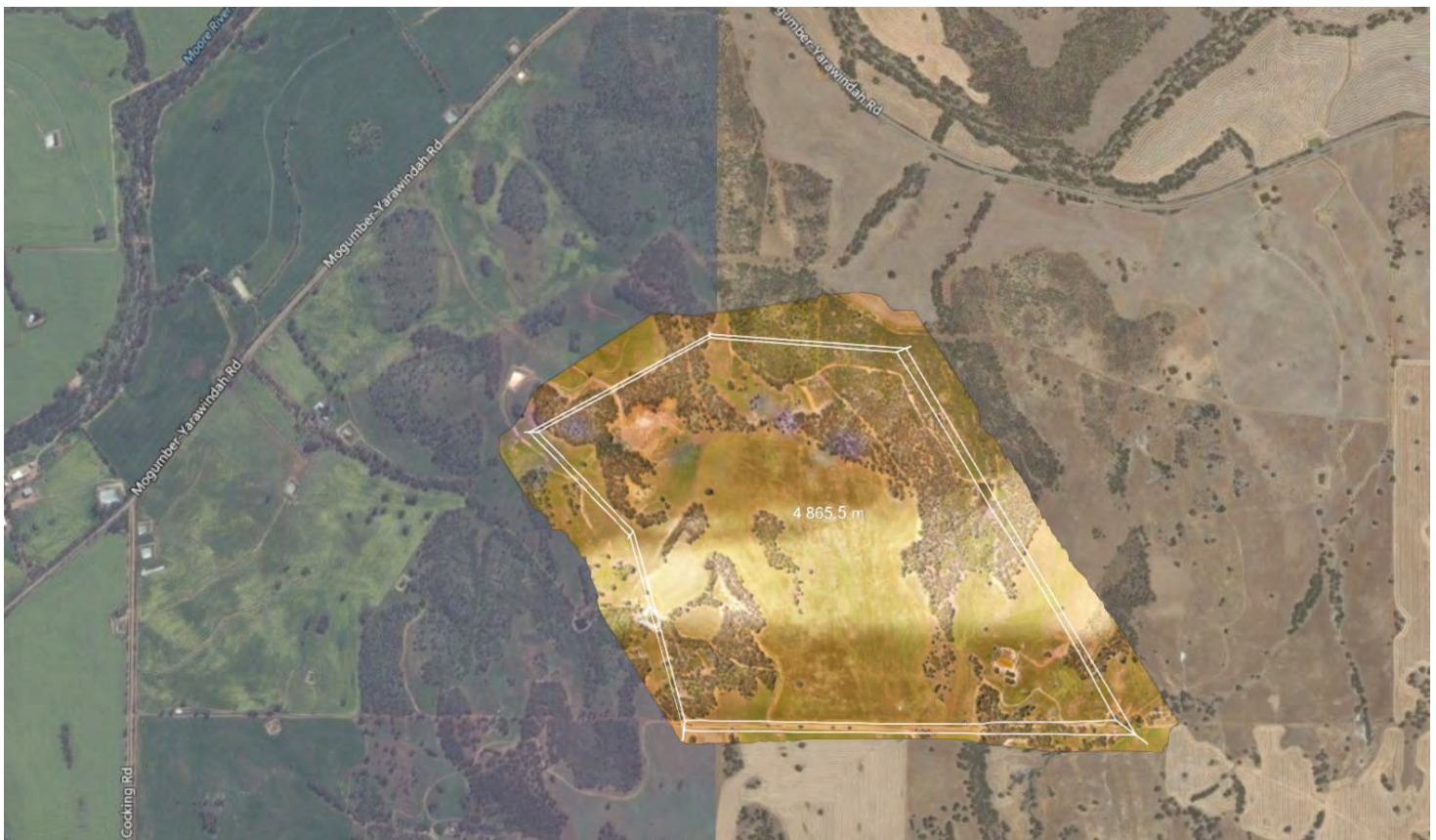
 ..... Signature of Applicant

 ..... Signature of Landowner

..... Signature of Existing Licensee (if applicable)

# EXCAVATION and REHABILITATION MANAGEMENT PLAN.

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## LOT 668 Mogumber – Yarrawindah rd, Mogumber

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## SUMMARY

Menzies Quarries Pty Ltd (Menzies) proposes to develop a

- Gravel Extraction Quarry ,
- Construction And Demolition Waste Recycling Facility, and
- Composting Facility,

at **Lot 668 Mogumber-Yarrawindah Rd, Mogumber**. As a result of the gravel extraction process, quantity of waste material proposed to be handled on site and processing of materials, it is necessary that Planning Approval, Works Approval, Clearing Permit and Licences are obtained.

The proposed site is Zoned Rural and located in the Shire of Victoria Plains. The area is currently utilised as broad acre grazing and also continues to be used by the Shire of Victoria Plains to extract gravel from an existing quarry as required. The surrounding land uses continues to be broad acre grazing and cropping. The activities are performed to not affect the use of the remainder of the property and adjacent properties. The operations have been designed to minimise visual impact, noise and dust impacts.

This document provides the information for the management of the extraction of material from the Quarry Area and subsequent rehabilitation requirements.

Gravel has been excavated from the quarry area for many years by the Shire of Victoria Plains (the Shire) and the Shire will continue to have access to the material as per the “Agreement for the Provision of Gravel between the Shire of Victoria plains and Menzies Quarries Pty Ltd”, yet to be finalised. The agreement is in line with clause 2.4.1 ‘gravel Supply Agreements’ of the Shire of Victoria Plains policy manual. The agreement will be reviewed as required and this document amended if required.

The Quarry Area is the only known location where the presence of suitable gravel is readily available in the region at suitable commercial quantities while meeting all technical and environmental requirements.

A vegetation study was completed and shows that the site is covered by pasture degraded and grazing, with a small area (1.7ha) of scattered native bushland. The bushland to be cleared within the quarry area has been evaluated as 6 on the *Keighery* vegetation scale.

A die back assessment has been performed and has concluded that the site and surrounds are excluded. Controls are in place to ensure dieback does not become introduced into the area through the operations of Menzies.

The useable gravel reserve occupies an area of about 46 hectares and extends to an average depth of 25 metres. Excavation will commence from the existing excavated area and progress in a south easterly direction commencing from the existing level of 265 mAHD with a 1:100 gradient south to north to capture storm water and sediment for treatment and

MENZIES - Excavation & Rehabilitation Management Plan  
Lot 668 Mogumber – Yarrawindah rd

reuse on site. . Minimal topsoil is present. Overburden is captured during the gravel screening process and stockpiled along the perimeter of the quarry to reduce the handling requirements during rehabilitation.

Water levels taken from historical data at Woury Pool indicate a maximum winter water level of 178 mAHD (1999). Excavation works occur well above the winter ground water level.

The closest dwelling to the Quarry Area is located on Lot 668 Mogumber – Yarrawindah rd and is approximately 900 meters from the existing quarry with the remainder of the sensitive receptors being greater than 1.6km away.

The site is zoned Rural under the Shire of Victoria Plains Town Planning Scheme. The Local Planning Policy #10, “Basic Raw materials and Extractive Industries” has the following objectives;

- To manage the extraction of basic raw materials within the rural zones in accordance with best industry practices including consideration of end use and rehabilitation at time of decommission;
- To ensure appropriate buffer areas are applied to protect the extractive operations as well as the living or agricultural environment in nearby areas.

The proposed excavation has been designed to enable rural activities to continue and thrive once the site is no longer utilised for extractive purposes.



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## 1. Introduction

### 1.1. General Description of Proposal

The property is leased by the Landowner predominately for grazing purposes, with a portion leased to Menzies for three activities being, Extraction, C&D Recycling and Composting.

The services and products to be developed are to be utilised by Menzies and its related projects, and are commercially available to bulk customers. The site is not open for ad hoc (walk-in) customers.

**Extraction;** Menzies excavates, screens and crushes the extracted material and exports the recovered gravel and sand products from its operations to supply to off takers for incorporation into civil and landscaping works.

As part of the excavation activities, a section of native vegetation (1.7 hectares) will be required to be cleared and a Clearing Permit obtained.

**Recycling C&D;** Menzies receives, screens and crushes clean Construction and Demolition (C&D) waste to develop saleable and re-useable products including sand, road base, manufactured fill and other Waste Derived Materials (WDM) as defined and approved by the Department of Environment Regulation (DER).

*No WDM will be utilised or moved of site until these products are defined and approved for use by the DER which is expected to occur middle 2017.*

**Composting;** Menzies composts source separated clean organic waste streams to produce compost that meets Australian Standard AS4454 -12.

### 1.2. Proponent details

The Proponent for this proposed development is Menzies Quarries Pty Ltd:

12 Taylor st White Gum Valley, 6162, WA

## Certificate of Registration of a Company

This is to certify that

**MENZIES QUARRIES PTY LTD**

**Australian Company Number 615 428 245**

is a registered company under the Corporations Act 2001 and  
is taken to be registered in Western Australia.

The company is **limited by shares**.

The company is a **proprietary** company.

The day of commencement of registration is  
the **nineteenth day of October 2016**.



**ASIC**

Australian Securities & Investments Commission

CERTIFICATE

Issued by the  
Australian Securities and Investments Commission  
on this nineteenth day of October, 2016.

Greg Medcraft  
Chairman

### **1.3. Site Location Property Location:**

Lot 668 Mogumber-Yarrawindah Rd, Mogumber, Map 1,2.

### **1.4. Property Description:**

Lot 668 Mogumber- Yarrawindah Rd, Mogumber, Western Australia being Lot 127, on deposited plan 35464. Zoned 'Rural' within Shire of Victoria Plains - Town Planning Scheme No. 5. Property area is 6.85M m<sup>2</sup> (685 hectares)

### **1.5. Lease Area**

Part of Lot 668 Mogumber-Yarrawindah Rd, Mogumber, Western Australia being part of Lot 127, on deposited plan 35464, within GIS coordinates (elevations);

E416299 N6565645 (289m), E416134 N655214 (266m), E415815 N6566521 (235m),  
E416365 N6566817 (270m), E416942 N 6566821 (220m), E417618 N6565645 (240m).

Prescribed Premises area is 1.35M m<sup>2</sup>. The Prescribed Premises boundary is the lease area, Map 3.

### **1.6. Description of the resource**

Within the prescribed premises, the Menzies Quarry Area occupies 460,000 m<sup>2</sup> (46 hectares) over its expected lifespan of 20 years. The resource to be extracted is gravel. The useable gravel reserve extends to an average depth of 25 metres.

Excavation will commence from the existing excavated area and progress in a south easterly direction commencing from the existing level of 265 mAHD. Volume available for extraction, including screened overburden, is approximately 16M m<sup>3</sup>.

### **1.7. Proof of Applicant status**

Menzies has a 'Lease and Gravel Quarrying Agreement' with the Land Owner for the use of the prescribed premises, landowner being Mr Montrose Martinus Driessen.

The Quadrant  
1 William Street, Perth  
Western Australia 6000  
GPO Box F338, Perth  
Western Australia 6841  
Tel +61 8 9288 6000  
Fax +61 8 9288 6001  
[www.lavanlegal.com.au](http://www.lavanlegal.com.au)

The logo for Lavan Legal, with "LAVAN" in a large, red, sans-serif font and "LEGAL" in a smaller, black, sans-serif font to its right. Below "LEGAL" is the tagline "Leaders in Law" in a very small font.

**Lease and gravel quarrying agreement**

**668 Mogumber – Yarrawindah Road, Mogumber**

Montrose Marinus Driessen  
Menzies Civil Australia Pty Ltd

MD SM

4811-7311-7494\_1154191, v.1

Lease and gravel quarrying agreement

**LAVAN** LEGAL

**Execution**

**Executed as deed**

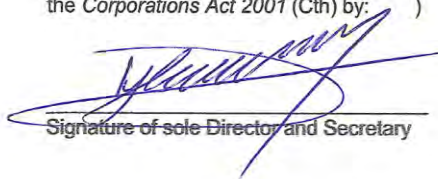
Date: 6-9-2016 2016

Signed by  
**Montrose Marinus Driessen** ) *M Driessen*  
in the presence of: )

Witness:

Signature: *Sue Carter*  
Full Name: SUZANNE MARGARET CARTER  
Address: 133 GRAY BINDOON WA 6502  
Occupation: MANAGER BINDOON POST OFFICE

Executed by )  
**Menzies Civil Australia Pty Ltd** )  
**ACN 610 994 575** )  
in accordance with section 127 of )  
the Corporations Act 2001 (Cth) by: )

  
Signature of sole Director and Secretary

Dylan Menzies-Elliott  
Name of sole Director and Secretary

*MD sue*

## 1.8. Facility Categories - Department of Environment Regulation

Based on the proposed activities, the following facility environmental categories are relevant:

### Extraction

DER Category 12 – ‘Screening etc. of material (50,000 tonnes or more per year)

*Premises (other than premises within category 5 and 8) on which material extracted from the ground is screened, washed, crushed, ground, milled sized or separated.*

### Recycling C & D

- DER Category 13 – Crushing of building material (1,000 tonnes per year)

*Premises on which waste building or demolition material (for example, bricks, stones, or concrete) is crushed or cleaned.*

- DER Category 62 - Solid waste depot (500 tonnes or more per year)

*Premises on which waste is stored, or sorted, pending final disposal or re-use.*

### Composting

- DER Category 62 - Solid waste depot (500 tonnes or more per year)

*Premises on which waste is stored, or sorted, pending final disposal or re-use.*

- DER Category 67A - Compost manufacturing and soil blending (1,000 tonnes or more per year)

*Premises on which organic material (excluding silage) or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost or blended soils*

- DER Category 61 - Liquid waste facility (1,000 tonnes or more per year)

*Premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.*

Requested for the acceptance of sub categories;

- ‘K110 - Grease Trap Waste’
- ‘K130 – Sewage waste from the reticulated sewage system (Biosolids). No other liquid waste accepted on site.



- **NOTE:** all liquid waste received is transferred directly to a sealed liquid storage tank and only removed when mixed with green waste for immediate aeration. This practice is common in the composting industry and has been shown to produce no offsite odours when properly mixed and actively aerated.

## 1.9. Material Quantities

The estimated breakdown of the material types includes:

- Gravel extraction – up to 500,000 tonnes / year to meet demand for Great Northern highway works,
  - Typical extraction will not exceed 250,000 tonnes / year
- C&D waste received and processed – up to 150,000 tonnes / year,
  - Expected production of 100,000 tonnes/year, and
- Compost produced – up to 35,000 tonnes / year.

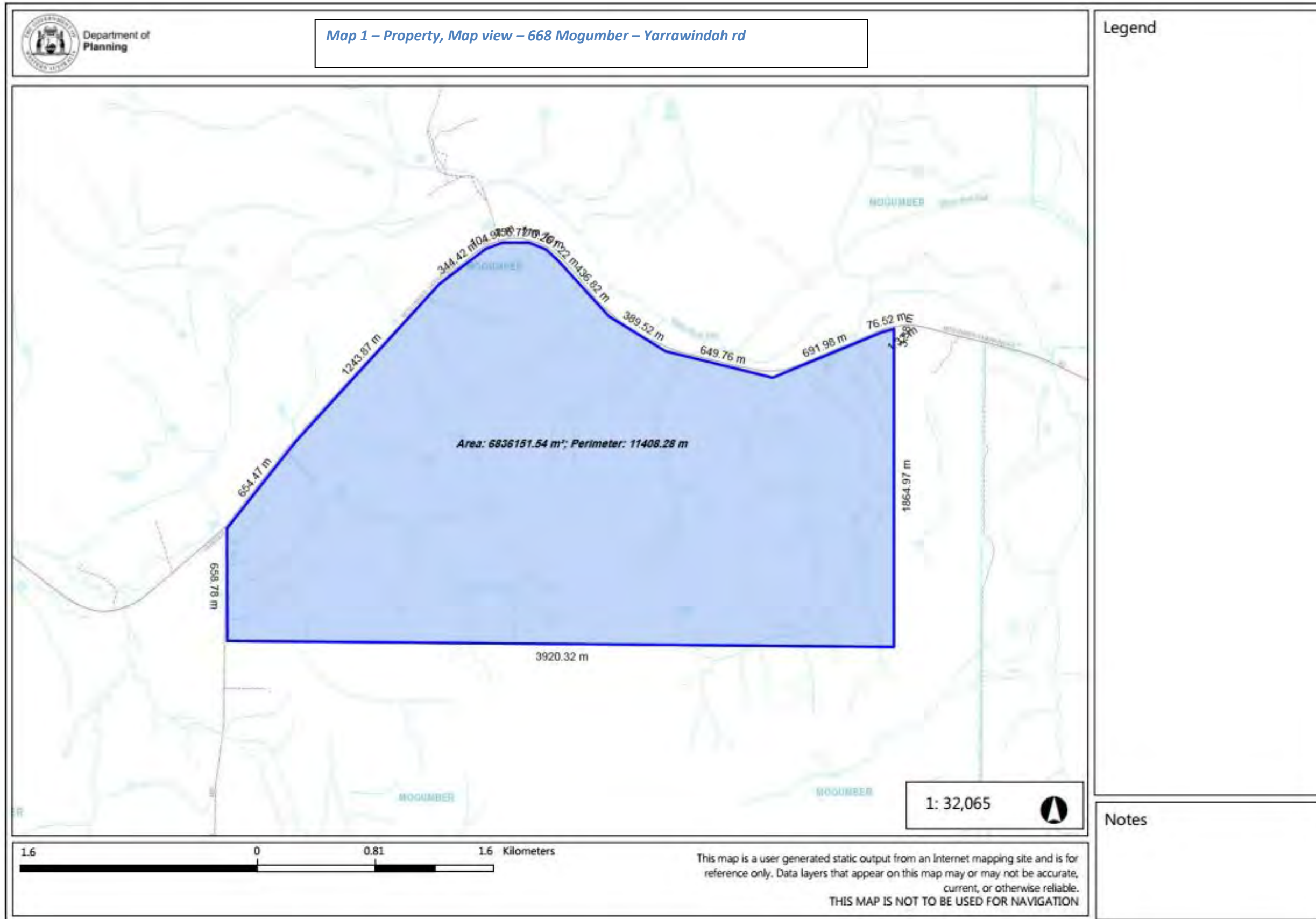
## 1.10. Facility Operating Hours

The facility will operate during the following hours:

- Monday to Saturday – 6.00 am to 5.00 pm;
  - with no machinery operating before 7am;
- Sundays and Public Holidays – Closed.

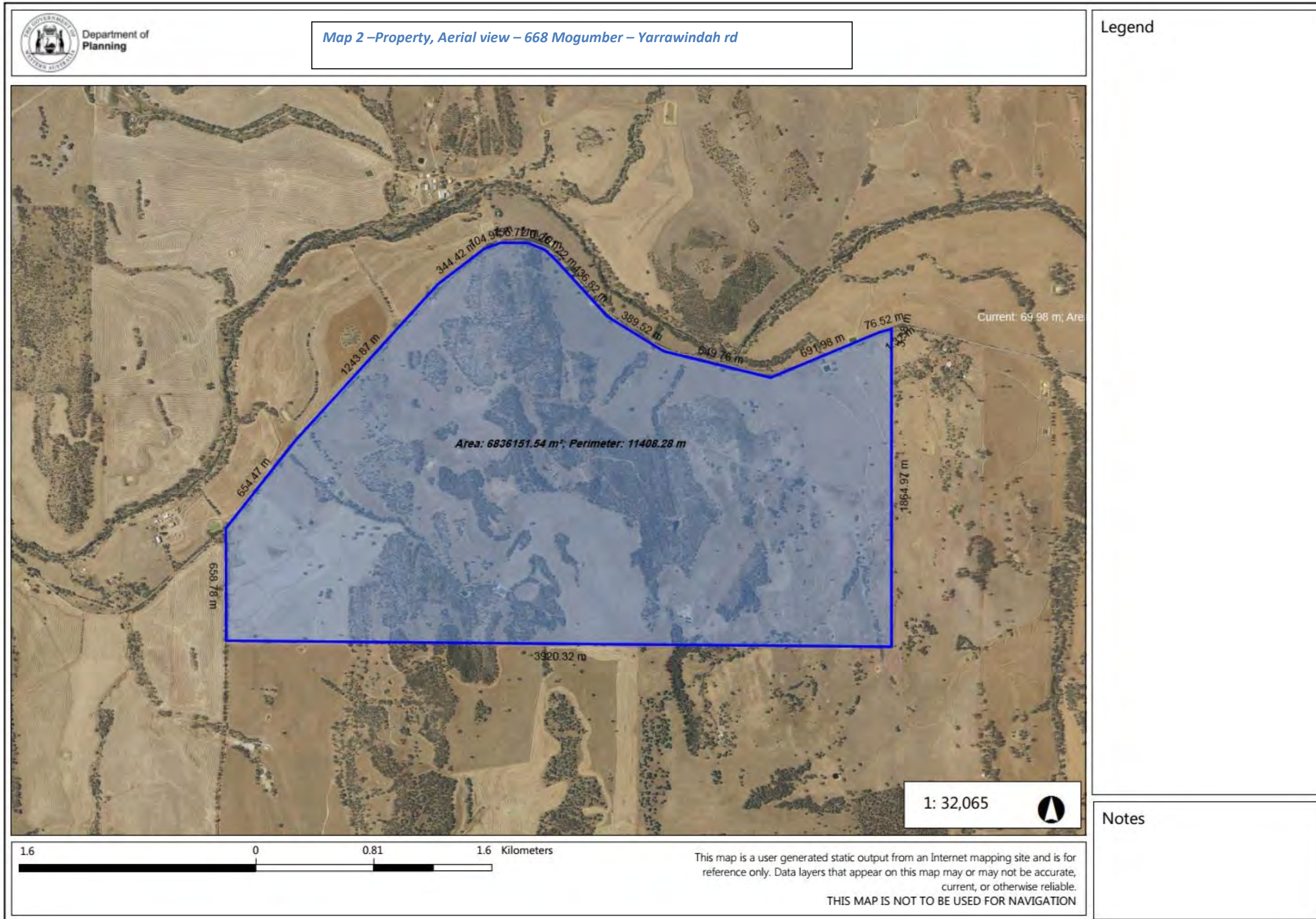
The extraction and C&D processing activities are expected to be performed on an 'as required' basis. Composting is a continuous batch process requiring regular monitoring.

1.11. **Map 1 – Property, Map view – 668 Mogumber – Yarrawindah rd**



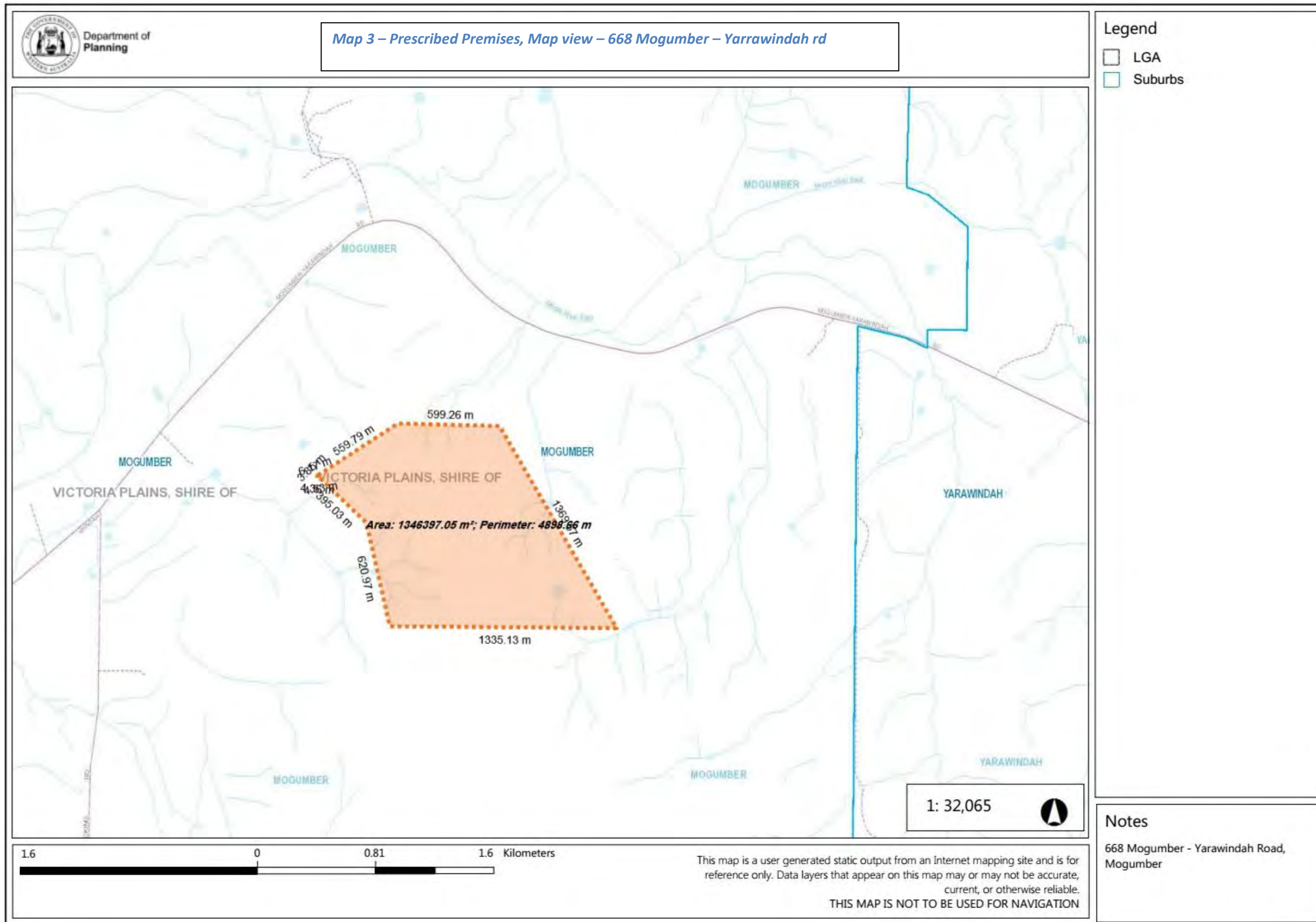


1.12. **Map 2 –Property, Aerial view – 668 Mogumber – Yarrawindah rd**



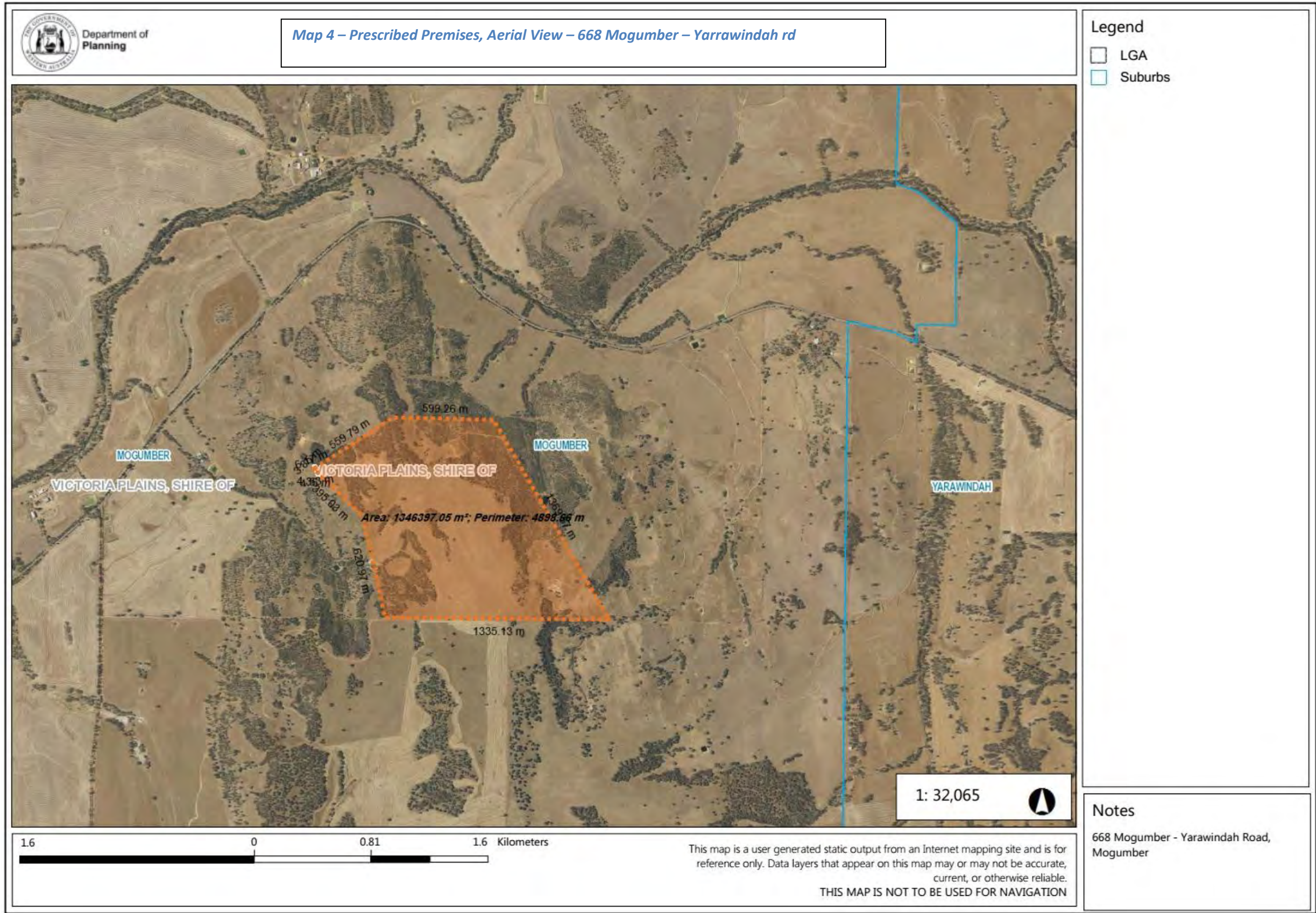


1.13. **Map 3 – Prescribed Premises, Map view – 668 Mogumber – Yarrawindah rd**





1.14. **Map 4 – Prescribed Premises, Aerial View – 668 Mogumber – Yarrawindah rd**



## 2. Planning Issues

### 2.1. District Context

The quarry area leased by Menzies is currently utilised for pasture and grazing purposes. The adjacent lots and regional area are also utilised for pasture and grazing purposes.

The prescribed premises has been utilised by the Shire for the extraction of Gravel in the past. Gravel has been excavated from the quarry area for many years and has been shown to be of a suitable standard requiring minimal to no processing post extraction. Menzies will enable the Shire to continue to have access to the material as per the “*Agreement for the Provision of Gravel between the Shire of Victoria plains and Menzies Quarries Pty Ltd*”, yet to be finalised.

The agreement is in line with clause 2.4.1 ‘*Gravel Supply Agreements*’ of the Shire of Victoria Plains Policy Manual. The agreement will be reviewed as required and this document amended if required.

### 2.2. Zoning

The site is zoned Rural under the Shire of Victoria Plains Local Planning Scheme No. 5.

The zoning objectives are;

“• *To provide for a range of rural pursuits which are compatible with the capability of the land and retain the rural character and amenity of the locality.*

• *To protect land from urban uses that may jeopardise the future use of that land for other planned purposes that are compatible with the zoning.*

• *To protect the land from closer development which would detract from the rural character and amenity of the area.*

• *To prevent any development which may affect the viability of a holding.”*

The proposed excavation has been designed to comply with these objectives following cessation of the excavation activities and completion of the rehabilitation program. In addition, Menzies also proposes to operate a Composting facility on site.



Compost produced on site will be specifically tailored with assistance from agronomists to improve the structure and composition of the soil within the quarry area. Adjacent landholders have also expressed a desire to utilise the compost and soil conditioners produced on site. This commitment will enable the excavated area to be returned to a more productive state than it currently is in.

The Zoning table, Table 1 within the Shire of Victoria Plains Local Planning Scheme No. 5 states that *“Industry Extractive” is classified as ‘D’ – “the use is not permitted unless the local government has exercised its discretion by granting planning approval”*.

The State Gravel Supply Policy, 1998, now terminated, also recognised the need to ensure that sources of gravel are available for construction and road making. Statement of Planning Policies are also required to be considered under the Local Authority Town Planning Schemes.

*“In December 2012 the Minister for Transport approved the termination of the original SGSS initiative but endorsed ongoing meetings of the Management Group to address outstanding and emerging issues related to road construction materials. The Minister for the Environment was provided a copy of this approval.*

*Implementation of the SGSS was originally focussed on the needs of Main Roads and Local Governments as the principal public road construction agencies. However in recent years, the use of contractors and private industry partners to Government has blurred the boundaries of responsibilities for construction and maintenance. And the DEC public road system is now seeing increasing traffic and requires greater attention. Also, because of the increasing restrictions on access to land to obtain materials by environmental, aboriginal and competing mining interests, more strategic planning is now required to ensure materials can be accessible into the future. To cater for these changes, further work and collaboration is required between Main Roads, local governments, DOP, DMP, DEC, Aboriginal groups and Aboriginal related agencies.*

*The initial focus of the strategy was naturally occurring road building materials needing minimum processing for use as road pavement materials. However as sources of these materials inevitably become more difficult to obtain, more processed materials such as crushed hard rock will need to be considered. In addition, materials for other uses, not just roads, could also be considered in the future. DMP and DOP are already working on a broader view of needs and sources in developing strategic mapping around major centres.”*

Statement of Planning Policy 2.4 – Basic Raw Materials, supports the principle that basic raw materials should be taken before they become sterilised by development, and that they should be protected for future use. It provides guidelines to local government to recognise the importance of not permitting conflicting land uses to impinge on the operation of resource extraction.



Statement of Planning Policy 2.5 – Agricultural and Rural Land Use Planning, makes provision for the extraction of basic raw materials. Point 9 states that;

*"The location of rural residential and rural small holdings should avoid unacceptable impacts on, or sterilisation, of natural primary resources including prospective areas for mineralisation and basic raw materials".*

Statement of Planning Policy 2 - Environmental and Natural Resources Policy, Section 5.7 deals with Basic Raw Materials. Part of Section 5.7 states;

*"Basic raw materials include sand, clay, hard rock, limestone and gravel together with other construction and road building requirements. A ready supply of basic raw materials close to development areas is required in order to keep down the cost of land development and the price of housing.*

*Planning strategies, schemes and decision making should:*

*ii. Identify and protect important basic raw materials and provide for their extraction and use in accordance with Statement of Planning Policy No 10 (2.5); Basic Raw Materials.*

*iii. Support sequencing of uses where appropriate to maximise options and resultant benefits to community and the environment."*

The objectives outlined by relevant state and local planning policies are met by this proposal and Menzies is committed to returning the Quarry area into an improved state suitable for rural activities approved by the Shire.

### 2.3. Buffer Area

The closest dwelling to the Quarry Area is located on Lot 668 Mogumber – Yarrawindah rd itself and is approximately 900 meters from the existing quarry with the remainder of the sensitive receptors being greater than 1.6km away as shown on Map 5 – 6.

EPA guidance "Draft Separation Distances between Industrial and Sensitive Land Uses", June 2005 lists the generic buffers for Extractive Industries with no blasting as 500 - 1000 meters. The DER "Draft Separation Distances, Division 3, Part V, Environmental Protection Act 1986" states a separation distance of 1000m for category 12 activities described as;

*Screening etc. of material (50,000 tonnes or more per year) Premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.*

Mogumber – Yarrawindah rd is located 1km away at it closest in a north westerly direction from the Quarry area, Map 7 – 8. Great Northern Highway and Brand highway are both approximately 7.5 km to the east and west respectively. Access to each highway is via Mogumber – Yarrawindah rd which is an approved transport route as per the Shire of Victoria plains Policy Manual\_june\_2016 section 2.1.5, Permitted Road Table.

Buffer vegetation surrounding the Quarry area on the north, west and east are to remain untouched. The adjacent boundary to the south is to be planted with replacement vegetation to match those removed from the 1.7ha to be cleared within the middle of the quarry area reducing visual impact to the south. In addition, it is proposed to locate the Composting facility along the southern portion of the quarry area and as such, no extractive works will occur within 200m of the southern boundary.

Excavation is performed at an elevated level surrounded by natural vegetation and worked from north-west to south-east. With the surrounding sensitive receptors and Mogumber – Yarrawindah rd being located well below the quarry level, visual impact is not considered an issue as no line of sight is possible. The recommended 20 metre buffer zones are exceeded along the perimeter boundaries of the site, to the south, with a road buffer of 1000 metres.

## 2.4. End Use

It is planned to return the excavated areas to include a farm dam with battered slopes covered by pasture. As there will be material removed from site, and the overburden is not very thick, there will be less material available for rehabilitation and a void will be left. The void will contain a dam with sloping pasture back up to natural land surface to the east, west and adjacent property to the south.

The land surface will be contoured to be compatible with the existing landform of the area and be reformed as a gently undulating surface draining towards the farm dam. The end use will be pasture augmented with agronomist support to guide the application of compost produced on site. Significant crop yield should be realised as soil within the area is of a poor quality.

## 2.5. Community Consultation

Menzies has presented to the Shire and visited the close sensitive receptors to outline all activities proposed. A summary of the proposal was provided in hard copy and an opportunity to ask questions was offered. All landowners and farm operators had no objection to the proposed activities and signed consent forms. In addition all expressed a desire to utilise the services and products available, particularly the compost produced on site to utilise on pasture to increase crop yields and reduce chemical fertiliser use. See section 2.11.

## 2.6. Compliance and other Legislation

State and Local Government authorities are responsible for overseeing the safety and management of the proposed activities. Other authorities have an interest in the proposal but may not hold any responsibility.

A number of local and state authorities are responsible for excavation of this type or have an interest in its operation.

The Department of Environment and Regulation requires works approval and licensing of the proposed facilities at prescribed throughput levels and issues clearing permits.

Based on all the proposed activities, the following facility environmental categories are relevant:

### **Extraction**

DER Category 12 – ‘Screening etc. of material (50,000 tonnes or more per year)

*Premises (other than premises within category 5 and 8) on which material extracted from the ground is screened, washed, crushed, ground, milled sized or separated.*

### **Recycling C & D**

- DER Category 13 – Crushing of building material (1,000 tonnes per year)

*Premises on which waste building or demolition material (for example, bricks, stones, or concrete) is crushed or cleaned.*

- DER Category 62 - Solid waste depot (500 tonnes or more per year)

*Premises on which waste is stored, or sorted, pending final disposal or re-use.*

### **Composting**

- DER Category 62 - Solid waste depot (500 tonnes or more per year)

*Premises on which waste is stored, or sorted, pending final disposal or re-use.*

- DER Category 67A - Compost manufacturing and soil blending (1,000 tonnes or more per year)

*Premises on which organic material (excluding silage) or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost or blended soils*

- DER Category 61 - Liquid waste facility (1,000 tonnes or more per year)

*Premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.*

Requested for the acceptance of sub categories;

- 'K110 - Grease Trap Waste'
- 'K130 – Sewage waste from the reticulated sewage system (Biosolids). No other liquid waste accepted on site.
- **NOTE:** all liquid waste received is transferred directly to a sealed liquid storage tank and only removed when mixed with green waste for immediate aeration. This practice is common in the composting industry and has been shown to produce no offsite odours when properly mixed and actively aerated.

#### Shire of Victoria Plains

Planning Consent under the Local Planning Scheme No. 5 and Policy Manual that defines;

- Land zonings, uses and strategies in conjunction with the Western Australian Planning Commission through the Local Planning Scheme.
- Extractive Industry Licences for quarries.
- Has an interest in transport along local roads.
- Controls the measures used to prevent bush fires.

#### Department of Mines and Petroleum

- Controls the safety and methods of excavation through the Mines Safety and Inspection Act 1994 and Regulations 1995.
- Covers the health and safety of workers.
- Identifies and maps basic raw materials.
- Note; the extraction of gravel is not controlled by the Department of Mines and Petroleum, however, the extraction process to be performed will align with the

prescribed requirements.

#### Western Australian Planning Commission

- Prepares strategic planning policies and provides Statements of Planning Policy.
- Defines land zonings and strategies in conjunction with the local authority.
- Responsible of State Planning Policies such as SPP 2.4 Basic Raw Materials.

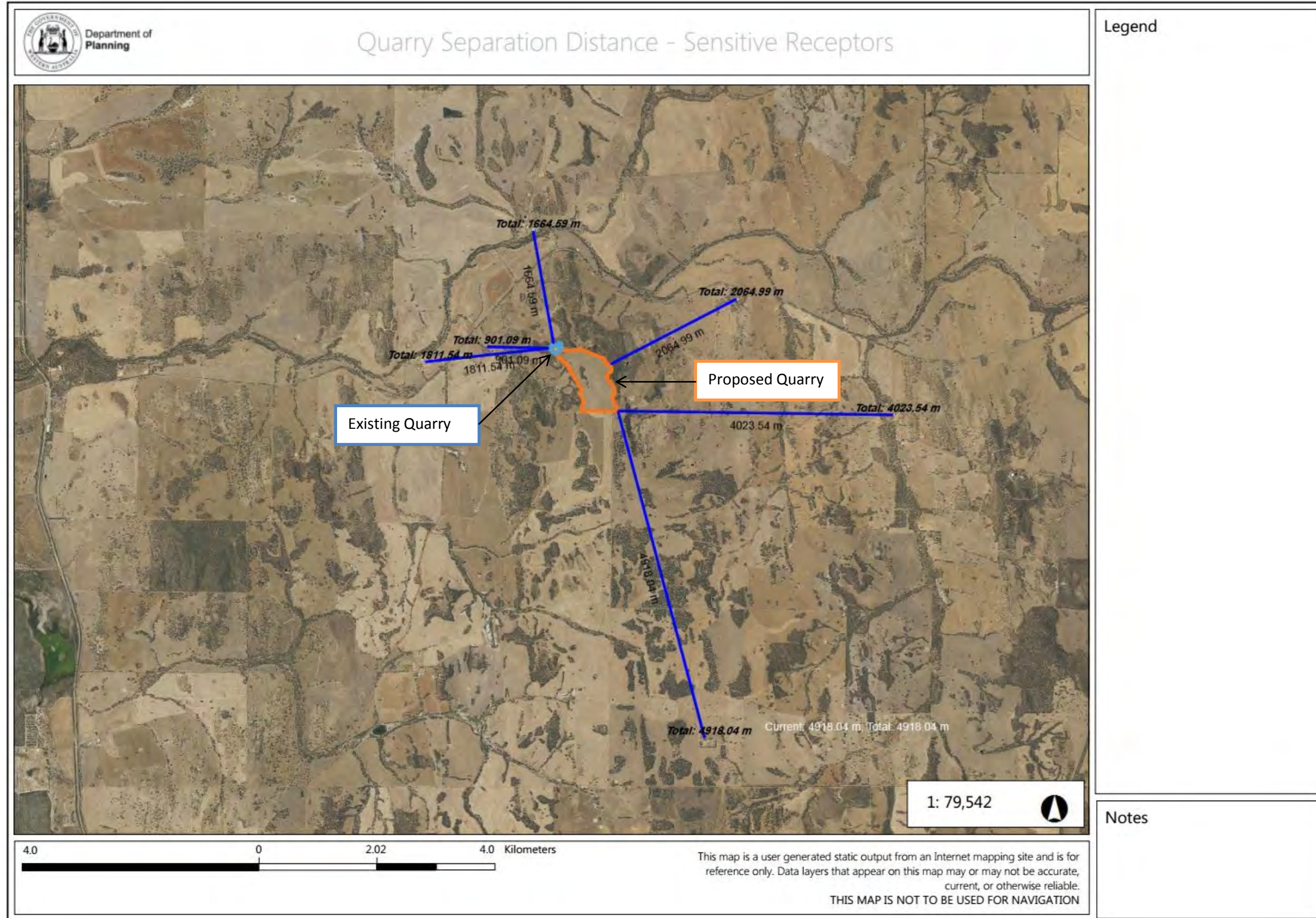
#### Department of Water

- Publishes guidelines for water quality management for extractive industries.
- Controls the management of ground and surface water.

All statutory requirements will be met through appropriate management plans and procedures including this document.

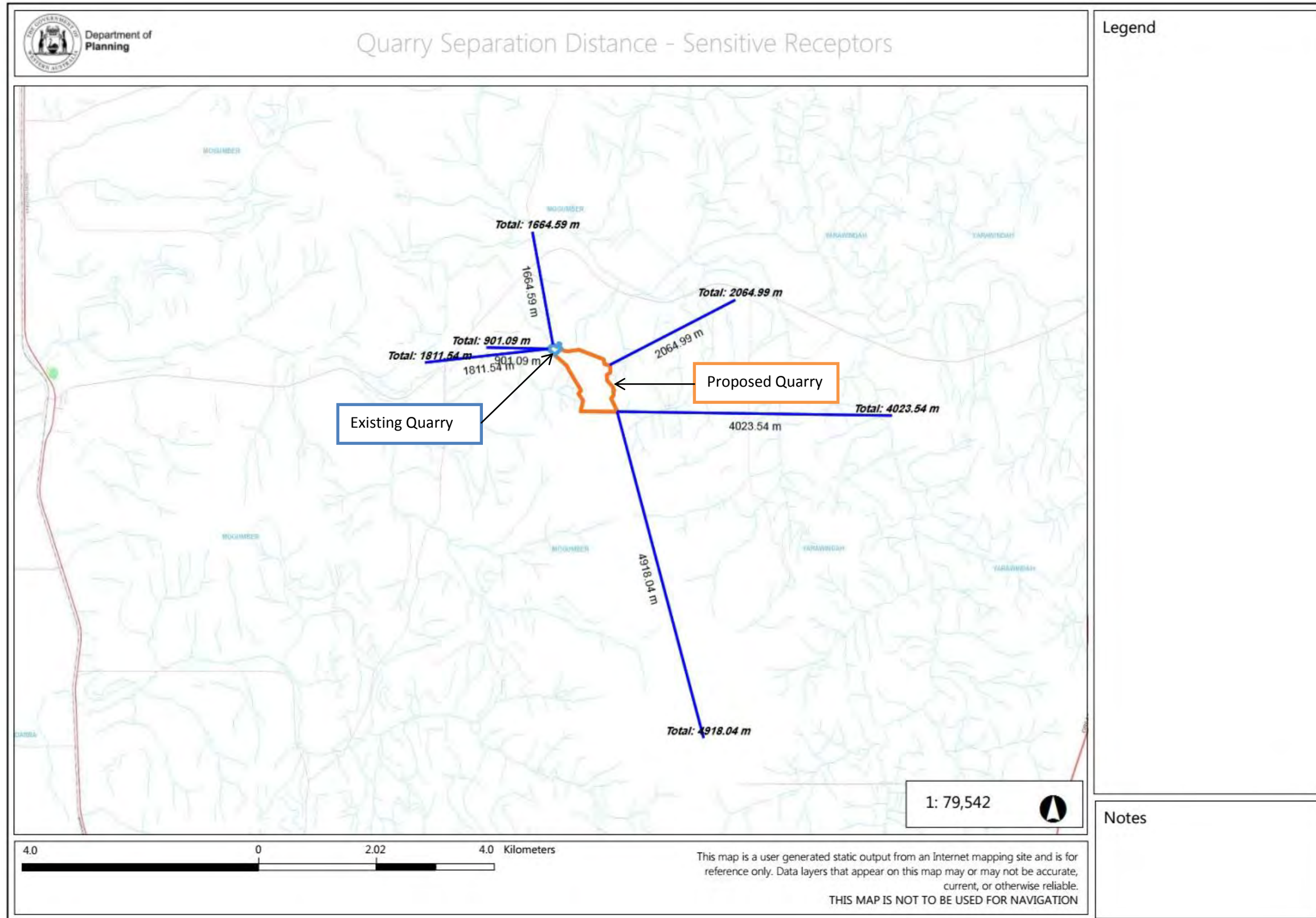


2.7. Map 5 – Sensitive Receptor Separation Distance – Aerial View



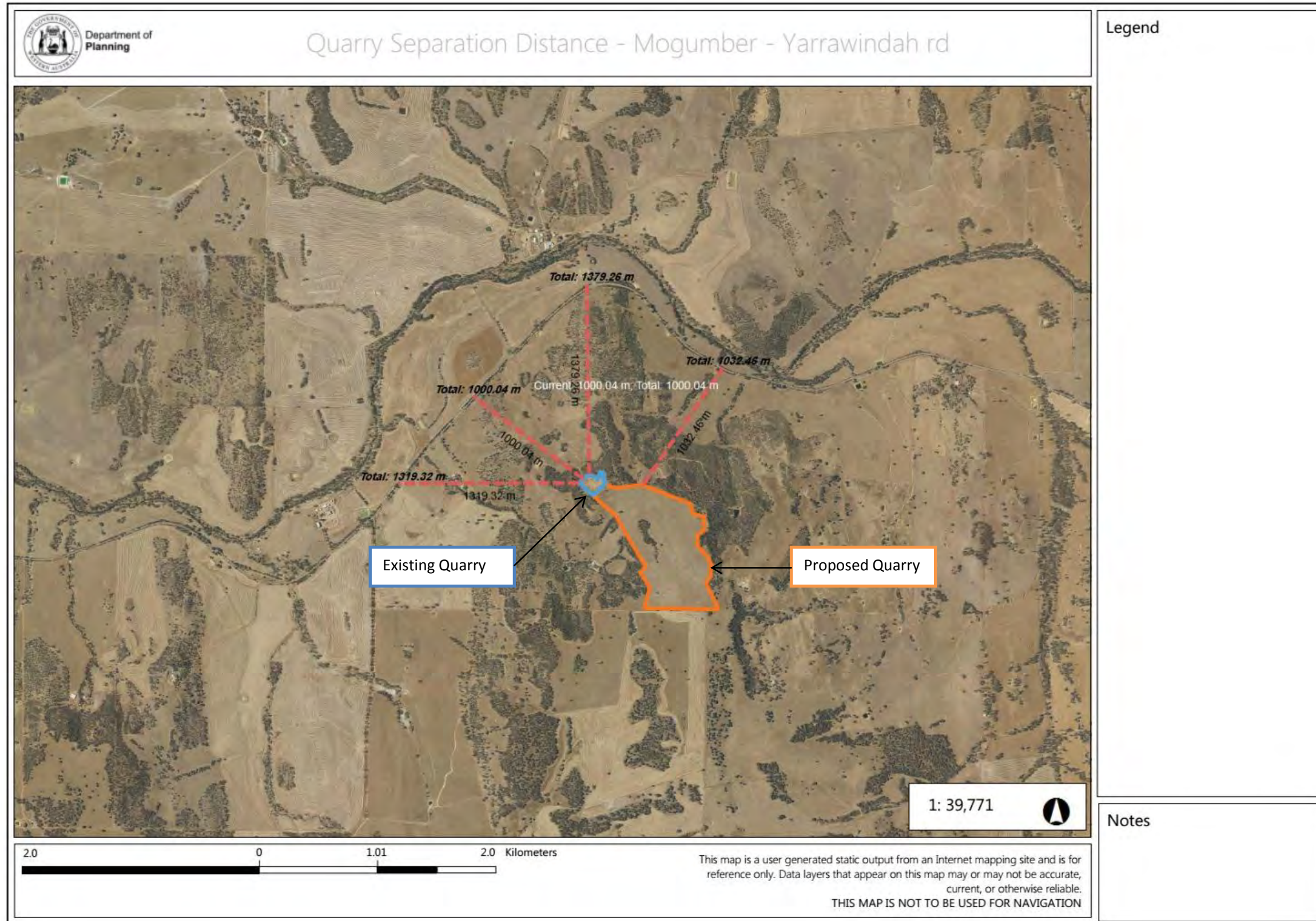


2.8. Map 6 – Sensitive Receptor Separation Distance – Map View



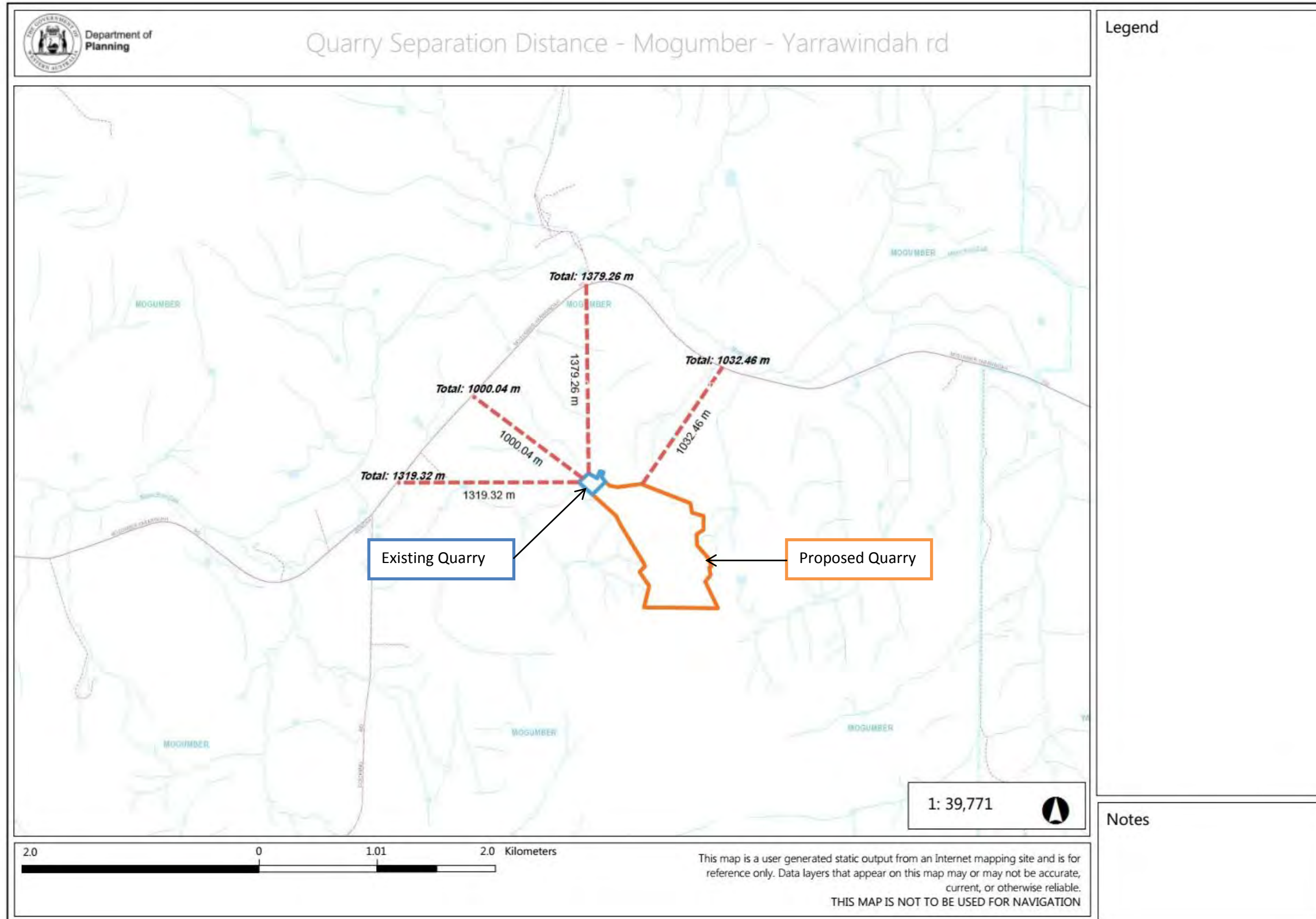


2.9. Map 7 – Road Separation Distance – Aerial View





2.10. Map 8 – Road Separation Distance – Map View



## 2.11. Menzies Community Consultation documents

### 2.11.1. Menzies Proposal Document to sensitive receptors

# Menzies Quarries Pty Ltd

Lot 668 Mogumber-Yarrawindah Rd,  
Mogumber

## Proposal Summary



Aerial Figure of Prescribed Premises @ Lot 668  
Mogumber-Yarrawindah Rd

Menzies Quarries PTY LTD

Revision: Rev c

Date of Issue: 29 Nov 2016

## Introduction

Menzies Quarries Pty Ltd (Menzies) proposes to develop a

- Gravel Extraction Quarry,
- Construction And Demolition Waste Recycling Facility, and
- Composting Facility,

at Lot 668 Mogumber-Yarrawindah Rd, Mogumber. As a result of the gravel extraction process, quantity of waste material proposed to be handled on site and processing of materials, it is necessary that a Works Approval, Clearing Permit and Licences are obtained.

The proposed site is Zoned Rural and located in the Shire of Victoria Plains. The area is currently utilised as broad acre pasture / grazing and also continues to be used by the Shire of Victoria Plains to extract gravel from an existing quarry as required.

Menzies has a 'Lease and Gravel Quarrying Agreement' with the Land Owner, Mr Montrose Martinus Driessen, for the use of the prescribed premises.

This proposal is considered to be a long-term site utilisation as the lease over the property is 10 + 10 years to align with the volume of materials to be extracted. As a result of the nature of the activities, most infrastructure developed by Menzies is considered as temporary (transportable offices and amenities, shipping containers, arched tarpaulin covers). Composting hardstand and associated leachate control may be relocated into excavated area after approximately 20 years operation. A new works approval will be sought as required.

Menzies is providing this summary to adjacent landowners to inform, seek feedback and ultimately receive approval to perform these activities. Menzies is committed to working with the community and believes the project will have minimal impact and provide valuable opportunities to the Shire and its residents such as the provision of materials (gravel, recycled roadbase and compost), services (disposal of construction and green waste) and local jobs.

## Site Operating Structure

The property is leased by the Landowner for grazing purposes, with a portion leased to Menzies for three activities, Extraction, C&D Recycling and Composting.

The services and products to be developed are to be utilised by Menzies and its related projects, and are commercially available to bulk customers. The site is not

open for ad hoc (walk-in) customers.

**Extraction;** Menzies excavates, screens and crushes extracted material and exports the recovered gravel and sand products from its operations to supply to off takers for incorporation into civil and landscaping works.

As part of the excavation activities, a section of native vegetation will be required to be cleared and a Clearing Permit obtained. An Excavation Management Plan outlines the extraction and rehabilitation processes and measures to be undertaken.

**Recycling C&D;** Menzies receives, screens and crushes clean Construction and Demolition (C&D) waste to develop saleable and re-useable products including sand, road base, manufactured fill and other Waste Derived Materials (WDM) as defined and approved by the Department of Environment Regulation (DER).

**Composting;** Menzies composts source separated clean organic waste streams to produce compost that meets Australian Standard AS4454 -12.

#### **Facility Categories - Department of Environment Regulation**

Based on the proposed activities, the following facility environmental categories are relevant:

##### **Extraction**

DER Category 12 – Screening etc. of material (50,000 tonnes or more per year)

*Premises (other than premises within category 5 and 8) on which material extracted from the ground is screened, washed, crushed, ground, milled sized or separated.*

##### **Recycling C & D**

- DER Category 13 – Crushing of building material (1,000 tonnes per year)

*Premises on which waste building or demolition material (for example, bricks, stones, or concrete) is crushed or cleaned.*

- DER Category 62 - Solid waste depot (500 tonnes or more per year)

*Premises on which waste is stored, or sorted, pending final disposal or re-use.*

##### **Composting**

- DER Category 62 - Solid waste depot (500 tonnes or more per year)

*Premises on which waste is stored, or sorted, pending final disposal or re-use.*

- DER Category 67A - Compost manufacturing and soil blending (1,000 tonnes or more per year)

*Premises on which organic material (excluding silage) or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost or blended soils*

- DER Category 61 - Liquid waste facility (1,000 tonnes or more per year)

*Premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.*

Requested for the acceptance of sub categories;

- 'K110 - Grease Trap Waste'
- 'K130 – Sewage waste from the reticulated sewage system (Biosolids). No other liquid waste accepted on site.
- **NOTE:** all liquid waste received is transferred directly to a sealed liquid storage tank and only removed when mixed with greenwaste for immediate aeration. This practice is common in the composting industry and has been shown to produce no offsite odours when properly mixed and actively aerated. More details below.
- 

### Material Quantities

The estimated breakdown of the material types includes:

- Gravel extraction – up to 500,000 tonnes / year, and
- C&D waste received and processed – up to 150,000 tonnes / year.
- Compost produced – up to 35,000 tonnes / year

### Facility Operating Hours

The facility will operate during the following hours:

- Monday to Saturday – 6.00 am to 5.00 pm;
  - with no machinery operating before 7am;



- Sundays and Public Holidays – Closed.

The extraction and C&D processing activities are expected to be performed on an 'as required' basis. Composting is a continuous batch process requiring regular monitoring.

### Operating Methodology

Environmental issues including odour, dust, noise and traffic will be managed to minimise any potential impact on the local community. Dust and noise will be contained by the methods of extraction and processing to be used and the control measures which will be put into place. Measures to protect the site and minimise the other environmental factors are addressed under Environmental Management.

### Extraction and Processing of the Resource

Excavation is conducted in line with the Mines Safety and Inspection Act and Regulations.

#### Excavation Methods

The gravel and sand resources will be progressively extracted in a sequence starting with the removal and storage of topsoil and overburden, the extraction of gravel and sand, and lastly the rehabilitation of the land surface.

- a) The resource will be excavated in stages across the excavation area on an as required basis.
- b) All trees are cleared in accordance with a relevant Clearing Permit. If further clearing is required, the appropriate clearing permit will be sought from the DER, as required by the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.
  - Vegetation removed is replaced on a minimum of a one for one basis and located predominately on the southern border of the quarry area to also provide additional screening of activities, figure b.
- c) Topsoil is removed by scraping from the resource and pushing to the perimeter to form a 1 to 2 meter bund at the perimeter of the existing extraction area to provide screening and reduce handling for later use in rehabilitation. The topsoil may also be directly transferred to a prior extraction point being rehabilitated.
- d) Overburden is removed by scraping from the resource and captured through the gravel screening process. The overburden is pushed or delivered by loader to form a 1 to 2 meter bund on the perimeter of the existing extraction area providing screening and reducing handling for later use in rehabilitation.



The Overburden may also be directly transferred to a prior extraction point being rehabilitated.

- e) Storage bunds follow the excavation of the resource as indicated in Figure 5. Topsoil and Overburden storage locations shown in figure 1.
- f) Excavations commence in the North Western corner at the existing quarry and progress in a South Easterly direction.
- g) The depth of the excavation will align with the existing quarry elevation of 265m. A fall of 1 :100 will be developed during the excavation to direct water to the catchment pond in the west

### C & D Operating Methodology

Menzies proposes to receive material predominantly from its own and related business activities (Menzies Civil Australia Pty Ltd).

The waste material will predominantly be from construction and demolition activities. There will be no municipal solid waste (residential kerbside collection waste) or commercial and industrial waste received on site.

The material will be received on site, inspected for conformance with standard operating procedures (no food waste, no asbestos, liquid waste or other problematic waste materials) and then processed to separate the material into reusable or recyclable material and waste residue.

The reusable or recyclable material is stored separately and subsequently removed to downstream off takers, while the waste residue is placed in waste bins or trucks and removed from site to the appropriate class landfill for final disposal.

The sorting activities used to separate the various materials include combinations of the following:

- Removal of larger items by mechanical equipment;
- Screening of bulk waste to remove smaller sand particles and road base;
- Post screening, removal of items with mechanical equipment;
- Hand sorting if required to remove specific items for reuse/recycling; and,
- Crushing of oversize concrete, bricks, etc for re screening.

### **Composting**

The composting facility will be established at the southern end of the prescribed premises on an impermeable hardstand and screened from the adjacent property via a gravel bund and planted native vegetation, figure 1. Composting technology will involve windrows with forced aeration, Mobile Aerated Floor (MAF), supplied by CWISE, [www.cwise.com.au](http://www.cwise.com.au).

Waste delivered onto the premises is inspected for conformance with standard operating procedures prior to acceptance. Accepted wastes include green-waste, clean food waste, grease trap waste and Sewage waste from the reticulated sewage system (Biosolids).

Organic waste accepted will be blended with liquid waste, captured compost leachate and storm water before placement on the MAF system. The MAF system consists of 15m long pipes that periodically supply air to the pile to ensure the composting process is active.

Historically, compost windrows were turned using a windrow turner to aerate the pile daily which resulted in the release of odours due to a lack of oxygen and daily disturbance of the material.

The MAF system maintains oxygen to the pile which reduces the composting time from 12 weeks to 8 weeks. Odour is insignificant due to the active composting process and the requirement to move the pile only 4 times as opposed to daily turning.

The composted material is screened and stockpiled following the eight week process.

### **Environmental management**

#### **Dust Management**

All activities on site will be subject to misting as required to ensure no dust crosses the prescribed premises boundary. Static misters and a water cart are available to ensure all activities comply with DER requirements.

#### **Noise Management**

All equipment on site will be maintained in good working order to ensure noise levels remain within prescribed limits. The location of the site makes it unlikely that noise produced on site will reach any sensitive receptors. All operations will occur during prescribed operating hours with the main noise producing activities (Excavation and C&D recycling) occurring within the quarry itself, further reducing the possibility of noise emissions.

### **Odour Management**

The use of the MAF system has been proven to minimise odours related to composting. All odorous waste received is either stored in the liquid tanker or immediately blended with greenwaste and placed onto the MAF system and always covered with a layer of compost which actively assists in the removal of any odour, (a biofilter). The blending pad is washed down at the end of each day.

During the composting process, aerobic conditions are maintained using a periodic low flow of air to maintain oxygen levels and maximise expelled air residence time in the activated compost outer layer.

Process conditions ( temperature, pH, Oxygen % and moisture) are actively monitored to ensure the rapid decomposition of organics.

### **Vermin management**

The operation of the composting facility is such that no attractive waste will remain uncovered after hours. If vermin are noted as an issue, it is planned that the composting batch will be covered by a 200mm blanket of oversize screened compost to limit access to fresh material.

### **Traffic Management**

Menzies, in conjunction with the Shire of Victoria plains is proposing to move the access from Mogumber – Yarrawindah rd to increase line of site and install 'Entering Traffic' signs an appropriate distance either side of the entrance. In addition, Menzies is discussing road maintenance provisions with the Shire to ensure Mogumber – Yarrawindah road is maintained in a safe state.

### **Next Steps**

The Shire and DER require community consultation to be completed prior to submission of applications. Menzies representative can be contacted on the below number if further information or a site visit is required.

Sean Sciberras 0487 636 466

If there is no objection to the proposed activities, please complete the attached form and return to Menzies via either;

Email – [sean@menziescivil.com](mailto:sean@menziescivil.com) , Mail – 12 Taylor Street, White Gum Valley, 6162, WA;

or return to Mr Montrose Matinus Driessen.





Figure 1 – Separation Distances – Composting facility to sensitive receptors



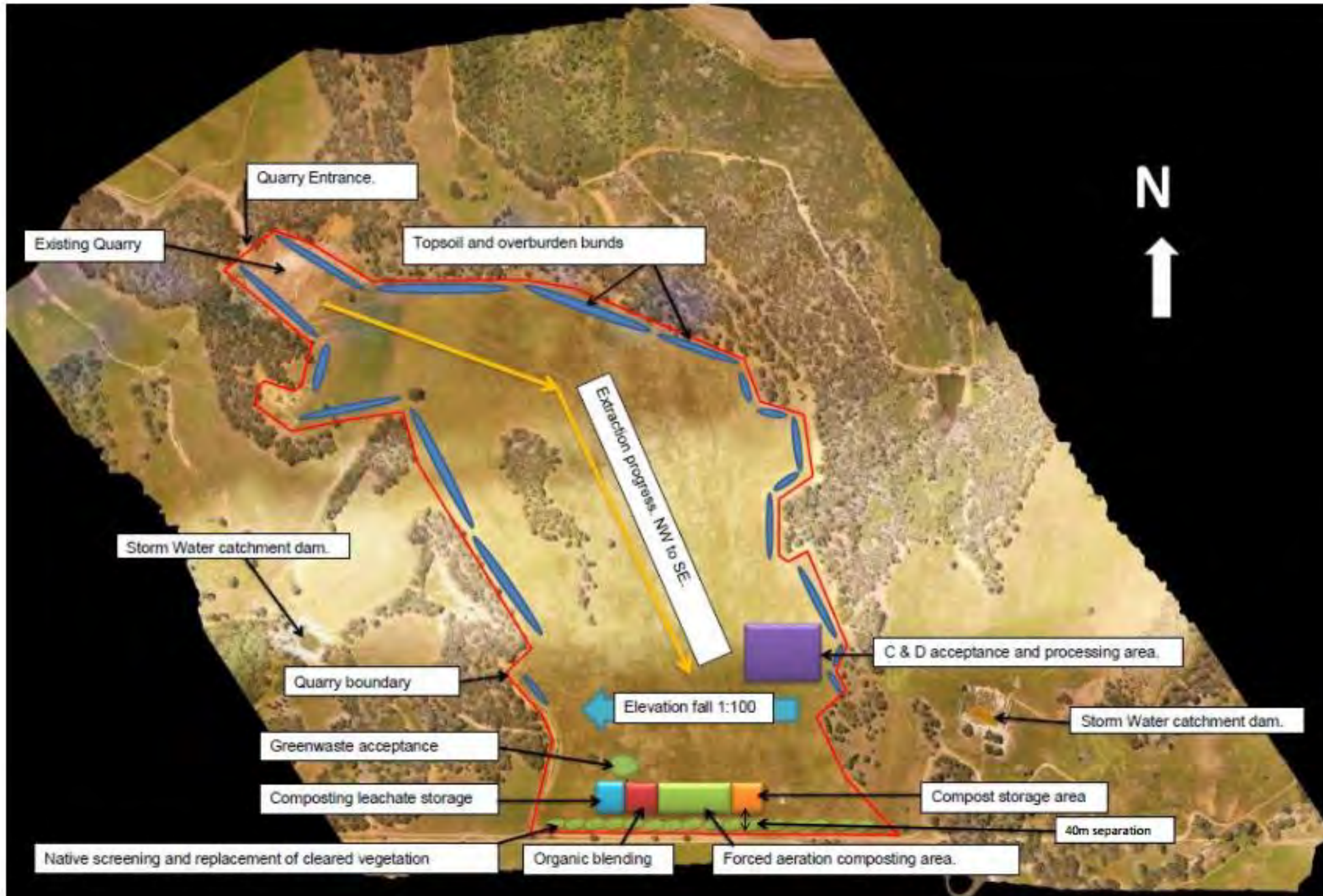


Figure 2 – Prescribed premises layout.



Menzies Quarries Proposal Acceptance Letter.

Name;

Address;

Phone;

I have read and understood the Menzies Quarry Pty Ltd Proposal Summary and do not oppose the application for the establishment of a

1. Gravel Quarry,
2. C & D Recycling Facility, and
3. Composting Facility,

at the prescribed premises within Lot 668 Mogumber – Yarrawindah rd, Mogumber.

Signed;

Date;

### 2.11.2. Signed “Menzies Quarries Proposal Acceptance” – landowner



Menzies Quarries Proposal Acceptance Letter.

Name: *Misty Doreassen*  
Address: *614 North Rd Wannanool 6505*  
Phone: *96559023*

I have read and understood the Menzies Quarry Pty Ltd Proposal Summary and do not oppose the application for the establishment of a

1. Gravel Quarry,
2. C & D Recycling Facility, and
3. Composting Facility,

at the prescribed premises within Lot 668 Mogumber – Yarrawindah rd, Mogumber.

Signed: *M. Doreassen*  
Date: *5-1-2017*



**2.11.3. Signed “Menzies Quarries Proposal Acceptance” – sensitive receptors.**




**Menzies Quarries Proposal Acceptance Letter.**

Name; ROBERT HARRIDGE. R.B + C.M. HARRIDGE.  
Address; 1148 YARRAWINDAH RD. NEW NORCIA.  
Phone; 08 96 548055.

I have read and understood the Menzies Quarry Pty Ltd Proposal Summary and do not oppose the application for the establishment of a

1. Gravel Quarry, ✓
2. C & D Recycling Facility, and ✓
3. Composting Facility, ✓

at the prescribed premises within Lot 668 Mogumber – Yarrawindah rd, Mogumber.

Signed;   
Date; 30<sup>th</sup> - Nov. 2016





**Menzies Quarries Proposal Acceptance Letter.**

Name; *William Cocking*  
Address; *PO Box 30 Mogumber*  
Phone; *96524061*

I have read and understood the Menzies Quarry Pty Ltd Proposal Summary and do not oppose the application for the establishment of a

1. Gravel Quarry,
2. C & D Recycling Facility, and
3. Composting Facility,

at the prescribed premises within Lot 668 Mogumber – Yarrawindah rd, Mogumber.

Signed; *[Signature]*  
Date; *1-12-2016*



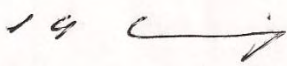
Menzies Quarries Proposal Acceptance Letter.

Name; LEON COUJING  
Address; 190 COUJING ROAD MOGUMBER  
Phone; 0427 519015

I have read and understood the Menzies Quarry Pty Ltd Proposal Summary and do not oppose the application for the establishment of a

1. Gravel Quarry,
2. C & D Recycling Facility, and
3. Composting Facility,

at the prescribed premises within Lot 668 Mogumber – Yarrawindah rd, Mogumber.

Signed;   
Date; 31.11.2016



**Menzies Quarries Proposal Acceptance Letter.**

Name; VIRGINIA LINKE  
Address; 571 MOGUMBER YARAWINDAH RD  
Phone; 08 96519063

I have read and understood the Menzies Quarry Pty Ltd Proposal Summary and do not oppose the application for the establishment of a

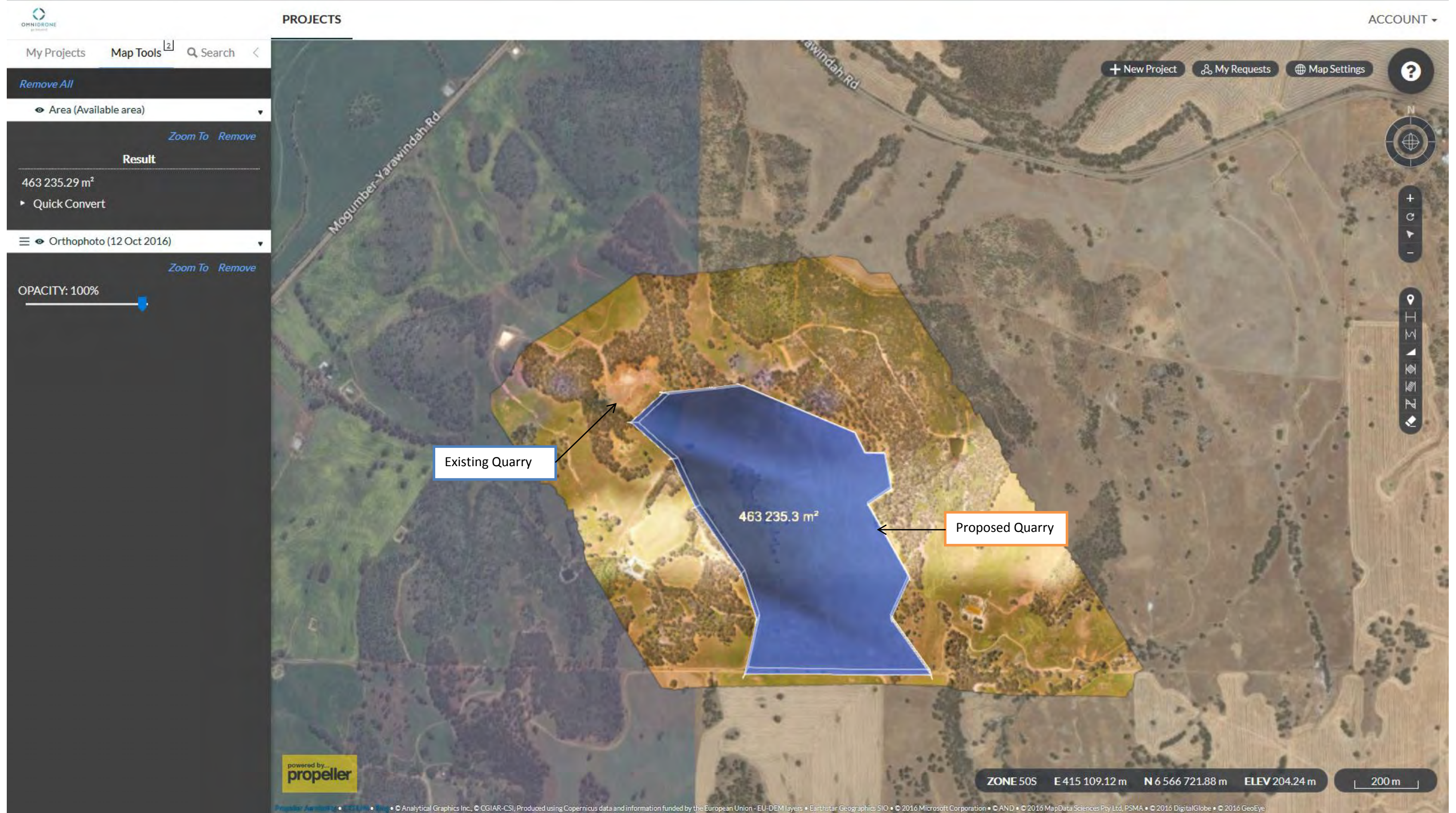
1. Gravel Quarry,
2. C & D Recycling Facility, and
3. Composting Facility,

at the prescribed premises within Lot 668 Mogumber – Yarrawindah rd, Mogumber.

Signed; Virginia L. Linke  
Date; 30-11-2016



2.12. Figure 1 – Ortho photo – Quarry Area





2.13. Figure 2 – Existing Elevations – Quarry Area





### **3. Existing Environment**

#### **3.1. Topography**

The gravel resource is located on a plateau 1km south of Mogumber – Yarrawindah rd. Further to the south the elevation increases slightly before returning to undulating levels. To the east and west of the quarry area, the ground level also falls, Figure 2.

The quarry area is to be excavated to a depth of 265m AHD with the majority of the area being 290m AHD and the peak of the area being 312.5m AHD.

#### **3.2. Geology**

Preliminary testing of the quarry area shows it is made up mostly of loose and clumped gravel, with portions of sand and clay present as overburden. The sand and clay become more predominant as the elevation of 265m AHD is neared. This can be seen at the existing excavated area where clay becomes visible.

#### **3.3. Climate**

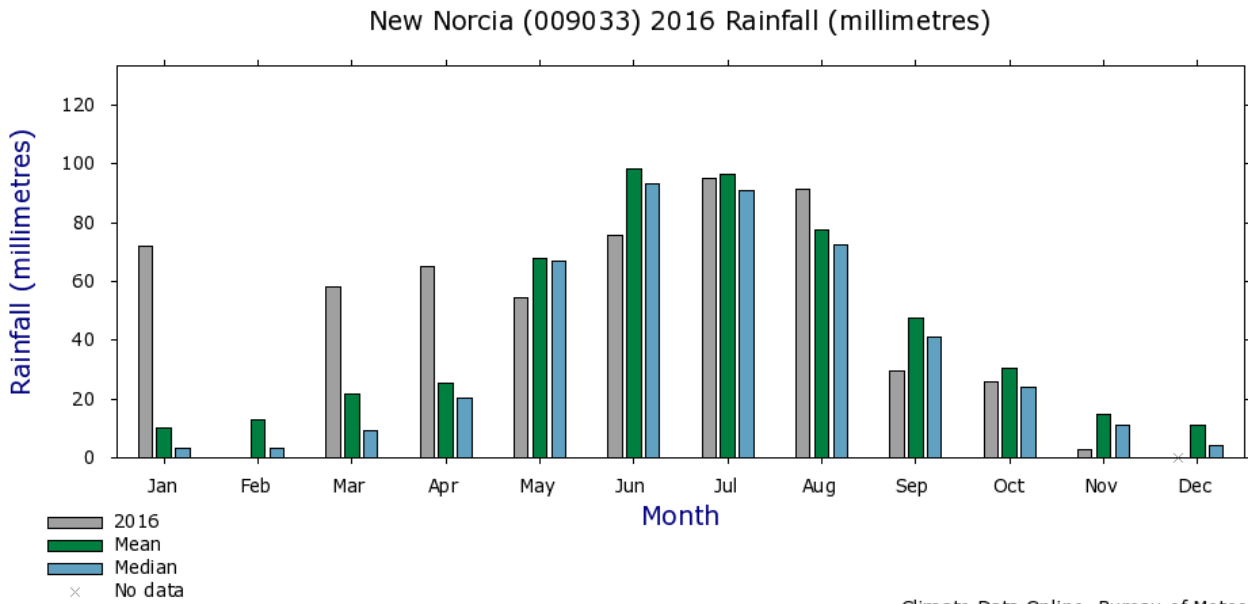
The climate of the area is categorized as Mediterranean, with hot dry Summers and wet cool Winters.

Climatic rainfall data is recorded at New Norcia, station number 009033, 11 km to the north east of the prescribed premises. Precipitation is 514.5 mm per annum, with approximately 90% falls in the months April to October inclusive, figure 3. Evaporation exceeds rainfall in all but the four wettest winter months.

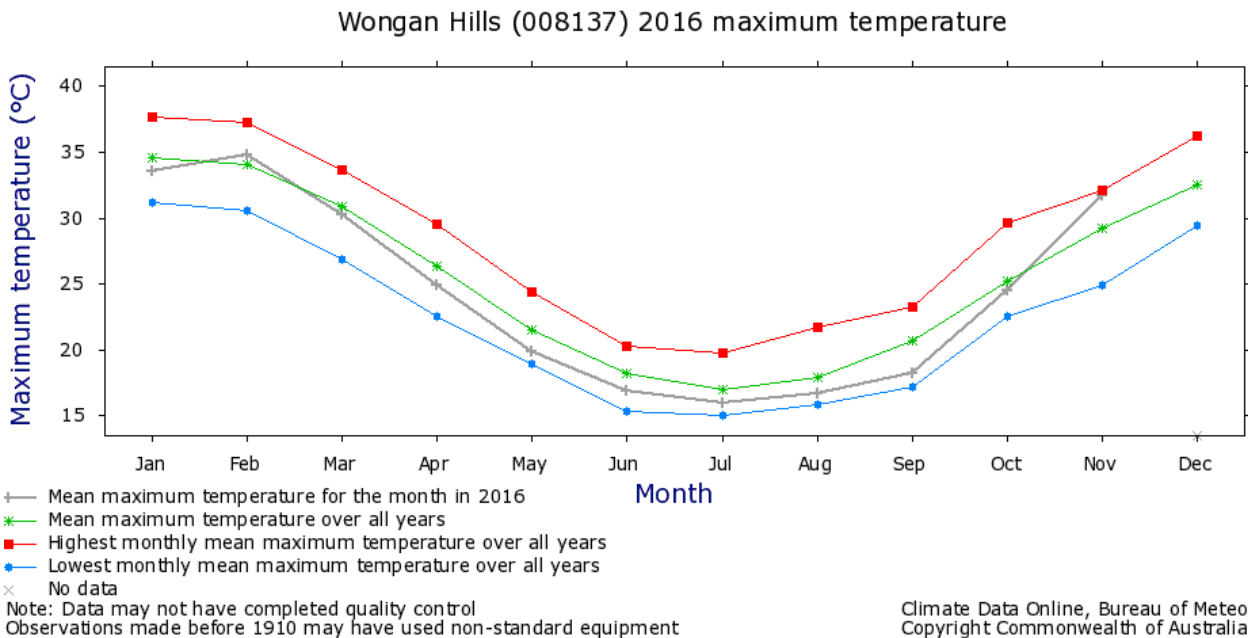
Utilising the closest historical data, being Wongan Hills, station number 008137, the highest monthly mean temperatures at Mogumber reach 37 degrees Celsius for the hottest months, January and February and 19.8 degrees Celsius in July. Lowest monthly mean temperatures for the coldest month July, is 15 degrees Celsius.

The climate data for Mogumber shows that the predominant winds are from the east to southeast at 9.00 am and from the south west at 3.00 pm during the summer months

### 3.3.1. Figure 3 – New Norcia rainfall graph.



### 3.3.2. Figure 4 – Wongan Hills Maximum temperatures



**3.3.3. Figure 5 – Wongan Hills wind rose – 9am**

**Rose of Wind direction versus Wind speed in km/h (01 Jan 1966 to 30 Sep 2010)**

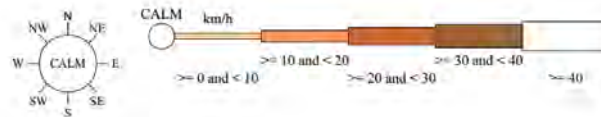
Custom times selected, refer to attached note for details

**WONGAN HILLS**

Site No: 008137 • Opened Jan 1907 • Still Open • Latitude: -30.8917° • Longitude: 116.7186° • Elevation 283m

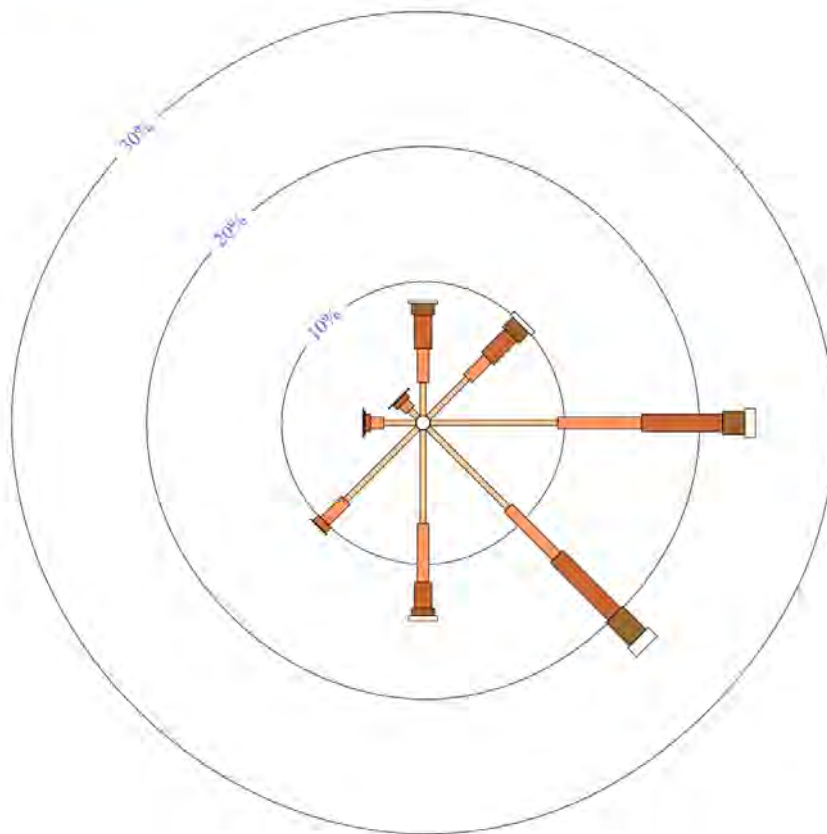
An asterisk (\*) indicates that calm is less than 0.5%.

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



9 am Jan  
 1322 Total Observations

Calm 3%





### 3.3.4. Figure 6 – Wongan Hills wind rose – 3pm

#### Rose of Wind direction versus Wind speed in km/h (01 Jan 1966 to 30 Sep 2010)

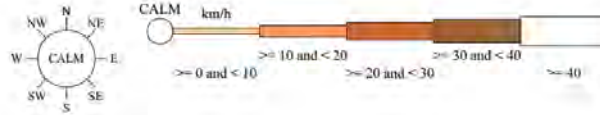
Custom times selected, refer to attached note for details

#### WONGAN HILLS

Site No: D08137 • Opened Jan 1907 • Still Open • Latitude: -30.8917° • Longitude: 116.7186° • Elevation 283m

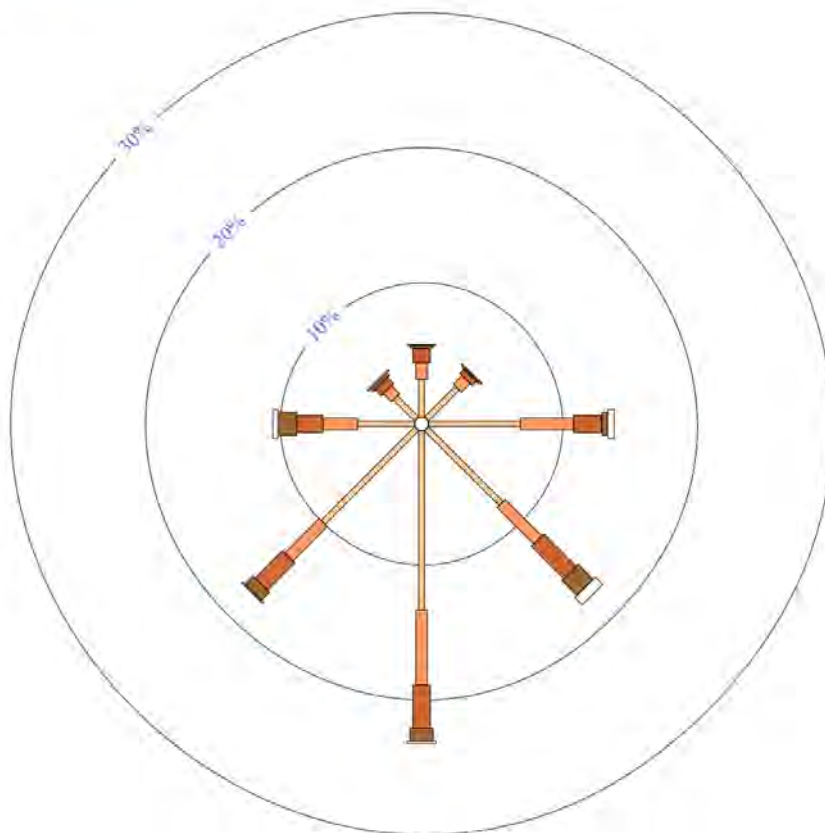
An asterisk (\*) indicates that calm is less than 0.5%.

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



3 pm Jan  
1316 Total Observations

Calm 3%



### 3.4. Soils

There is minimal topsoil present on site and overburden is also expected to be minimal and consist of gravel sand with small amounts of clay becoming detected towards the lower level of the excavation, 265mAHD.

The release of WAPC Planning Bulletin 64 has resulted in an increased awareness in acid sulphate soils. There is no geological risk or evidence of acid sulphate on the prescribed premises.

Typically, acid sulphate conditions exist when the soils and rocks are under reducing conditions, or have been under reducing conditions. The type of oxidation minerals present can be used to provide a highly definitive method of identifying materials at risk. Materials at risk under reducing conditions have been noted as being grey in colour or have been grey with no brown or red brown iron oxides. Where exposed to the atmosphere there is a change to brown iron oxides, with yellow jarosite and other alteration minerals that are distinctive.

The quarry area has been found to not be consistent with indications that acid sulphate soils are present. Testing is normally only required if “at risk” materials are noted and to be disturbed.

During excavation the topsoil and overburden are stockpiled separately for later use in rehabilitation of the land surface. The manufactured soils utilised in the rehabilitation of the quarry will be a mixture of gravelly sand and compost as specified within an agronomist report to be conducted on the finished quarry, prior to rehabilitation.

### 3.5. Hydrology

The prescribed area has no watercourses or wetlands and is a significant elevation above the maximum winter water table, being situated at an elevated height to the surroundings.

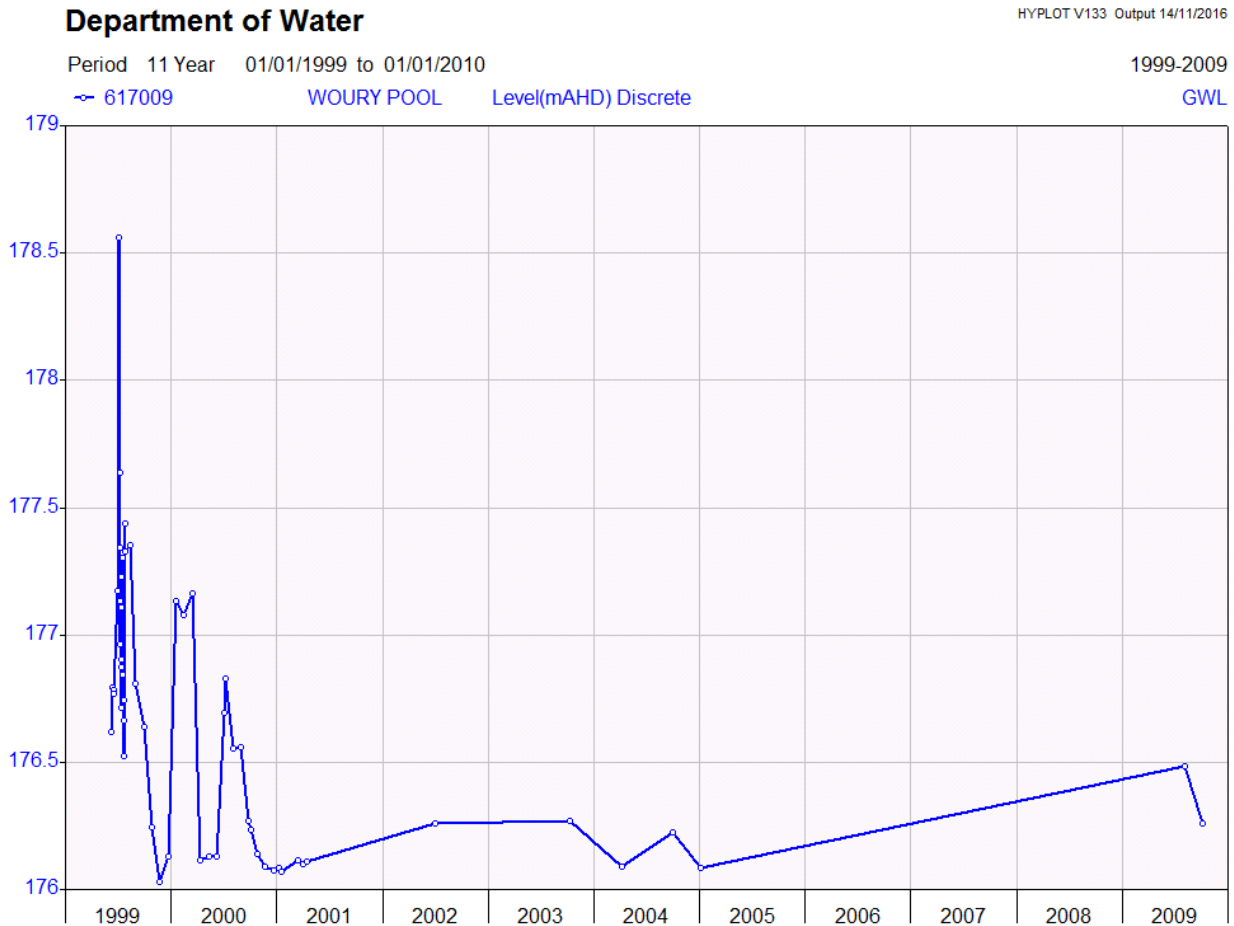
Water levels taken from historical data at Woury Pool, 1.1 km to the north of the quarry area indicate a maximum winter water level of 178 mAHD (1999), figure 7. Excavation works occur well above the winter ground water level with the maximum excavation depth being 265mAHD.

The Moore River East is located >1km to the north of the quarry area and is not affected by the proposed facilities, Map 9 – 10. As part of the works approval process, it is anticipated that bores will be required to monitor leachate associated with the composting operations to be established at the southern end of the quarry area.

All water required for site operations will be supplied from dams currently located on the property utilised to capture storm water run-off. A sediment and water trapping basin will be constructed in the north east of the operations at the existing quarried area prior to commencement of commercial extraction activities for supply of gravel outside the Shire as

approved by the DER.. This collects the surface water from disturbed land on site. The water storage is used for wetting down and dust suppression.

### 3.6. Figure 7 - Woury Pool historical Water Levels



### 3.7. Flora

The majority of the quarry area, 44.3 ha from 46 ha, is cleared pasture with only 1.7ha of native bushland within the central portion.

A vegetation study was performed as part of the Dieback assessment of the 1.7ha to be cleared. No noxious weeds, rare flora or dieback has been reported.

Upon receipt of a clearing permit, all native vegetation will be replaced primarily along the southern border of the prescribed premises to act as a visual barrier and replace natural habitat.

**3.7.1. Dieback assessment report.**

## Lot 668 Mogumber-Yarrawindah Road

### Mogumber

*Phytophthora Dieback Assessment Report*



Author/Interpreter:

Gavin Clapperton

Assessment Area: Part of Lot  
688 Mogumber-Yarrawindah  
Road Mogumber

Proposed Pit Size: 47.50  
hectares

Assessment Date:

23<sup>rd</sup> December 2016



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## 1. Introduction

### 1.1 Background

Dieback disease caused by the pathogen *Phytophthora cinnamomi* is a major threat to the biodiversity of south-western Australia. The spread of this water mould is facilitated by the movement of soil infested with spores, particularly under warm, moist conditions.

Consequently, a major component for the prevention of spread is the strategy to constrain this disease which involves managing access and soil-disturbance activities within native vegetation. Knowledge of the occurrence of the disease in the landscape is therefore an essential prerequisite to formulating suitable hygiene management practices.

NPC Consulting has been requested by Menzies Quarries to assess the possibility of the occurrence of *Phytophthora cinnamomi* within a remnant bushland area within the property of Lot 668 Mogumber-Yarawindah Road (the Site) east of Mogumber for the purpose of a proposed gravel pit. The assessment was carried out on the 23<sup>rd</sup> December 2016.

### 1.2 Location, Size and Historical Land Use Information

The Site is located within property 668 Mogumber-Yarawindah Road which is 685 hectares in size. The address is approximately 7 kilometres east of Mogumber and 16 kilometres west of the great Northern Highway. Mogumber-Yarawindah Road intersection with Gt. Northern Highway is 5 kilometres south of the town of New Norcia.

Site including the proposed gravel pit is 47.50 hectares in size. The property is predominantly used for agriculture in the form of wheat and sheep. The property currently has an existing gravel pit further down slope from the proposed pit which is to be located on and around the ridge of the property.

## 2. Methods

### 2.1 Interpretation

Field interpretation followed the standard methods and operating procedures described in the documents *Department of Parks and Wildlife (DPaW), Phytophthora Dieback Interpreter Procedures: for lands managed by the department\** (DPaW March 2015) for Dieback mapping.

### 2.2 Vegetation Condition

The condition of the vegetation within the site that had experienced disturbance historically in one form or another was assessed. The vegetation condition was assessed

using methods based upon the condition scale from *Keighery B J (1994; Appendix 2)*. These methods are described in *Bush Forever Vol. 2 – Directory of Bush Forever Sites*.

### **2.3 Mapping**

The field observations, boundaries, waypoints and survey data were downloaded into a Geographic Information System (GIS) from a GPS to generate a map of the assessment area.

## **3 Results**

### **3.1 Assessment Results**

The Site was of an area of Wandoo (*Eucalyptus wandoo*) with no under or mid storey and is less than 2 hectares in size. The surrounding area is of cleared land for wheat and sheep farming. As a result the entire Site including the proposed gravel pit is excluded. The excluded category means there is insufficient vegetation present in order to determine the presence or absence of the disease (see Appendix 1).

### **3.2 Vegetation**

Observations were made during the assessment of the types of plant species that are present in and around the property. It is recommended that these plant species be used if rehabilitation of the Site and adjacent land be undertaken in the future (see Appendix 3).

### **3.3 Vegetation Condition**

The area of Wandoo forest area and cleared paddock areas of the Site are highly degraded and considered a 6 on the *Keighery* vegetation scale (see Appendix 2).

## **4 Conclusion**

A brief Dieback assessment was carried out on the Site within Lot 668 Mogumber Yarawindah Road in Mogumber on the 23<sup>rd</sup> December 2016. The purpose of the assessment was to establish disease categories prior to gravel being extracted from this part of the property. The proposed gravel pit area is approximately 47.50 hectares in size.

The assessment concluded that the Site and surrounds are excluded. This was due to a complete lack of native vegetation, with the exception of a small area of Wandoo trees on the ridge, which had been historically cleared for wheat and sheep farming. The Site is also un-protectable.



## 5 Disease Hygiene Management

The disease hygiene management recommendations for the Site and for the use of Basic Raw Material (BRM) from the proposed gravel pit are as follows:

- Excluded areas are un-protectable. This means there are no protectable values of the proposed pit and remnant vegetation areas and therefore no restrictions on clearing and BRM removal.
- BRM (gravel), vegetative matter and soil **must not** be used on areas adjacent to known or potentially protectable sites. A protectable site would normally include native vegetation and would require a Dieback assessment prior to using BRM in that area.
- BRM may be used on other excluded sites which are removed of native vegetation including road upgrade as well as on known infested sites.

There are no other Dieback recommendations for this Site or for the use of the gravel extracted from the Site.

## 6 References

*Department of Parks and Wildlife (DPaW), Phytophthora Dieback Interpreter Procedures: for lands managed by the department" (DPaW March 2015).*

*Department of Conservation and Land Management (2001) Phytophthora cinnamomi and disease caused by it. Volume I Management Guidelines*

*Keighery B J (1994), Bush Forever Volume 2, Directory of Bush Forever Sites (Vegetation Condition Scale).*

*Department of Parks and Wildlife (DPaW), Flora Base website, <https://florabase.dpaw.wa.gov.au/browse>*



## 7 Appendices

### 7.1 Appendix 1 – Dieback Protectable Areas Map



## 7.2 Appendix 2 – Keighery Vegetation Rating Scale

Score	Description
Pristine (1)	Pristine or nearly so, no obvious signs of disturbance.
Excellent (2)	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good (3)	Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good (4)	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
Degraded (5)	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Completely Degraded (6)	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

### 7.3 Appendix 3 – Native Plant Species List

The following is a list of plant species that are native to the area of Mogumber/New Norcia and surrounds. These species may be used for the rehabilitation of used gravel pits, quarries or other cleared areas of the Site.

	Common Name	Botanical Name
<b>Trees</b>	Coastal Blackbutt	<i>Eucalyptus tottiliana</i>
	Silver Mallee	<i>Eucalyptus falcata</i>
	Rock Sheoak	<i>Allocasuarina huegelliana</i>
<b>Shrubs</b>	Dwarf Sheoak	<i>Allocasuarina humilis</i>
	Parrot Bush	<i>Banksia sessilis</i>
	Pingle	<i>Banksia squarrosa</i>
	Fox Banksia	<i>Banksia sphaeracarpa</i>
	Grevillea	<i>Grevillea florida</i>
	Prickly Moses	<i>Acacia pulchella</i>
	Two Leaf Hakea	<i>Hakea trifurcata</i>
	Honeybush	<i>Hakea lissocarpa</i>



#### 7.4 Appendix 4 - Glossary of Terms

**Phytophthora Dieback;** is the name given to the disease that is caused by the pathogen. There are multiple species of Phytophthora in the south west however it is *Phytophthora cinnamomi* that causes significant destruction in naturally vegetated areas.

**Infested;** areas that have been deemed by a registered and qualified interpreter person to have plant disease symptoms consistent with Phytophthora Dieback.

**Uninfested;** areas that have been deemed by a registered and qualified interpreter person to be free of any visible plant disease symptoms consistent with Phytophthora Dieback.

**Uninterpretable;** areas that do not contain plant species that are susceptible to *Phytophthora cinnamomi*, therefore not allowing the presence or absence of the disease to be determined.

**Temporary Uninterpretable;** includes areas or recent disturbance where by the structure of the vegetation has been altered resulting in an inability to determine presence or absence of the disease. This may include areas recently burnt or harvested areas.

**Excluded;** an area of high disturbance where natural vegetation is unlikely to recover. This applies to areas like paddocks, existing gravel pits and other cleared areas.

**Protectable Area;** are areas of native vegetation that are uninfested or possibly uninterpretable, of a certain size or that will not become Infested in the short to midterm. Protectable areas may be smaller in size but have other values to protect.

**Un-protectable Area;** a disease free area that is likely to become infested in a short period of time. May also be uninterpretable or excluded areas with no protectable values (i.e. paddocks, highly degraded vegetation)

**Phytophthora Protectable Areas Map;** is the map produced by the Dieback interpreter (surveyor/assessor) which indicates the boundaries of the categories of Dieback identified in the field and determines which areas are protectable or not.

### 3.8. Fauna

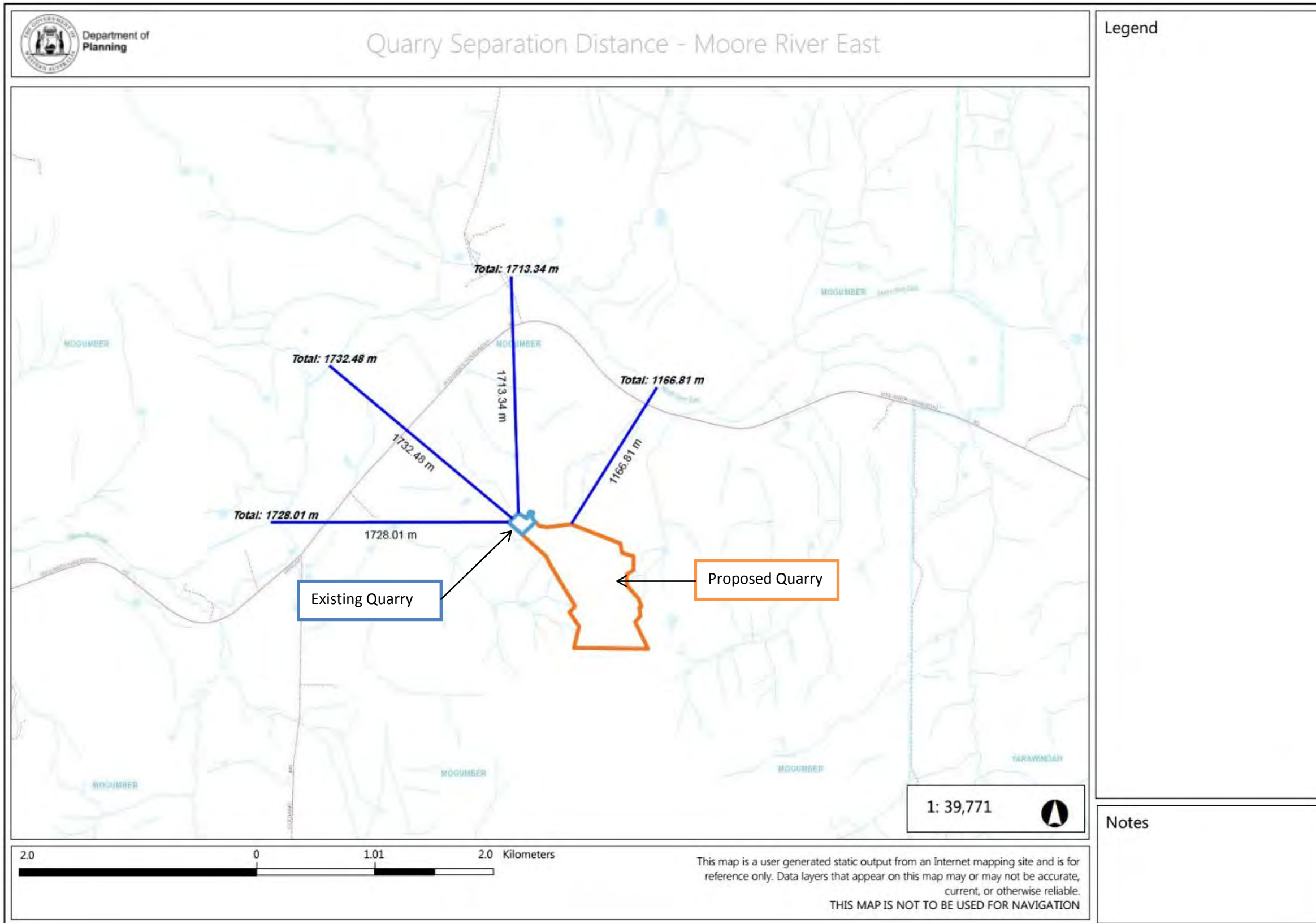
The excavation area is covered by pasture but surrounded on three sides by natural bushland. The 1.7 ha of natural vegetation will contain some fauna however no significant nesting or activity was noted within the 1.7ha proposed to be cleared. **No** evidence of nesting locations utilised by the Caranby Cockatoo were noted on inspection.

It is proposed to clear the resource areas gradually to enable any fauna to relocate to the perimeter of the quarry area. In addition, replacement of the cleared area along the southern border of the prescribed premises will enable any fauna to utilise a bushland corridor from east to west which is currently not available.

### 3.9. Aboriginal heritage

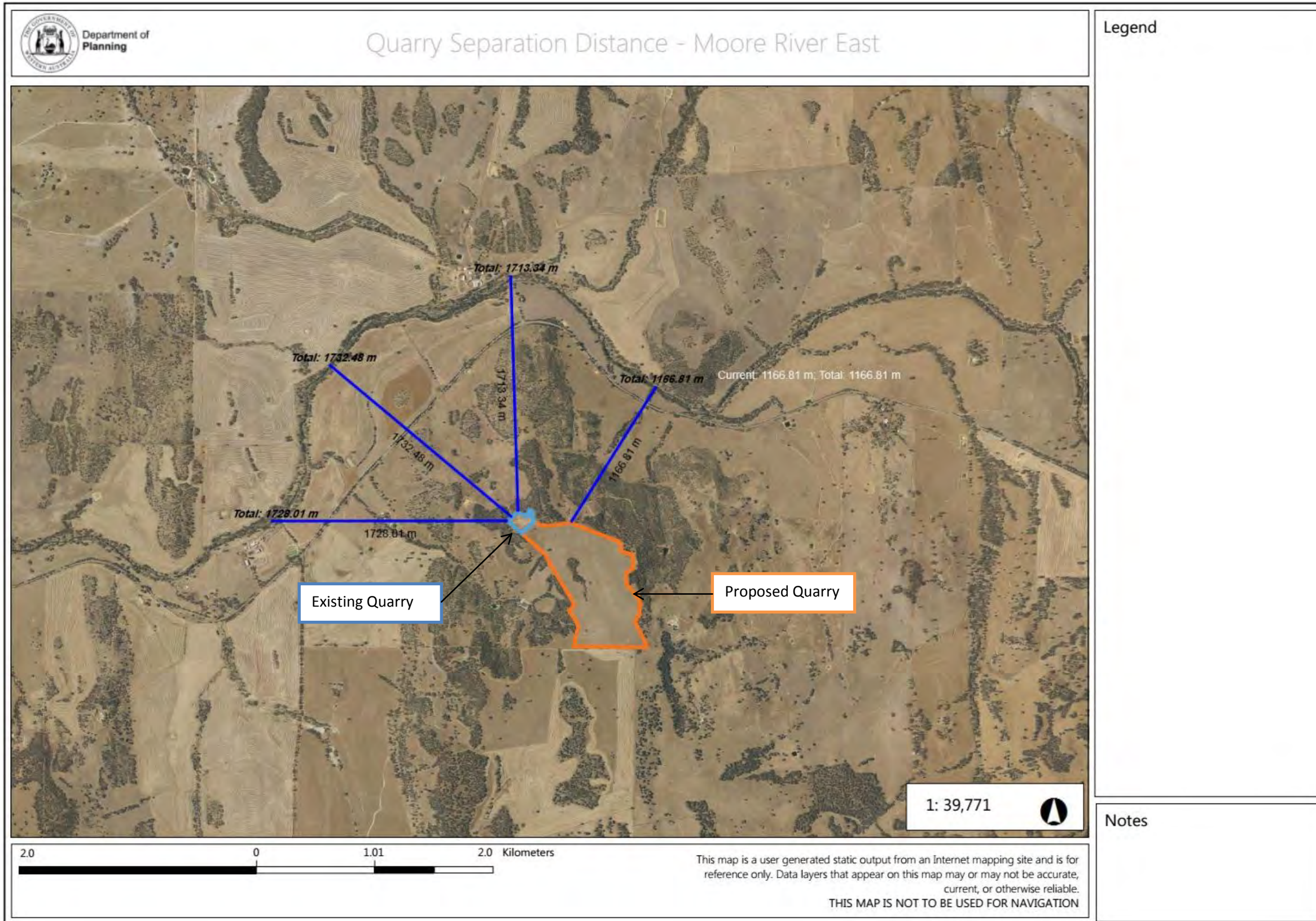
The Department of Indigenous Affairs database has no record of any aboriginal sites on the subject land which has been utilised for pasture and grazing for many years. Should any indications of significance be noted during excavations, operations will be ceased pending evaluation by an accredited consultant.

3.10. Map 9 – Separation from Moore River East, Map view – 668 Mogumber – Yarrawindah rd





3.11. **Map 10 – Separation from Moore River East, Aerial view – 668 Mogumber – Yarrawindah rd**



## 4. Excavation Programme

Environmental issues including odour, dust, noise and traffic will be managed to minimise any potential impact on the local community. Dust and noise will be contained by the methods of extraction and processing to be used and the control measures which will be put into place. Measures to protect the site and minimise the other environmental factors are addressed under Environmental Management, section 5.

### 4.1. Facility Operating Hours

The facility will operate during the following hours:

- Monday to Saturday – 6.00 am to 5.00 pm;
  - with no machinery operating before 7am;
- Sundays and Public Holidays – Closed.

The extraction and C&D processing activities are expected to be performed on an ‘as required’ basis. Composting is a continuous batch process requiring regular monitoring.

### 4.2. Material Quantities

The estimated breakdown of the material types includes:

- Gravel extraction – up to 500,000 tonnes / year to meet demand for Great Northern highway works,
  - Typical extraction will not exceed 250,000 tonnes / year
- C&D waste received and processed – up to 150,000 tonnes / year,
  - Expected production of 100,000 tonnes/year, and
- Compost produced – up to 35,000 tonnes / year.

### 4.3. Extraction and Processing of the Resource

Excavation is conducted in line with the Mines Safety and Inspection Act and Regulations.

The gravel and sand resources will be progressively extracted in a sequence starting with the removal and storage of topsoil and overburden, the extraction and screening of gravel and sand, and lastly the rehabilitation of the land surface. Simple layout of the prescribed area is shown in map 11.



- a) The resource will be excavated in stages across the excavation area (Map 12) on an as required basis.
- b) All trees are cleared in accordance with a relevant Clearing Permit. If further clearing is required, the appropriate clearing permit will be sought from the DER. as required by the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.
  - Map 14 shows area proposed to be cleared.
  - Vegetation removed is replaced on a minimum of a one for one basis and located predominately on the southern border of the quarry area to also provide additional screening of activities.
- c) Topsoil is removed by scraping from the resource and pushing to the perimeter to form a 1 to 2 meter bund at the perimeter of the existing extraction area to provide screening and reduce handling for later use in rehabilitation. The Topsoil may also be directly transferred to a prior extraction point being rehabilitated.
- d) Overburden is removed by scraping from the resource and captured through the gravel screening process. The overburden is pushed or delivered by loader to form a 1 to 2 meter bund on the perimeter of the existing extraction area providing screening and reducing handling for later use in rehabilitation. The Overburden may also be directly transferred to a prior extraction point being rehabilitated.
- e) Topsoil and Overburden storage locations follow the excavation of the resource as indicated in Map 11.
- f) Excavations commence in the North Western corner at the existing quarry and progress in a South Easterly direction, map 12. The quarry is expected to have a life span of over twenty (20) years subject to market demands.
- g) The depth of the excavation will align with the existing quarry elevation of 265m. A fall of 1 :100 will be developed during the excavation to direct water to the catchment pond in the north east of the existing quarry.
- h) The excavation is performed by a number of mobile plant depending on the nature of the material and the design of the pit. Typically a bulldozer is used to extract the material. Where this is not the safest option an excavator is utilised. Mobile plant will commence excavations commencing from the existing quarry in the North and progress to the east and west boundary of the quarry. Bulldozers are also used to push the material for subsequent loading, processing and stockpiling of the finished products.
- i) A low bund and/or drain will be located upslope, to the south of the active extraction face, to divert stormwater from the areas yet to be excavated away from the active pit and towards the water storage dams utilising the current east – west gradient of the land.
- j) Small bunds and contours are developed within the working pit as required to direct



water to the sumps and storage areas and prevent runoff from the disturbed areas. All storage ponds are sufficiently sized to retain all water from 1:20 year storm events.

- k) The quarry site contains large gravel rocks within the East which will require crushing and screening while the west side of the quarry area predominately consists of loose gravel typically only requiring screening. The two types of material are stockpiled separately for processing and blending. Each product type produced post processing is then stored in separate stockpiles. The locations of these stockpiles will change from time to time as the excavations progress.
- l) The locations of stockpiles are such that they are screened via the elevations and native vegetation on all sides.
- m) Collection of material from the stockpiles will be performed using a loader or excavator loading the final products directly into trucks for transport to off takers.
- n) Rehabilitation of the excavated area will predominately be carried out using a bulldozer. An excavator may also be used to distribute the topsoil and overburden. Rehabilitation will progressively follow excavation where future disturbance can be avoided. The proposed additional use of the quarry as a C&D processing site means that there will be little benefit in rehabilitating the operational land until the life of the quarry is nearing completion.
  - *No WDM will be utilised in the rehabilitation of the quarry without specific approval from the DER following clarification of the definition and permitted uses of these materials.*

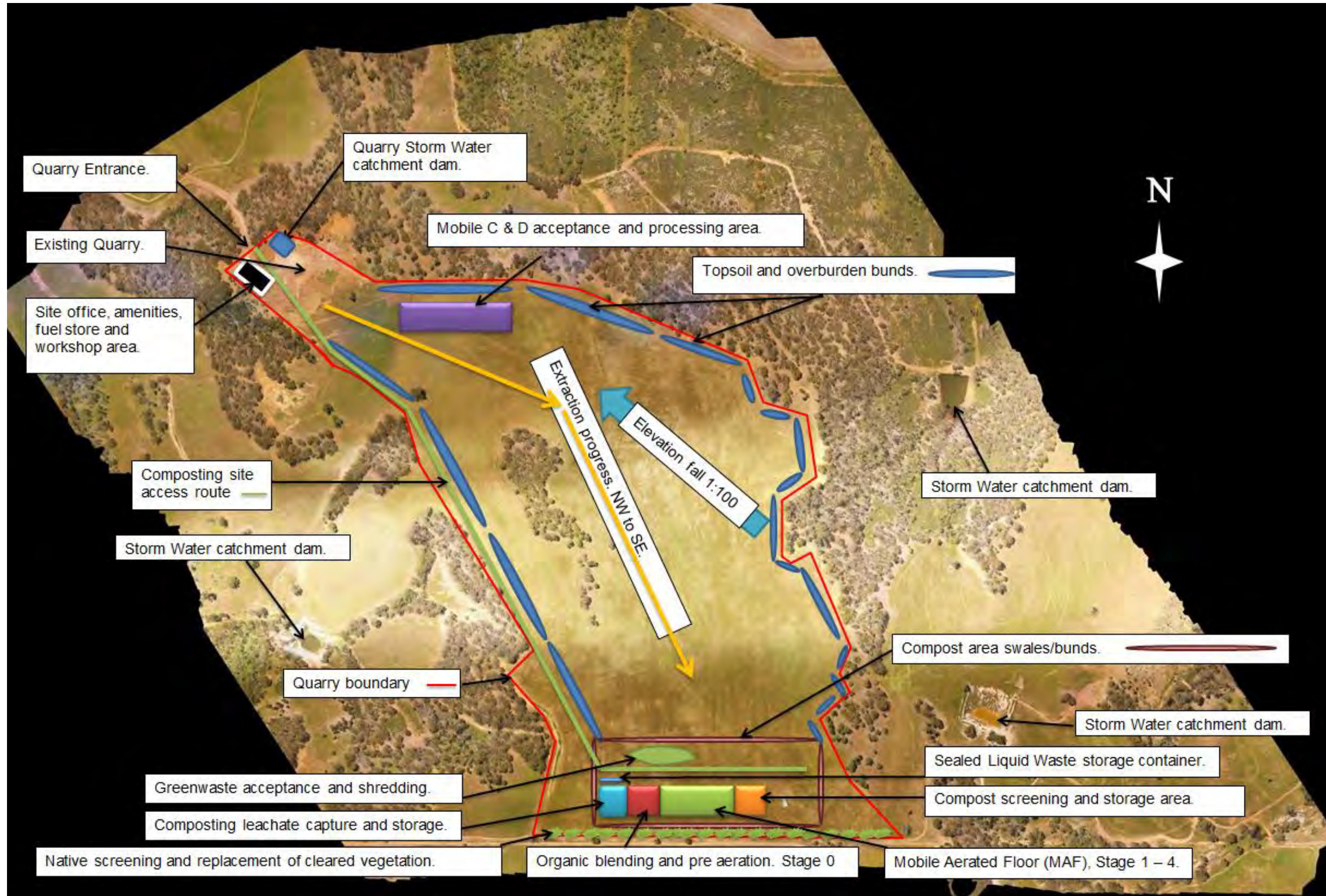
#### 4.4. Final Contours

The land surface will be contoured to match the existing landform of the area. The elevation will be formed into a self-draining landform that drains to a dam to be located on the northern portion of the quarry area, currently occupied by the existing quarried area.

- a) The depth of the dam will be 5 metres with a safe and stable batter slope to be established to maximise the volume and minimise the surface area to reduce evaporation effects.
- b) By determining the runoff from the catchment area it can be assured that all storm water is contained within the depression.
- c) During operations and upon completion, the land surface is to be graded down to the dam at the north eastern portion of the quarry. The east, west and south slopes will be made to match the existing gradient beyond the extents of the quarry area and will be 1:3 to 1:2, vertical to horizontal.
- d) The Concept Final Contours show the land elevation ranging from 265meters AHD in the north to 275 metres AHD in the south with the water level in the proposed dam filling to an elevation of about 260m AHD, map 13.



4.5. Map 11 – Simple layout of the prescribed area – 668 Mogumber – Yarrawindah rd.



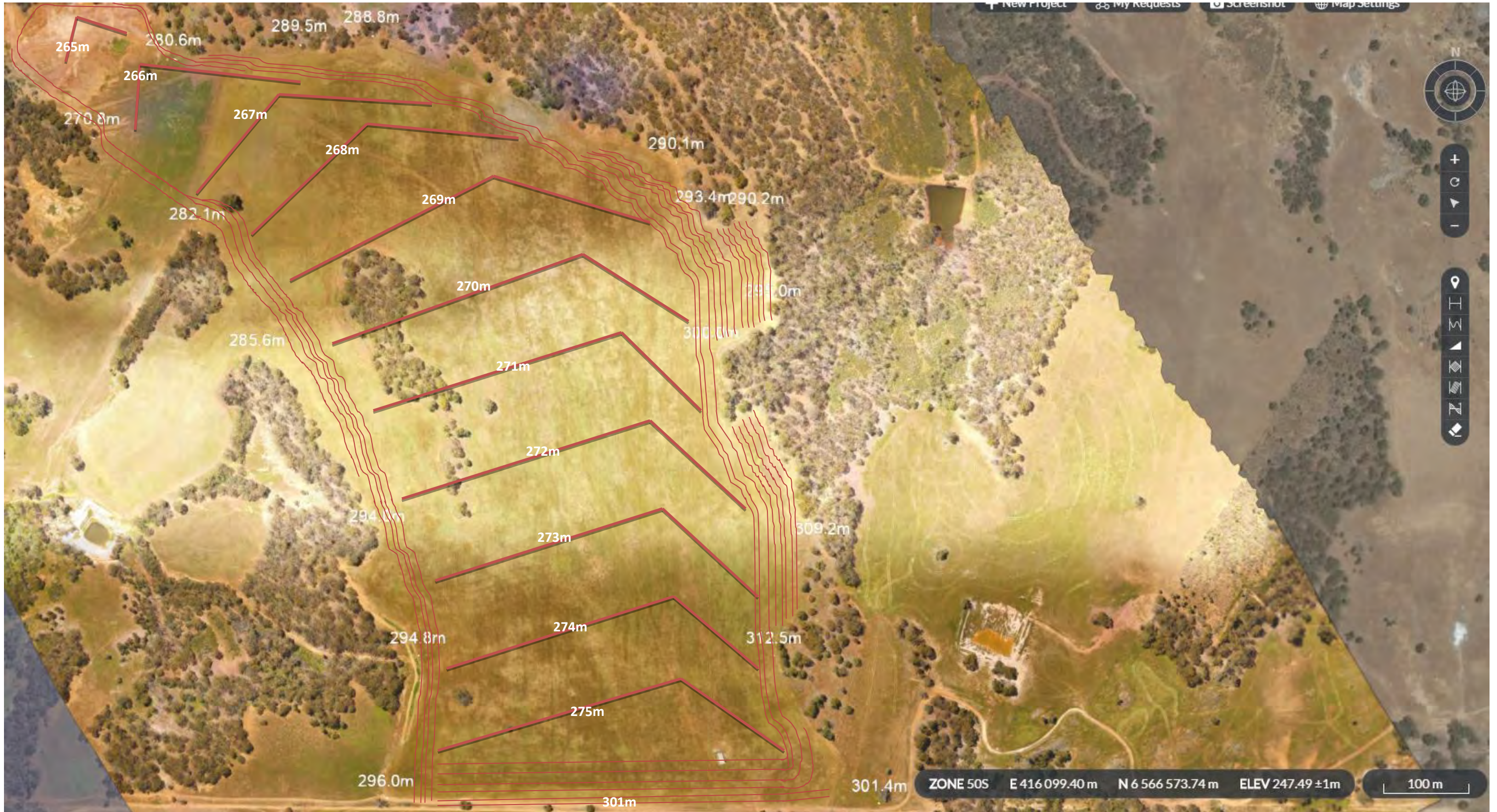


4.6. Map 12 – Excavation Stages over 20 years @ 500,000 tpa



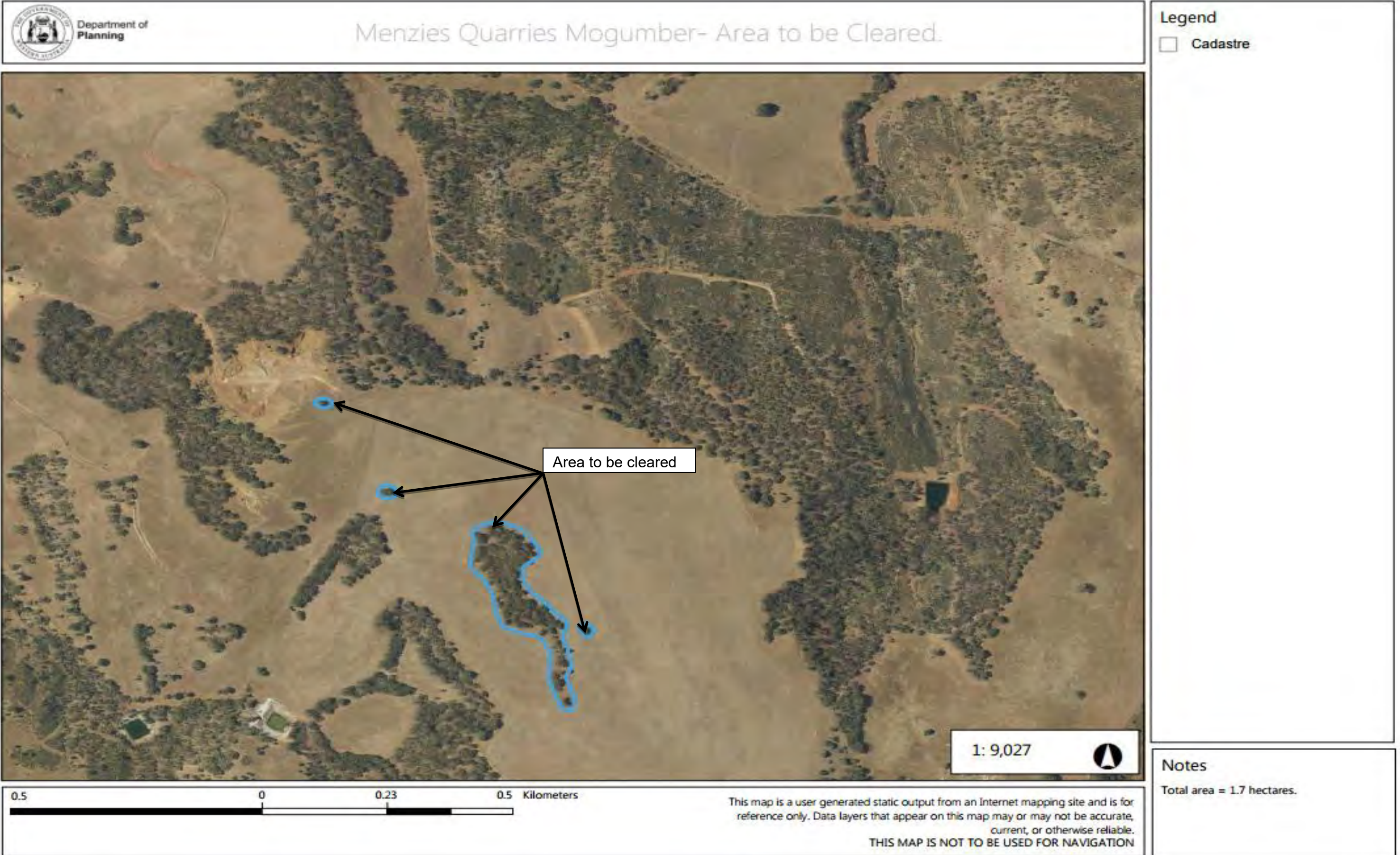


**4.7. Map 13 – Final Contours**





4.8. Map 14 – Area to be cleared.



## 5. Environmental management, reporting and monitoring

### 5.1. Air Emissions

There are no air emissions associated with the proposed activities.

Composition and Quantity – Nil.

Variability of Emissions – Nil.

Treatment Methodology – Nil.

Monitoring – Nil.

Contingency Plans – Nil.

Environmental Receptors – Nil.

Fugitive Emissions – Nil.

Cumulative Impact – Nil.

Targets and Limits – Nil.

Environmental Risk – Nil.

### 5.2. Dust Emissions

As a result of the temporary nature of the infrastructure within the lease area, all materials handling activities occur out in the open. Due to the nature of some of the activities on site, there is the potential to generate dust; however, there are management options available to control dust such that there will be no off-site impact.

A Dust Management Plan has been developed to provide guidance on how to manage dust.

Potential sources of dust emissions include:

- Dust from extraction of material – moderate consideration
- Particularly dusty individual C&D loads – minor consideration;
- Generally dusty waste loads - minor consideration;



MENZIES - Excavation & Rehabilitation Management Plan

Lot 668 Mogumber – Yarrawindah rd

- The mobile equipment sorting and moving materials - minor consideration;
- Materials screening operations - minor consideration;
- Stored material - minor consideration;
- Bin/vehicle loading with fine screened material - minor consideration; and,
- Vehicle wheels spreading dirt around the site - minor consideration.

Variability of Emissions – There is the potential for variable emissions, which will depend of the following:

- Material type;
- Material quantities;
- Ambient weather conditions; and,
- Facility housekeeping.

Treatment Methodology – The following are the suite of preventative measures available:

- Water cart wetting down the internal access roads and lease area;
- Should particularly dusty loads be identified these loads will be barred from being delivered to the site unless the load is able to be delivered in such a manner that reduces or prevents dust emissions;
- Dust suppression systems, consisting of sprinklers installed along lease boundary fences and within the lease area. The dust suppression system comprises the following:
  - Piped reticulation systems strung along the lease perimeter boundary; and,
  - Piped reticulation systems of sprinklers strategically placed to cover dust generating operations and material stockpiles.
- Dust suppression systems are standard, factory-fitted installations on screening and stacking equipment to control dust generation. The equipment utilised on site will come fitted with standard, factory installed dust suppression system or if not, dust suppression systems will be installed on the equipment. The systems will be utilised in accordance with the manufacturer's

recommendations and in accordance with environmental requirements. The systems typically operate at 30 L/min at 200 kpa;

- Screening and stacking will only be carried out when weather conditions permit. No screening or stacking will take place when the wind conditions cause excessive dust generation; and,
- Material handling areas will have sprinkler systems installed to enable the adequate wetting down of the Receiving, sorting and storage of material to ensure appropriate dust control.

Monitoring – Dust emissions will be monitored on a continuous basis by lease area operations staff. The Proponent will also maintain a comprehensive complaints register, which will be used as a gauge of success with regards to dust emissions management. In the event that there are dust emissions issues identified, formal dust monitoring will be undertaken by an independent third party to determine the extent of the problem and to propose appropriate improved dust management solutions.

Contingency Plans - If unacceptable dust emissions are identified onsite, the following contingency plans are available to improve dust management:

- Increased coverage by sprinkler system.
- Slow vehicles down by traffic calming methods (speed humps);
- Restrict dust generating activities to the appropriate time of day to reduce dust generation (weather dependent);
- Reject or restrict excessively dusty loads; and,
- Utilisation of chemical dust suppressants.

Environmental Receptors - Environmental receptors include the lease area operations staff, customers depositing and collecting materials at lease areas, neighbouring lease areas and neighbouring properties.

Cumulative Impact – With there being similar activities on the site to the south of the prescribed premises, there is the possibility that there could be a cumulative impact with regards to dust generation. The consequence of this will be highly dependent on the type of activity and the quantity of dust being generated. As there are preventative measures that can be applied (primarily, temporally ceasing some operations due to excessive wind), the impact on receptors will be controlled.

Targets and Limits – No dust emissions beyond the prescribed boundary and nil community complaints.

Environmental Risk – A risk assessment of all identified potential environmental risks associated with the management of dust has been undertaken. The primary consideration being the prevention of dust emissions beyond the prescribed boundary.

The emissions and discharge risk assessment framework has been taken from the *DER Corporate Policy Statement No. 07 – Operational Risk Management*.

Emissions Risk Matrix utilised in the risk assessment is based on the following:

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High

The outcome of the risk assessment is that there is a low risk of dust emissions beyond the site boundary and hence, a low impact on any neighbouring receptors as a result of the proposed activities.

**Table 1 – Dust Management Risk Assessment** provides the detail of the risk assessment.

### 5.3. Asbestos Management

The site will NOT be licensed to accept asbestos and this material will not be intentionally delivered or accepted on site. There is however the potential to inadvertently receive this waste type at some of the proposed site operations.

The following processes will be put into place to manage this occurrence:

- Customers will be advised that asbestos products are not accepted on



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Lot 668 Mogumber – Yarrawindah rd  
site.

- Appropriate signage will be erected at the site entrance notifying customers that asbestos is not accepted on site.
- Staff working at the facility will be trained to ensure that they are able to recognize asbestos containing material and are aware of the protocols to be followed if it is identified.
- Upon arrival at the facility, the incoming waste will be inspected and sorted into recyclable components and residual waste. If at any stage asbestos is identified, the load will either be rejected (if the delivery vehicle is still on site) or the asbestos containing material will be separated and placed in a waste bin for immediate removal (at least within 24 hours).
- Sand and rubble products will be managed in accordance with the most recent DER *Asbestos Management Guidelines, 18 December 2012*.

All relevant activities will be carried out in accordance with a site Asbestos Management Plan, which has been developed to comply with the DER *Asbestos Management Guidelines, 18 December 2012*.

5.4. Table 1 – Dust Management Risk Assessment

Emission Source Description	Environmental Impact Risk	Management Tools and Mitigation Options/Factors	Activation Trigger and Corrective Action	Monitoring of Corrective Action Efficiency	Contingency Action if Corrective Action is Ineffective	Likelihood & Consequence	Risk Level
<p>Construction activities – vehicle movements.</p>	<p>Vehicle movements around site resulting in dust emissions beyond the Prescribed premises</p>	<p>Minimal construction activity required; hence, minimum dust generated.</p> <p>Only minimal vehicle movements and over short distances; hence slow movements.</p> <p>Minimum 100 m buffer distance from the construction activities to the prescribed boundary provides an opportunity for dust emissions to settle.</p> <p>Contractor responsible for dust suppression (enforceable action).</p> <p>Water tanker used to wet down roads and working area.</p> <p>Short duration of the construction works.</p>	<p>Activation Trigger:</p> <ul style="list-style-type: none"> <li>• Excessive dust observed around the construction activities.</li> <li>• Dust observed blowing over the Prescribed Boundary.</li> <li>• Dust observed blowing over the Lot boundary.</li> <li>• A dust complaint is received.</li> </ul> <p>Corrective Action:</p> <ul style="list-style-type: none"> <li>• Instruct contractor to increase watering of access roads.</li> <li>• Instruct contractor to slow vehicles down.</li> <li>• Contractor instructed to change operations to undertake less dusty activities.</li> <li>• Cease dusty activities until weather conditions improve.</li> </ul>	<p>Undertake dust observation monitoring of the construction area immediately following the implementation of corrective actions by the contractor to determine the effectiveness of the actions.</p>	<p>Cease all construction activities if dust cannot be prevented from blowing over the Lot boundary.</p>	<p>Unlikely &amp; Insignificant</p>	<p>Low</p>

<p>Vehicle movements during operations.</p>	<p>Vehicle movements on access road and within the lease area resulting in dust emissions beyond the Lot boundary.</p>	<p>The majority of the site including the access road is a significant distance from sensitive receptors and is compacted gravel road base; hence, reduces dust generation and increases the opportunity for dust to settle before it blows over the Lot boundary.</p> <p>Restricting vehicle speed to 20 km/hr.</p> <p>Water tanker used to wet down internal access roads as the primary dust suppression methodology.</p> <p>The use of dust suppression agents. (Dustex or similar) will be used, as a secondary methodology if using only water proves ineffective.</p>	<p>Activation Trigger:</p> <ul style="list-style-type: none"> <li>Excessive dust observed on the access roads.</li> <li>Dust observed blowing over the Lot boundary.</li> <li>A dust complaint is received.</li> </ul> <p>Corrective Action:</p> <ul style="list-style-type: none"> <li>More regular wetting down of access roads.</li> <li>More rigorous enforcement of site speed limit.</li> <li>Installation of speed humps to further slowdown vehicles.</li> <li>Reduce site speed limit even further.</li> </ul> <p>Utilisation of additional dust suppression agents.</p>	<p>Undertake dust observation monitoring of the access roads immediately following the implementation of corrective actions to determine the effectiveness of the actions.</p> <p>If installed, check dust monitors for evidence of dust blowing over the site boundary.</p>	<p>Only essential vehicle movements along access roads where problematic dust emissions occur (these being primarily waste vehicles and water tanker).</p>	<p>Unlikely &amp; Insignificant</p>	<p>Low</p>
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Emission Source Description	Environmental Impact Risk	Management Tools and Mitigation Options/Factors	Activation Trigger and Corrective Action	Monitoring of Corrective Action Efficiency	Contingency Action if Corrective Action is Ineffective	Likelihood & Consequence	Risk Level
Waste tipping and handling activities.	Waste tipping, handling and sorting activities resulting in dust emissions beyond the Prescribed Boundary and potentially beyond the Lot boundary.	<p>Minimum 900 m buffer distance from the Prescribed Boundary sensitive receptor boundary provides an opportunity for dust emissions to settle.</p> <p>Quarry area of 46ha allows activities to be positioned away from the Prescribed Premises Boundary.</p> <p>Incoming waste generally not dusty when being unloaded.</p> <p>Vehicles tipping as close to the sorting area as possible.</p> <p>If a dusty load is received during adverse weather conditions, it will be wet down and left until weather conditions improve before being sorted.</p> <p>Water sprinklers used to wet down tipping and sorting area as the primary dust suppression methodology.</p>	<p>Activation Trigger:</p> <ul style="list-style-type: none"> <li>• Excessive dust observed around the active tipping and sorting area.</li> <li>• Dust observed blowing over the Prescribed Boundary.</li> <li>• Dust observed blowing over the Lot boundary.</li> <li>• A dust complaint is received.</li> </ul> <p>Corrective Action:</p> <ul style="list-style-type: none"> <li>• More regular wetting down of tipping and sorting area.</li> <li>• If possible, move tipping and sorting area to be further from the affected Lot boundary.</li> </ul>	<p>Undertake dust observation monitoring immediately following the implementation of corrective actions to determine the effectiveness of the actions.</p> <p>If installed, check dust monitors for evidence of dust blowing over the site boundary.</p>	Additional dust suppression via hand watering of loads before, during and after tipping.	Unlikely & Insignificant	Low

<p>Material screening, shredding and stacking operation.</p>	<p>Screening, shredding and stacking of material resulting in dust emissions beyond the Prescribed Boundary and potentially beyond the Lot boundary.</p>	<p>Minimum 900 m buffer distance from the Prescribed Boundary to the sensitive receptor boundary provides an opportunity for dust emissions to settle.</p> <p>Quarry area of 46 ha allows activities to be positioned away from the Prescribed Premises Boundary.</p> <p>Water sprinklers mounted on the machines used to wet down the material during processing and stockpiling.</p> <p>Due care taken to place the material in the machines and not drop it from a height.</p> <p>Water sprinklers around the discharge conveyor and processed material stockpile.</p> <p>Low speed screening operations generates lower dust emissions.</p>	<p>Activation Trigger:</p> <ul style="list-style-type: none"> <li>Excessive dust observed around the machines and conveyors.</li> <li>Dust observed blowing over the Prescribed Boundary.</li> </ul> <p>Dust observed blowing over the Lot boundary.</p> <ul style="list-style-type: none"> <li>A dust complaint is received.</li> </ul> <p>Corrective Action:</p> <ul style="list-style-type: none"> <li>Delay activities until weather improves.</li> <li>More regular wetting down of input and output material.</li> <li>If possible, undertake operations further away from the Lot boundary.</li> <li>Increase the number of sprinklers mounted on the machines.</li> </ul>	<p>Undertake dust observation monitoring of the operation immediately following the implementation of corrective actions to determine the effectiveness of the actions.</p> <p>If installed, check dust monitors for evidence of dust blowing over the Lot boundary.</p>	<p>Cease activity if dust cannot be prevented from blowing over the Lot boundary.</p>	<p>Unlikely &amp; Insignificant</p>	<p>Low</p>
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## 5.5. Odour Emissions

There are odour emissions possible associated with the operations of the composting facility only. The emissions are mitigated through the use of appropriate technologies and operating procedures.

Composition and Quantity – Odour from composting batches not operating correctly will be anaerobic in nature. To avoid the release anaerobic odours, the MAF system enables continuous or intermittent airflow to be set depending on the composting stage and material type.

Variability of Emissions – Emissions will vary with feedstock type received.

Treatment Methodology – Odorous material is directly mixed with clean greenwaste when received or stored in a liquid tank in preparation for blending. All odorous waste is delivered with prior notification to ensure the site has sufficient means to control odours. The facility has a stage 0 batch to aerate material until the batch volume has reached sufficient size to move to stage 1 of the composting process, or if stage 1 area is not available. Particularly odorous batches will be covered with a biofilter crust at a minimum thickness of 200mm consisting of the oversized fraction of screened compost. Process covers will also be available to further trap odours and allow the biofilter layer to absorb odours present.

Monitoring – process monitoring for moisture, pH and Oxygen ensures the composting process is active, minimising the possibility of odour production.

Contingency Plans – In the event of malfunction of the MAF system, generators and additional blowers can be delivered within 24 hrs. during which time the affected batch will remain covered.

Environmental Receptors – Environmental receptors include the lease area operations staff, customers depositing and collecting materials, other site users and neighbouring properties.

Cumulative Impact – Surrounding properties utilise biosolids and manures from time to time for direct application to land.

Targets and Limits – No odour complaints

Environmental Risk – The environmental risk on site and to neighbouring properties is considered to be low.

## 5.6. Noise Emissions

Noise management is a consideration during the operations on site. The *Environmental Protection (Noise) Regulations 1997* have restrictions on noise emissions during the period



7.00 pm to 7.00 am. Beyond this time restriction, normal noise regulations for industrial areas apply.

The site opens at 6:00am however screening activities on site commence at 7.00 am and finish by 5.00 pm; hence, these activities occur outside the restricted period. With the sorting activities occurring out in the open, the management of noise emissions is a high priority.

Potential sources of noise emissions include:

- Unloading of some material types;
- Mobile equipment operating on site; and,
- Sorting and screening equipment.

Composition and Quantity – The screening operations is the activity that is likely to generate the most noise and the most consistent noise source.

#### **5.6.1. Noise Treatment Methodology:**

Should there be noise emissions concerns, there are a number of actions that can be undertaken to further reduce noise emissions, and these include:

- Vehicle reversing beacon: Should the standard vehicle reversing beacons be identified as causing noise disturbance, the beacons will be changed to the “croaker or low frequency” type beacons which emit a lower sound level, but are still effective safety warning devices.
- Screening operations: These activities could occur behind other site infrastructure or materials stockpiles. The lease area is sufficiently large and the screening operations are located to ensure that the operations occur 900m from the nearest sensitive receptor (to the North west) with ~20m high quarry wall and native bushland between which would absorb any noise emissions and prevent excessive noise emissions reaching this receptor. In addition, with the site being located in an industrial area, quarries to the south and west and market gardens to the east, there are no neighbouring human receptors that would be negatively impacted by the screening operations.
- Staggered operations: Some site activities could be staggered to reduce the cumulative effect of multiple plant and equipment operating simultaneously.

If noise is identified as a problem during operations, noise monitors will be used to provide accurate information on the level of noise actually being generated and hence, if necessary, identify potential remedial actions.

The overriding consideration is that the Proponent, commits to ensuring that the all

lease area activities are carried out in accordance with the *Environmental Protection (Noise) Regulations 1997*. In the event of noise being identified as a problem, third-party independent specialists will be engaged to monitor noise emissions and where necessary recommend site improvements to reduce noise emissions. If it is not possible/feasible to reduce noise emission to below Noise Regulation requirements, then the offending operations will be discontinued.

Monitoring – Noise emissions will be monitored on a continuous basis by lease area operations staff.

Contingency Plans – Increased training of equipment operators to reduce operational noise, install noise abatement devices or change/cease specific activities.

Environmental Receptors – Environmental receptors include the lease area operations staff, customers depositing and collecting materials, other site users and neighbouring properties.

Cumulative Impact – A cumulative impact is not anticipated since the noise generated from the prescribed premises is low with no crushing to be performed.

Targets and Limits – As defined by the Environmental Protection (Noise) Regulations 1997 and nil complaints.

Environmental Risk – The environmental risk on site and to neighbouring properties is considered to be low.

## 5.7. Litter Emissions

There will be no litter emissions

Composition and Quantity – Nil.

Variability of Emissions – Nil.

Treatment Methodology – Nil.

Monitoring – Nil.

Contingency Plans – Nil.

Environmental Receptors – Nil.

Cumulative Impact – Nil

Targets and Limits – Not Applicable.

Environmental Risk – Nil.

## 5.8. Light Emissions

There are no light emissions associated with the proposed activities.

All light spills associated with security lighting will be contained within the property, in accordance with AS4282 - 1997 "Control of the Obtrusive Effects of Outdoor Lighting".

## 5.9. Discharge to Water

There will be no discharge to water.

Composition and Quantity – Nil.

Variability of Emissions – Nil.

Treatment Methodology – Nil.

Monitoring – Nil.

Contingency Plans – Nil.

Environmental Receptors – Nil.

Cumulative Impact – Nil

Targets and Limits – Not Applicable.

Environmental Risk – Nil.

## 5.10. Discharge to Land

The only discharge to land will be clean stormwater discharge to existing farm dams.

Composition and Quantity – Nil.

Variability of Emissions – Nil.

Treatment Methodology – Nil.

Monitoring – Nil.

Contingency Plans – Nil.



Environmental Receptors – Nil.

Cumulative Impact – Nil

Targets and Limits – Not Applicable.

Environmental Risk – Nil.

### 5.11. Vermin Management

Based on the type of materials being handled on site, there is minimal, if any food source for vermin; consequently, it is not anticipated that there will be a problem with vermin.

The potential sources of vermin include:

- Arriving in material being delivered to the facility; and,
- Living in and around the facility.

Preventative measures include:

- Should vermin be observed on site, the appropriate eradication procedures are to be undertaken, this will involve professional pest controllers being utilised to manage the situation. Typically, vermin could include rats, mice, cats, birds and cockroaches.
- On occasion both mouse and rat traps will be spread around the site even if vermin have not been identified. This will assist in identifying the presence of any rats or mice.

### 5.12. Native Vegetation, Flora and Fauna

The lease area has 1.7 ha of vegetation to be cleared and as such a clearing permit is required for this proposal. A Dieback study has been completed (section 3.7.1)

Neighbouring or Other Local Native Vegetation – Not to be affected by the proposal.

Flora and Fauna – No rare or threatened species have been identified in the area. Species of flora identified is listed within the Dieback assessment. **No** visible Carnaby Cockatoo nesting sites were identified.

Impacts on Land, Soil, Salinity and Waterways - Nil.

Sustainability – Flora removed as listed within the clearing area will be replanted like for like with new seedlings. The majority will be planted on the southern border to improve screening and stormwater management with the remainder planted around the perimeter of the quarry.

Exemptions and Permits – Nil.

Rehabilitation and Post Closure Management - The quarry area will be returned to rural use following closure of the quarry. Compost produced on site will be incorporated into the land through consultation with an agronomist to improve yield.

### 5.13. Fire Management

The Potential Fire Sources include:

- Unknown ignition sources from the incoming mixed material.
- Composting material

The Bushfire Prone Planning tool has classified the area as low to moderate risk as shown below.

#### 5.13.1. Bushfire Attack Level – South – Upslope



#### Bushfire Attack Level lookup tool

Using the simplified method of AS3959:

At 40 m from the classified vegetation type of Grassland (upslope and flat land), the relevant Bushfire Attack Level is BAL-12.5.

This is reflected in the extract of Table 2.4.3 – FDI 80 (1095 K) below.

Vegetation Classification	Bushfire Attack Levels (BALs)				
	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
	Distance (m) of the site to the predominant vegetation class				
	Upslope and flat land (0 degrees)				
Grassland	<6	6 - <8	8 - <12	12 - <17	17 - <50



<p>The risk is considered to be <b>EXTREME</b>.</p> <p>Direct exposure to flames from the fire front, a heat flux of greater than <b>40 kW/m<sup>2</sup></b> and ember attack.</p>	<p>The risk is considered to be <b>VERY HIGH</b>.</p> <p>Increasing levels of ember attack and ignition of debris, a heat flux of up to <b>40 kW/m<sup>2</sup></b> and an increased likelihood of exposure to flames.</p>	<p>The risk is considered to be <b>HIGH</b>.</p> <p>Increasing levels of ember attack and ignition of debris and a heat flux of up to <b>29 kW/m<sup>2</sup></b>.</p>	<p>The risk is considered to be <b>MODERATE</b>.</p> <p>Increasing levels of ember attack and ignition of debris and a heat flux of up to <b>19 kW/m<sup>2</sup></b>.</p>	<p>The risk is considered to be <b>LOW</b>.</p> <p>Ember attack with a heat flux of up to <b>12.5 kW/m<sup>2</sup></b>.</p>
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Calculated December 2, 2016, 2:25 pm

### 5.13.2. Bushfire Attack Level – West and North – Downslope



#### Bushfire Attack Level lookup tool

Using the simplified method of A53959:

At 25 m from the classified vegetation type of Shrubland (downslope >15 to 20 degrees), the relevant Bushfire Attack Level is BAL-19.

This is reflected in the extract of Table 2.4.3 - FDI 80 (1090 K) below.

Vegetation Classification	Bushfire Attack Levels (BALs)				
	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
	Distance (m) of the site to the predominant vegetation class				
	Downslope >15 to 20 degrees				
Shrubland	<10	10 - <15	15 - <22	22 - <31	31 - <100



The risk is considered to be **EXTREME**

Direct exposure to flames from the fire front, a heat flux of greater than 40 kW/m<sup>2</sup> and ember attack.

The risk is considered to be **VERY HIGH**

Increasing levels of ember attack and ignition of debris, a heat flux of up to 40 kW/m<sup>2</sup> and an increased likelihood of exposure to flames.

The risk is considered to be **HIGH**

Increasing levels of ember attack and ignition of debris and a heat flux of up to 29 kW/m<sup>2</sup>.

The risk is considered to be **MODERATE**

Increasing levels of ember attack and ignition of debris and a heat flux of up to 19 kW/m<sup>2</sup>.

The risk is considered to be **LOW**

Ember attack with a heat flux of up to 12.5 kW/m<sup>2</sup>.

Calculated December 2, 2016, 2:33 pm



### 5.13.3. Bushfire Attack Level – East – Upslope



#### Bushfire Attack Level lookup tool

Using the simplified method of AS3959;

At 25 m from the classified vegetation type of Shrubland (upslope and flat land), the relevant Bushfire Attack Level is BAL-12.5.

This is reflected in the extract of Table 2.4.3 - FDI 80 (1090 K) below.

Vegetation Classification	Bushfire Attack Levels (BALs)				
	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
	Distance (m) of the site to the predominant vegetation class				
	Upslope and flat land (0 degrees)				
Shrubland	<7	7 - <9	9 - <13	13 - <19	19 - <100



BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
The risk is considered to be <b>EXTREME</b>	The risk is considered to be <b>VERY HIGH</b>	The risk is considered to be <b>HIGH</b>	The risk is considered to be <b>MODERATE</b>	The risk is considered to be <b>LOW</b>
Direct exposure to flames from the fire front, a heat flux of greater than 40 kW/m <sup>2</sup> and ember attack	Increasing levels of ember attack and ignition of debris, a heat flux of up to 40 kW/m <sup>2</sup> and an increased likelihood of exposure to flames	Increasing levels of ember attack and ignition of debris and a heat flux of up to 29 kW/m <sup>2</sup>	Increasing levels of ember attack and ignition of debris and a heat flux of up to 19 kW/m <sup>2</sup>	Ember attack with a heat flux of up to 12.5 kW/m <sup>2</sup>

Calculated December 2, 2016, 2:11 pm

#### Management Measures include:

- Removal of flammable material from site as soon as possible after sorting.
- Compost controls ensure that the pile is always within operational specifications to ensure temperatures are not exceeded or the pile becomes too dry.
- During operating hours lease area operations staff are to immediately take action to extinguish any fires if safe to do so and call local fire station..
- Afterhours security is to call out the local fire station.
- The lease area has a supply of water for site usage. This water can be used to extinguish small fires. An onsite water truck maintains all stockpiles in a damp state and is available to suppress fire when safe to do so.

## 5.14. Solid/Liquid Waste

### 5.14.1. Solid Waste

There is minimal solid waste produced by the site operations. This is primarily waste material generated by the site operations staff via crib rooms and amenities. This waste is simply disposed of in waste bins and removed from site.

Composition and Quantity – Insignificant (typically domestic waste).

Variability of Emissions – Nil.

Treatment Method – Disposed of in waste bins and removed from site.

Controlled Waste Tracking – Not applicable.

Contingency Plans – Nil.

Environmental Receptors – Nil.

Comparison Against Relevant Standards – Nil.

Cumulative Impact – Nil.

Waste Reuse – Nil.

Environmental Risk - Nil.

### 5.14.2. Liquid Waste

There is minimal liquid waste produced by the site operations. This is primarily liquid waste generated in ablutions, which are contained in portable chemical toilets.

Composition and Quantity – Insignificant.

Variability of Emissions – Nil.

Treatment Method – Storage and removed from site.

Controlled Waste Tracking – Not applicable.

Contingency Plans – Nil.

Environmental Receptors – Nil.

Comparison Against Relevant Standards – Nil.

Cumulative Impact – Nil.

Waste Reuse – Nil.

Environmental Risk - Nil.

## 5.15. Hydrocarbon / Chemical Storage

### 5.15.1. Hydrocarbon Storage

Quantity and Type – Bulk hydrocarbon (diesel) for mobile vehicle and equipment refuelling will either be delivered to site on an as required basis via mobile refuelling tanker or be stored on site. If on site storage is utilised, the hydrocarbon will be stored in a purpose built, self-bunded fuel dispensing container (typically up to 20,000 litres). These units come with self-contained fuel pump, bowser and spill kit.

There will also be limited quantities of oils and greases stored on site for regular maintenance of mobile equipment. These hydrocarbons will typically be contained in small quantities of up to 5 litres, but occasionally in 25 litre drums. All of these hydrocarbons will be stored undercover (in shipping containers).

### 5.15.2. Chemical Storage

Quantity and Type – There will be limited quantities of chemicals stored on site as part of the regular site activities. These chemicals are typically domestic cleaning products and will generally be up to a maximum of 5L containers, but more typically small containers and spray cans of detergents and pesticides.

## 5.16. Contaminated Site Identification

A review of the DER Contaminated Sites Data Base (<https://secure.dec.wa.gov.au/idelve/css/>) has indicated that the site is not a registered Contaminated Site.

Due to there being no known site contamination, the site will not be registered as a Contaminated Site.



### **5.17. Surface Water Management**

All surface water generated on any part of the site yet to be excavated or not involved in composting activities is diverted from east to west where the water is captured in a stormwater basin running beyond the western boundary of the Quarry Area , from where it is captured in existing dams or soaks into the ground.

Surface water collected within the active quarry area is collected within a sediment dam to be located at the northern end of the existing quarry.

Surface water collected within the composting area is diverted to and collected within the leachate dam. No water from outside the composting area can enter the area via the installation of swales surrounding the site.

### **5.18. Groundwater Management**

There is no groundwater impact as a result of the proposed Excavation and C&D processing facilities; hence, there is no requirement for any groundwater management from these activities.

The composting facility will contain all leachate and stormwater within the composting area leachate dam. As per the Composting standard draft, a minimum of three bores will most likely be required to determine baseline levels and effectiveness of liquid containment features and processes.

### **5.19. Reporting requirements**

As the site requires DER approval, all activities and impacts are required to be reported annually to the DER to maintain compliance. A copy of the report will be provided to the Shire as required.

## 6. Rehabilitation Program

The site is zoned Rural under the Shire of Victoria Plains Town Planning Scheme. The Local Planning Policy #10, “Basic Raw materials and Extractive Industries” has the following objectives;

- To manage the extraction of basic raw materials within the rural zones in accordance with best industry practices including consideration of end use and rehabilitation at time of decommission;
- To ensure appropriate buffer areas are applied to protect the extractive operations as well as the living or agricultural environment in nearby areas.

The proposed excavation has been designed to enable rural activities to continue and thrive once the site is no longer utilised for extractive purposes.

The site will be contoured to provide a useable surface to enable cropping to occur and a quarry sediment dam will be in place as shown in Map 11.

The topsoil will be augmented with compost thorough the assistance of agronomists to improve the yield of the land prior to returning it to rural use.

29 January 2020

CONFIRMATION OF COVER

In connection with this insurance, Nexus Risk Services acts as Insurance Brokers on behalf of Menzies Civil Australia Pty Ltd & Menzies Quarries Pty Ltd and subsidiaries. We confirm the named insurers below have issued a policy of insurance subject to their usual terms and conditions for this class of business unless otherwise indicated below.

INSURED: Menzies Quarries Pty Ltd  
and subsidiaries and related companies and others as more particularly defined in the policy wording

POLICY TYPE: Liability Insurance

PERIOD: 31 March 2019 at 4.00 pm WST to 31 March 2020 at 4.00 pm WST

LIMIT OF LIABILITY: Public Liability \$20,000,000 any one occurrence, unlimited in the aggregate  
Products Liability: \$20,000,000 any one occurrence and in the aggregate  
Property in care, custody & control: \$250,000

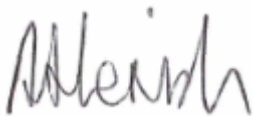
TERRITORIAL LIMITS: Anywhere in Australia

INSURER: CGU Insurance Limited

POLICY NUMBER: 10M8243010

JOINT INSURED: Shire of Victoria Plains

FOR AND ON BEHALF OF  
Nexus Risk Services



Sam Norrish  
Account Manager

Please note: This certificate does not vary or amend the scope of the contract of insurance between insurers and the insured and any rights interested parties may have. No responsibility to inform the holder of this document is accepted by Nexus Risk Services in the event that the contract of insurance is subsequently cancelled, avoided, assigned or changed.





**ROAD MAINTENANCE  
COST CONTRIBUTION REPORT**

**MENZIES GRAVEL PIT  
MOGUMBER – YARAWINDAH ROAD  
7.72SLK**

**SHIRE OF VICTORIA PLAINS**

PREPARED FOR: Shire of Victoria Plains  
PREPARED BY: Tony Saraullo  
DATE: 4th March 2020  
Roadswest Reference No: R2051-02  
Roadswest Doc. No R2051-02 Rev 0 FINAL REPORT

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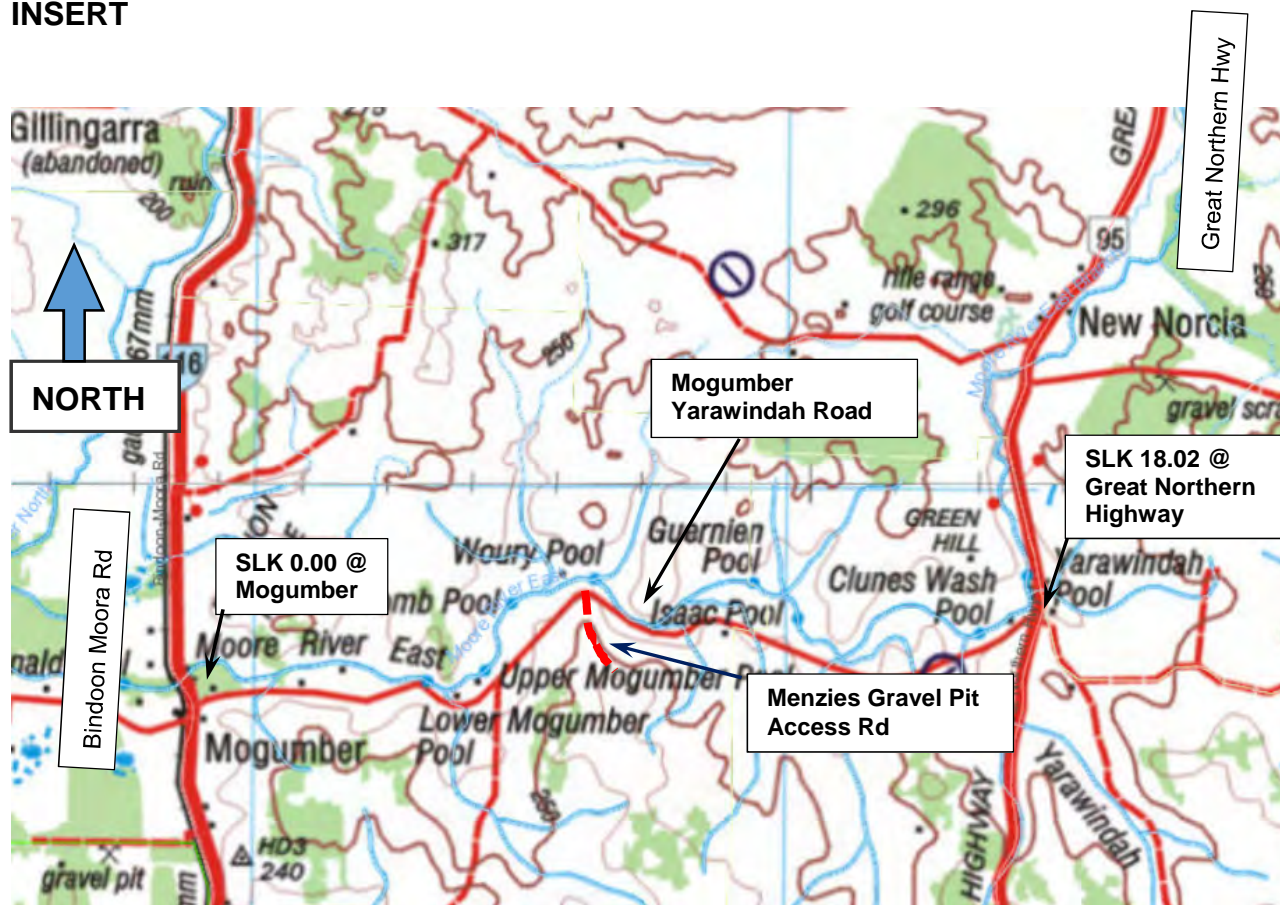
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# 1 Locality Plan





**INSERT**



**NOT TO SCALE**

## 2 Executive Summary

### 2.1 General

Menzies Quarries Pty Ltd operates a commercial gravel pit and landfill site on a property Lot 127 on the southern side of the Mogumber Yarawindah Road in the Shire of Victoria Plains. The site generates a significant amount of heavy truck traffic that enter and exit the site via the Mogumber Yarawindah Road.

This report outlines the methodology and the criteria adopted to calculate the road maintenance contribution/s required, in order for the Shire of Victoria Plains to reconcile with the owners of the Menzies Quarries Pty Ltd for the recovery of any outstanding road maintenance payments and also to agree on the ongoing level of contributions for the Menzies Quarries Pty Ltd operations.

The location of the Menzies gravel pit in relation to the adjacent roads within the Shire of Victoria Plains, is shown in Section 1 Locality Plan.

Figure 1 shows the location of the Menzies gravel pit and access to the adjacent road network.

### 2.2 Calculated Cost Contribution

#### 2.2.1 Basis of Calculation

The calculation of the incremental cost of road maintenance, was undertaken in accordance with the WALGA publication "User Guide Estimating the Incremental Cost Impact on Sealed Local Roads from Additional Freight Tasks: May 2015 Version No: 1".

This guideline was developed and published jointly between WALGA and ARRB

WALGA means the Western Australian Local Government Association  
ARRB means Australian Road Research Board

This guide is used by local governments in WA to quantify the cost of additional wear and damage to affected roads for a defined freight task. It is used as the basis for negotiation of cost recovery from industry, to ensure that the local community does not bear the costs imposed by private businesses, and to adjust long term financial plans

#### 2.2.2 Summary of Findings

Based on information received by the author via the Shire of Victoria Plains representatives on the 17<sup>th</sup> February 2020

For the period 14<sup>th</sup> June 2017 to 31<sup>st</sup> December 2019 and a Total mass of 144,319 tonnes exported out of the quarry in that period, the following has being calculated:

Section of Mogumber Yarrowindah Rd	Length (Kms)	<b>Annual Incremental Cost</b>	Unit Rate \$ per Tonne
SLK 0.00 to SLK 7.92	7.92	\$2,845.00	\$ 0.112
SLK 7.92 to SLK 18.03	10.11	\$3,641.00	\$ 0.112
	TOTAL for Road per year	\$6,486.00	\$ 0.112

TOTAL Contributions required for the Subject Period of 2.5 years = \$16,215.00  
This equates to \$0.112 per tonne (of exported gravel materials)

Please note that the unit rates used in this study and included in the above table, were developed by WALGA/ARRB, in 2015.

It is recommended that the appropriate industry escalation factors sourced from the Australian Bureau of Statistics, be applied to these costs, to reflect the study period, subject of this report.



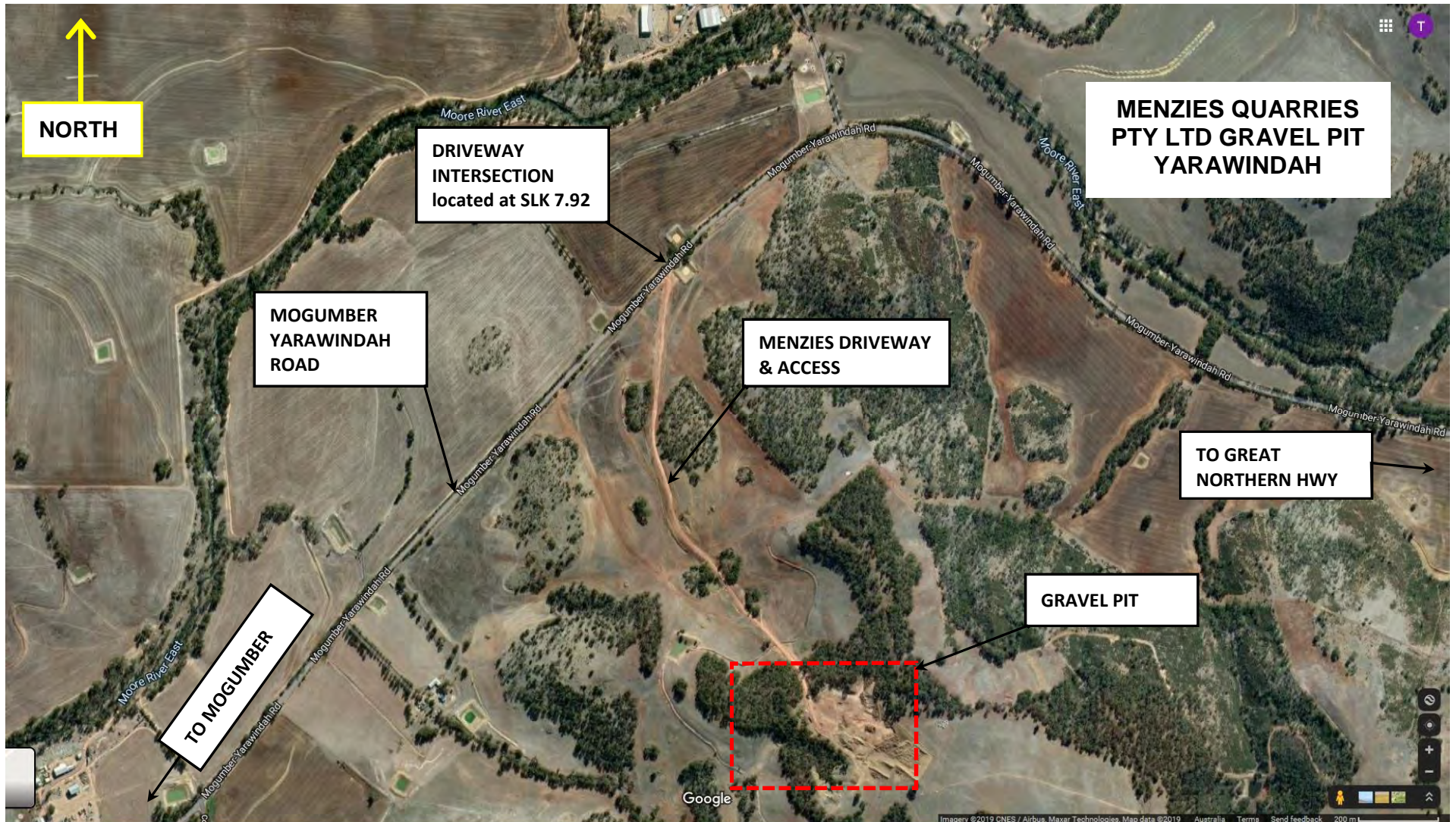


Figure 1. Aerial photograph of existing Menzies gravel pit and access

### 3 Description of the Development

The following is a summary of the operations that take place at the Menzies Quarries gravel pit.

- Gravel material is quarried from a deposit on the property.
- The material is crushed, screened and blended to manufacture materials for road building – mainly granular pavement materials.
- The finished product is loaded onto trucks –using truck trailer combinations and road trains and delivered to clients.
- The site also accepts landfill in the form of earth spoil from various agencies

### 4 Existing Operational Conditions

#### 4.1 Site Inspection

A site inspection of the access to the gravel pit and adjacent section of the Mogumber Yarawindah Roads was undertaken by Mr David McKenna Senior Project Manager for Roadswest Engineering Group Pty Ltd, on 10<sup>th</sup> December 2019.

#### 4.2 Existing Menzies Access

The existing access to the Menzies Gravel pit is via an unsealed gravel road located at SLK 7.92 on the Mogumber Yarawindah Road. The Mogumber – Yarawindah Road has a 7m wide bituminous seal with 1m wide unsealed gravel shoulders each side.

Please refer photographs below. Showing typical views of the Menzies Pit entrance and the existing Mogumber- Yarawindah Rd

SLK means Straight Line Kilometre

#### 4.3 Affected roads

The Mogumber – Yarawindah Road (5170006) is a Regional Distributor Road and is owned and controlled by the Shire of Victoria Plains.

This is the only road that is subject of this report into the calculation of the incremental cost of road maintenance.

The road is a major east west distributor and is part of Agricultural Lime Route No.2. It provides a link to the coast for agricultural lime sands which is delivered throughout the Shire and wheatbelt in general. It forms a link between the Bindoon Moora Road and Great Northern Highway. It is also an important tourist link to New Norcia and access to the central wheat belt region

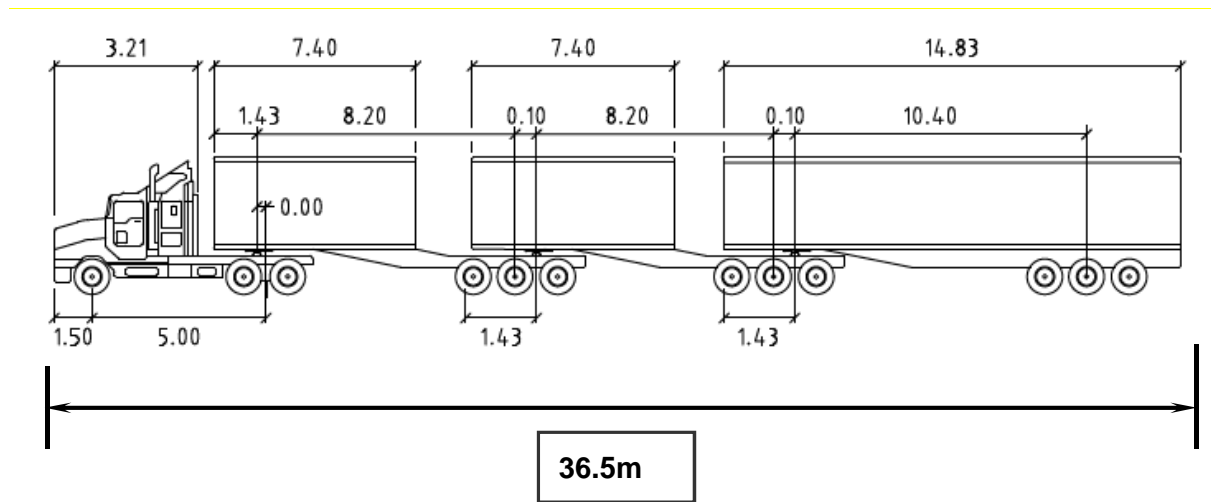
The road is also used to provide access to local agricultural properties for the transport of grains, livestock, and agricultural products.

#### 4.4 Restricted Access Vehicles (RAV) Network

The Mogumber – Yarawindah Road is designated by Main Roads of Western Australia (MRWA) as RAV 5 road network. RAV 5 can accommodate prime mover and trailer combinations up to a maximum length of 36.5m and up to a maximum gross mass of 84 tonnes. Refer to Figure 3.

Cartage contractors and hauliers that access the Menzies Quarries property use a variety of combinations of truck- trailer/s configurations and a number operate under mass permit conditions.

#### RAV CATEGORY 5



**Figure 3** – Demonstrates a typical vehicle combination that is used on the MRWA RAV 5 road network.





PHOTOGRAPH 1 7.92 SLK Looking East along Mogumber Yarawindah Road from Menzies Pit Driveway



PHOTOGRAPH 2 7.92 SLK Looking West along Mogumber Yarawindah Road from Menzies Pit Driveway





PHOTOGRAPH 3 7.51 SLK Looking East – Typical view of along the Mogumber Yarrowindah Rd



PHOTOGRAPH 4 7.51 SLK Looking West - Typical view of along the Mogumber Yarrowindah Rd

## **APPENDIX 1**

### **Worksheet -Mogumber Yarawindah Rd Eastbound**

<b>SHIRE OF VICTORIA PLAINS</b>			
<b>Worksheet for the calculation of the Heavy Vehicle maintenance cost contribution</b>			
<b>Menzies Pit- Access Road</b>			
<b>Mogumber -Yarrawindah Rd EASTBOUND</b>			
<b>SEALED ROAD</b>		<b>Revision 1</b>	
25th February 2020		<b>Duration = 2.5 years</b>	
Calculation based on using WALGA and ARRB publication: <i>User Guide Estimating the Incremental Cost Impact on Sealed Local Roads</i> from Additional Freight Tasks May 2015 Version No 1			
<b>1</b>	<b>Determine the Vehicle Type</b>		
	APPENDIX A The applicable RAV category is RAV 6 (A) Comprising 4 axle prime mover towing tri axle lead trailer and a 5 axle dog trailer Total 5 axle groups		
<b>2</b>	<b>Determine the annual tonnage, distance and duration</b>		
	The annual tonnage (tonnes)	29,315 (50% split)	Refer NOTE 1
	The distance (Km) is	10.11	
	The duration is	<b>2.5 years</b>	Refer NOTE 2
		Mogumber Yarrawindah Rd at Great Northern Hwy 18. SLK	18.03
		Mogumber Yarrawindah Rd at menzies access 7.92 SLK	7.92
		<b>TOTAL LENGTH</b>	<b>10.11 kms</b>
<b>3</b>	<b>Select Cost Zone</b> Refer to Figure 2 Wheatbelt North Region = Cost Zone 2		
<b>4</b>	<b>Select Road Class</b> Regional Distributor Road Refer to Main Roads Road Information Data Base		
<b>5</b>	<b>Calculate the ESA per year</b> ESA = Equivalent Standard Axles Total Vehicle Trips p.a. = 533 Refer NOTE 3 Refer to Figure 3 for one way loaded vehicle Refer to Figure 4 for the return trip empty vehicle  ESA per payload tonne = 0.19 29,315 tonnes per year Loaded Vehicle ESA per year = 0.19 x 29,315 tonnes = 5,570 Empty Vehicle ESA per year = 533 x 1.2 = 640 Total ESA per year = 6,210		
<b>6</b>	<b>Select the marginal cost graph</b> Refer to TABLE 1 The marginal cost graph is Figure B7.1		
<b>7</b>	<b>Determine the annual marginal cost of the additional task</b> Figure B7.1 for 20,000 ESA/year = \$0.058/ESA/km Refer to NOTE 4		
<b>8</b>	<b>Calculate Annual Cost Contribution</b> Annual Cost = Annual Marginal Cost x ESA per year x Distance = \$0.058 x 6,210 ESA x 10.11Kms <b>=\$3,641 p.a for the impacted sealed road</b>		
<b>NOTE 1</b> Based on information received by the author 17th Feb 2020 for a extraction of 144,319 tonnes over the period 14th June 2017 to 31st December 2019 which equates to 58,630 tonnes over 12 months as an average ( 14th June 2017 to 31st Dec 2019= 128 weeks) ((144,319 tonnes/128 weeks) x 52weeks/year=58,630tonnes/year)			
<b>NOTE 2</b> Based on cartage commencing from 14th June 2017 and completion 31st Dec 2019 (The Period from the Start Up date to 14th of June 2017 it was deemed to be a Royalty Free Period )			
<b>NOTE 3</b> Based on an average payload mass of 55 tonnes per truck combination			
<b>NOTE 4</b> The cost per ESA are based on unit rates developed in 2015 ... Escalation factors will require to be applied to current date.			



## **APPENDIX 2**

### **Worksheet -Mogumber Yarawindah Rd Westbound**

<b>SHIRE OF VICTORIA PLAINS</b>			
<b>Worksheet for the calculation of the Heavy Vehicle maintenance cost contribution</b>			
<b>Menzies Pit- Access Road</b>			
<b>Mogumber -Yarrowindah Rd WESTBOUND</b>			
<b>SEALED ROAD</b>			
			<b>Revision 1</b>
25th February 2020			<b>Duration = 2.5 years</b>
Calculation based on using WALGA and ARRB publication: <i>User Guide Estimating the Incremental Cost Impact on Sealed Local Roads</i> from Additional Freight Tasks May 2015 Version No 1			
<b>1</b>	<b>Determine the Vehicle Type</b>		
	APPENDIX A		
	The applicable RAV category is RAV 6 (A)		
	Comprising 4 axle prime mover towing tri axle lead trailer and a 5 axle dog trailer		
	Total 5 axle groups		
<b>2</b>	<b>Determine the annual tonnage, distance and duration</b>		
	The annual tonnage (tonnes)	29,315 (50% split)	Refer NOTE 1
	The distance (Km) is	7.9	
	The duration is	<b>2.5 years</b>	Refer NOTE 2
		Mogumber Yarrowindah Rd Start SLK	0.02
		Mogumber Yarrowindah Rd at menzies access 7.92 SLK	7.92
		<b>TOTAL LENGTH</b>	<b>7.9 kms</b>
<b>3</b>	<b>Select Cost Zone</b>		
	Refer to Figure 2	Wheatbelt North Region =	Cost Zone 2
<b>4</b>	<b>Select Road Class</b>		
	Regional Distributor Road	Refer to Main Roads Road Information Data Base	
<b>5</b>	<b>Calculate the ESA per year</b>		
	ESA = Equivalent Standard Axles		
	Total Vehicle Trips p.a. = 533	Refer NOTE 3	
	Refer to Figure 3 for one way loaded vehicle		
	Refer to Figure 4 for the return trip empty vehicle		
	ESA per payload tonne = 0.19		
	29,315 tonnes per year		
	Loaded Vehicle ESA per year = 0.19 x 29,315 tonnes = 5,570		
	Empty Vehicle ESA per year = 533 x 1.2 = 640		
	Total ESA per year = 6,210		
<b>6</b>	<b>Select the marginal cost graph</b>		
	Refer to TABLE 1		
	The marginal cost graph is Figure B7.1		
<b>7</b>	<b>Determine the annual marginal cost of the additional task</b>		
	Figure B7.1 for 20,000 ESA/year = \$0.058/ESA/km	Refer to NOTE 4	
<b>8</b>	<b>Calculate Annual Cost Contribution</b>		
	Annual Cost = Annual Marginal Cost x ESA per year x Distance		
	= \$0.058 x 6,210 ESA x 7.9Kms		
	<b>=\$2,845 p.a for the impacted sealed road</b>		
<b>NOTE 1</b>			
Based on information received by the author 17th Feb 2020 for a extraction of 144,319 tonnes over the period 14th June 2017 to 31st December 2019 which equates to 58,630 tonnes over 12 months as an average ( 14th June 2017 to 31st Dec 2019= 128 weeks) ( 144,319 tonnes/128 weeks x 52weeks/year=58,630tonnes/year)			
<b>NOTE 2</b>			
Based on cartage commencing from 14th June 2017 and completion 31st Dec 2019 (The Period from the Start Up date to 14th of June 2017 it was deemed to be a Royalty Free Period )			
<b>NOTE 3</b>			
Based on an average payload mass of 55 tonnes per truck combination			
<b>NOTE 4</b>			
The cost per ESA are based on unit rates developed in 2015 ... Escalation factors will require to be applied to current date.			

**APPENDIX 3**  
**WALGA User Guide Figure 3**



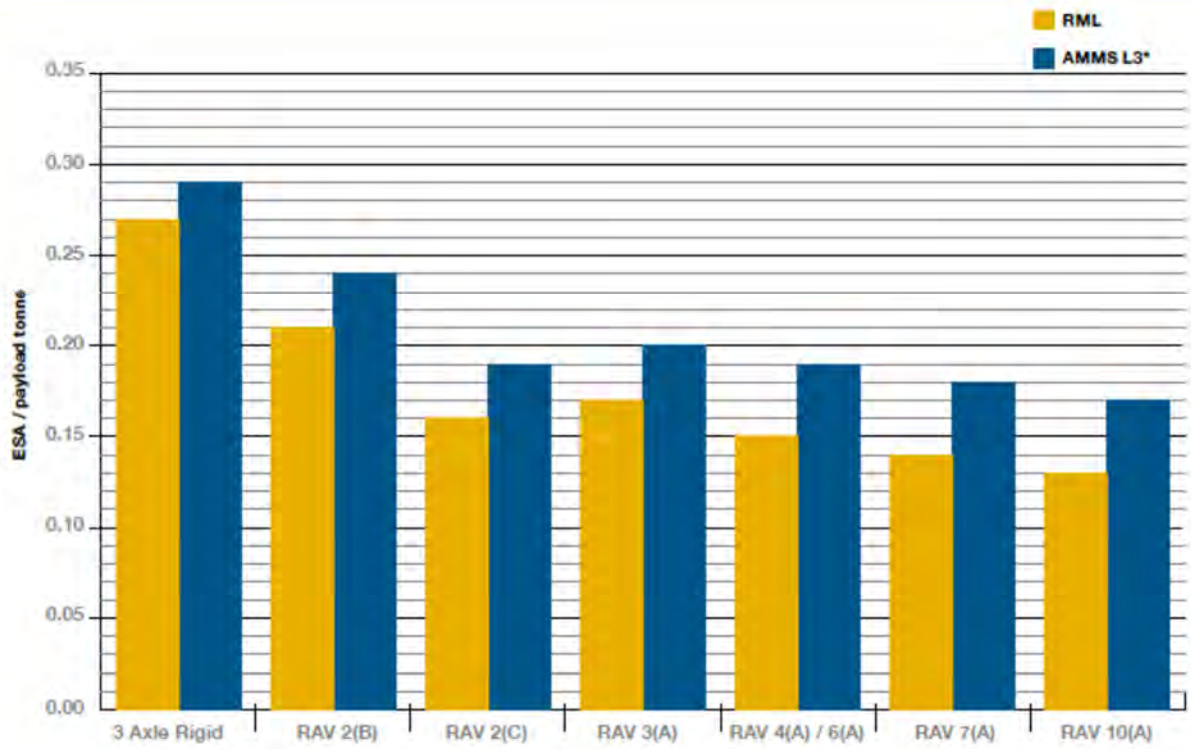


Figure 3: ESA per payload tonne for different vehicle types and loading schemes.

\*Note: The AMMS has three levels. The displayed values are for Level 3. If the vehicle is operating at a lower level then select a proportionate value between the RML value and the AMMS L3 value

## **APPENDIX 4**

### **WALGA User Guide Figure 4**

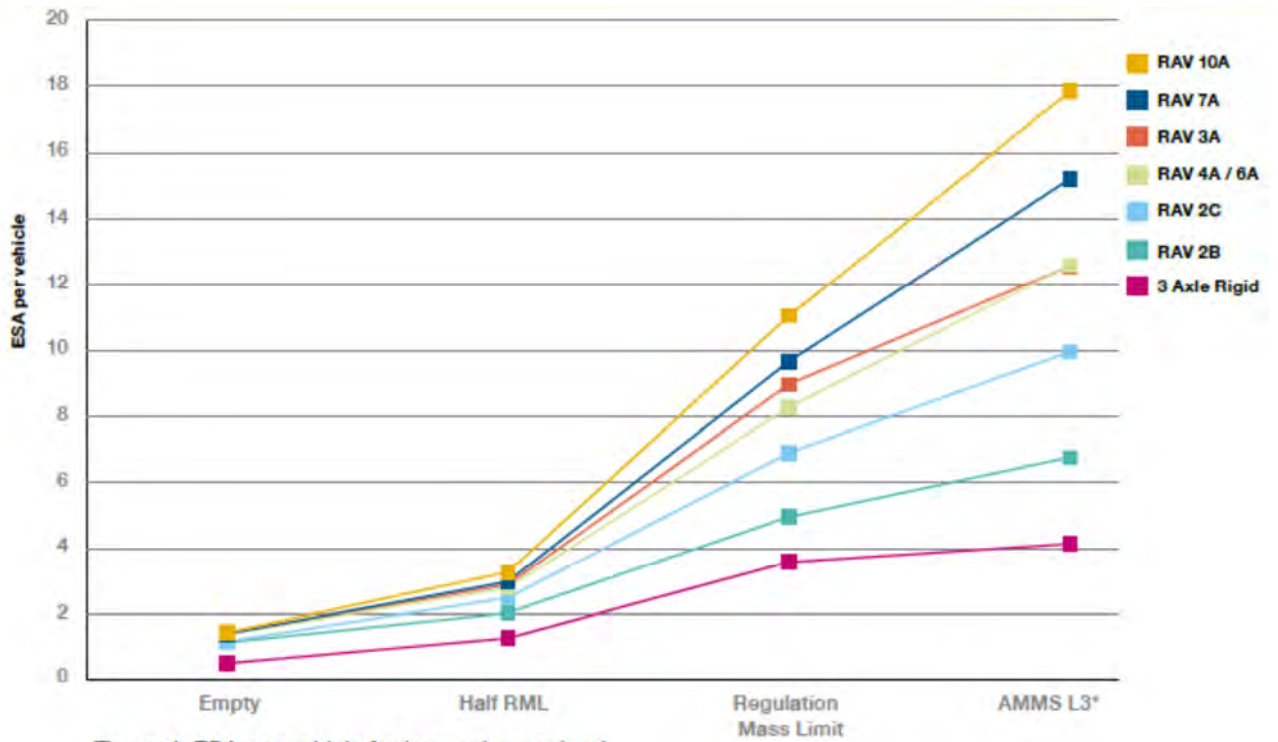


Figure 4: ESA per vehicle for increasing payload

\*Note: The AMMS has three levels. The displayed values are for Level 3. If the vehicle is operating at a lower level then select a proportionate value between the RML value and the AMMS L3 value.

**APPENDIX 5**

**WALGA User Guide TABLE 1**



From STEP 3 Cost zone	From STEP 4 Road class	From STEP 5 Loading scenario (ESA/year)	Figure link
1	Access road	20,000	Figure B 1.1
		60,000	Figure B 1.2
		100,000	Figure B 1.3
		200,000	Figure B 1.4
	Local distributor	20,000	Figure B 2.1
		60,000	Figure B 2.2
		100,000	Figure B 2.3
		200,000	Figure B 2.4
	Regional distributor	20,000	Figure B 3.1
		60,000	Figure B 3.2
		100,000	Figure B 3.3
		200,000	Figure B 3.4
	District distributor	20,000	Figure B 4.1
		60,000	Figure B 4.2
		100,000	Figure B 4.3
		200,000	Figure B 4.4
2	Access road	20,000	Figure B 5.1
		60,000	Figure B 5.2
		100,000	Figure B 5.3
		200,000	Figure B 5.4
	Local distributor	20,000	Figure B 6.1
		60,000	Figure B 6.2
		100,000	Figure B 6.3
		200,000	Figure B 6.4
	Regional distributor	20,000	Figure B 7.1
		60,000	Figure B 7.2
		100,000	Figure B 7.3
		200,000	Figure B 7.4
	District distributor	20,000	Figure B 8.1
		60,000	Figure B 8.2
		100,000	Figure B 8.3
		200,000	Figure B 8.4

From STEP 3 Cost zone	From STEP 4 Road class	From STEP 5 Loading scenario (ESA/year)	Figure link
3	Access road	20,000	Figure B 9.1
		60,000	Figure B 9.2
		100,000	Figure B 9.3
		200,000	Figure B 9.4
	Local distributor	20,000	Figure B 10.1
		60,000	Figure B 10.2
		100,000	Figure B 10.3
		200,000	Figure B 10.4
	Regional distributor	20,000	Figure B 11.1
		60,000	Figure B 11.2
		100,000	Figure B 11.3
		200,000	Figure B 11.4
	District distributor	20,000	Figure B 12.1
		60,000	Figure B 12.2
		100,000	Figure B 12.3
		200,000	Figure B 12.4
4	Access road	20,000	Figure B 13.1
		60,000	Figure B 13.2
		100,000	Figure B 13.3
		200,000	Figure B 13.4
	Local distributor	20,000	Figure B 14.1
		60,000	Figure B 14.2
		100,000	Figure B 14.3
		200,000	Figure B 14.4
	Regional distributor	20,000	Figure B 15.1
		60,000	Figure B 15.2
		100,000	Figure B 15.3
		200,000	Figure B 15.4
	District distributor	20,000	Figure B 16.1
		60,000	Figure B 16.2
		100,000	Figure B 16.3
		200,000	Figure B 16.4

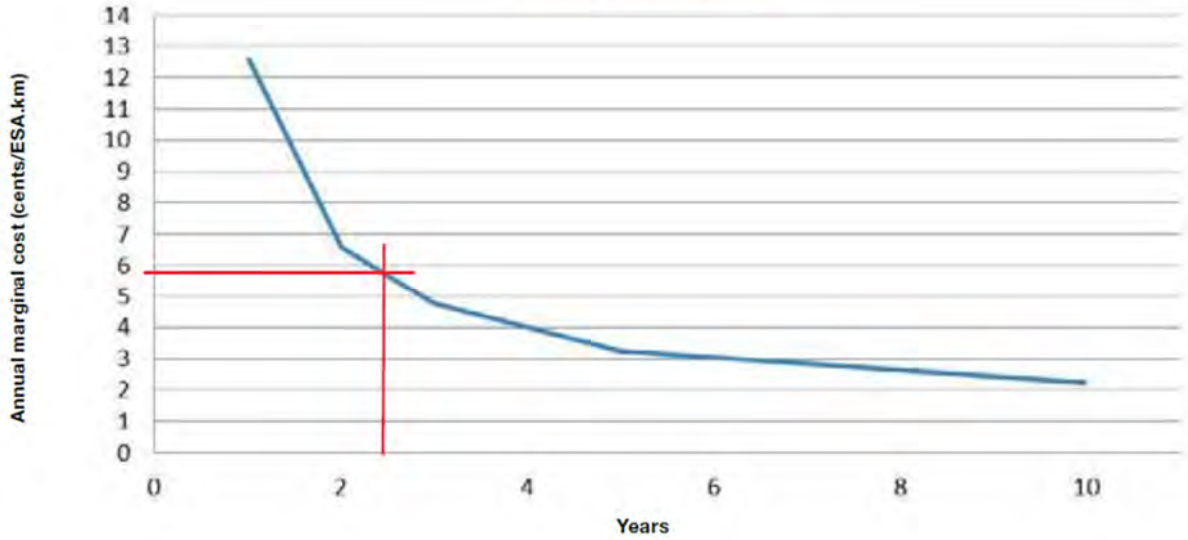
## APPENDIX 6

### WALGA User Guide Marginal Cost Graph Figure B7.1

### B.7 Cost zone 2 – Regional distributor

Figure B 7.1

Cost zone 2  
Regional distributor  
20,000 ESA/year





## APPENDIX 7

### Copy of Relevant Correspondence



Mon 17/02/2020 10:51 AM

Joe Douglas <joe@urp.com.au>

FW: Request for Information - Gravel Extraction Operations in Mogumber

To: Tony Sarullo; David McKenna

Cc: 'Glenda Teede'; Robert Edwards

Dear Tony & David,

Please see the email below from Dylan Menzies confirming the total quantities of gravel extracted from the pit in Mogumber.

Please note the Shire agreed not to require payment of any monetary contribution for the initial 46,000 tonnes of gravel extracted from the land.

So based on Dylan's figures below the total amount of gravel extracted from the land during the period **14th June 2017 to 31st December 2019 is 144,319 tonnes.**

I hope this information proves helpful and now allows you to finalise the relevant report.

If you have any queries please don't hesitate to contact me.

Kind regards,

Joe

**Joe Douglas**  
Director / Principal Town Planner



**EXURBAN**

RURAL & REGIONAL PLANNING

Unit 6 / 50 Conquest Way WANGARA

Tel: (08) 9303 2532

Mob: 0429 303 100

Email: [joe@urp.com.au](mailto:joe@urp.com.au)

PO Box 1695 WANGARA DC WA 6947

[www.exurban.com.au](http://www.exurban.com.au)

----- Forwarded message -----

From: Joe Douglas <joe@urp.com.au>  
Date: Fri, Feb 14, 2020 at 5:35 PM  
Subject: Request for Information - Gravel Extraction Operations in Mogumber  
To: admin@menziesquarries.com <admin@menziesquarries.com>

**ATTENTION: Mr Dylan Menzies**

Dear Dylan,

I hope you've been well.

The Shire of Victoria Plains recently engaged Roadswest Engineering Group to undertake some investigation, assessment and reporting in respect of your existing extractive industry operations in Mogumber to assist the Shire work out how to deal with the conditions of the original planning approval issued back in 2017 which are currently in dispute.

I understand Roadswest Engineering Group have already done a lot of work in this regard and aren't too far away from issuing their final report and recommendations which will be used as a basis for further discussions and negotiations between yourself and the Shire including the respective lawyers.

In order to ensure the assessments and reports by Roadswest Engineering Group are accurate they've requested confirmation of the total amount of gravel extracted from the property during the period 14 June 2017 to now (i.e. say 1 February 2020).

I understand you've already made a payment to the Shire for gravel extracted from the land at the rate of \$0.25 per tonne. Could you please also confirm for my own benefit the total amount paid to-date for the gravel extracted thus far including what quantity of gravel that related to so we can make sure Roadswest Engineering Group factor all of that into their assessment.

I look forward to your prompt reply as I'm really keen to resolve this matter ASAP for the benefit of both parties.

If you have any queries please don't hesitate to get back to me.

Kind regards,

Joe

**Joe Douglas**

Director / Principal Town Planner

**From:** Dylan Menzies <dylan@menziesquarries.com>

**Sent:** Saturday, 15 February 2020 10:25 AM

**To:** Joe Douglas <joe@urp.com.au>

**Cc:** Anna Nguyen <admin@menziesquarries.com>; Dan Bulley <dan@menziesquarries.com>; Varnan Selvanayaham <varnan@menziesquarries.com>

**Subject:** Re: Request for Information - Gravel Extraction Operations in Mogumber

Hi Joe,

Nice to hear from you.

Please see confirmation of tonnes and shire royalties as follows;

Total Gravel Extracted from 14th June 2017 to 31st December 2019

2017: 48,673 (note that 46,000 tonnes was included in initial agreement that did not have a royalty payment associated with it)

2018: 76,684

2019: 64,962

**Total: 190,000 tonnes**

Give me a bell if you need anything else.

Thanks mate,

On Fri, Feb 14, 2020 at 1:23 PM Anna Nguyen <admin@menziesquarries.com> wrote:

**Anna Nguyen**

Accounts Manager

**Menzies Quarries Pty Ltd**

0432 329 695 | [admin@menziesquarries.com](mailto:admin@menziesquarries.com)

[www.menziesquarries.com](http://www.menziesquarries.com)



----- Forwarded message -----

From: **Joe Douglas** <joe@rup.com.au>  
Date: Fri, Feb 14, 2020 at 5:35 PM  
Subject: Request for Information - Gravel Extraction Operations in Mogumber  
To: [admin@menziesquarries.com](mailto:admin@menziesquarries.com) <[admin@menziesquarries.com](mailto:admin@menziesquarries.com)>

**ATTENTION: Mr Dylan Menzies**

Dear Dylan,

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If you have any queries please don't hesitate to get back to me.

Kind regards,

Joe

**Joe Douglas**

Director / Principal Town Planner

Road Classification									
Road	Road Name	Start SLK	End SLK	CMV	Start True Dist	End True Dist	LG Name	Road Hierarchy	Special Use
5170006	MOGUMBER - YARAWINDAH RD	0.00	18.04	S	0.00	18.04	Victoria Plains	Regional Distributor	



END OF REPORT



**ROAD INTERSECTION ASSESSMENT  
AND DEFICIENCY REPORT**

**MENZIES GRAVEL PIT DRIVEWAY  
ACCESS AND**

**MOGUMBER – YARAWINDAH ROAD**

**SHIRE OF VICTORIA PLAINS**

PREPARED FOR:	Shire of Victoria Plains
PREPARED BY:	David McKenna
DATE:	14 February 2020
Roadswest Reference No:	R2051-01
Roadswest Doc. No	R2051-01 Rev 1 FINAL REPORT

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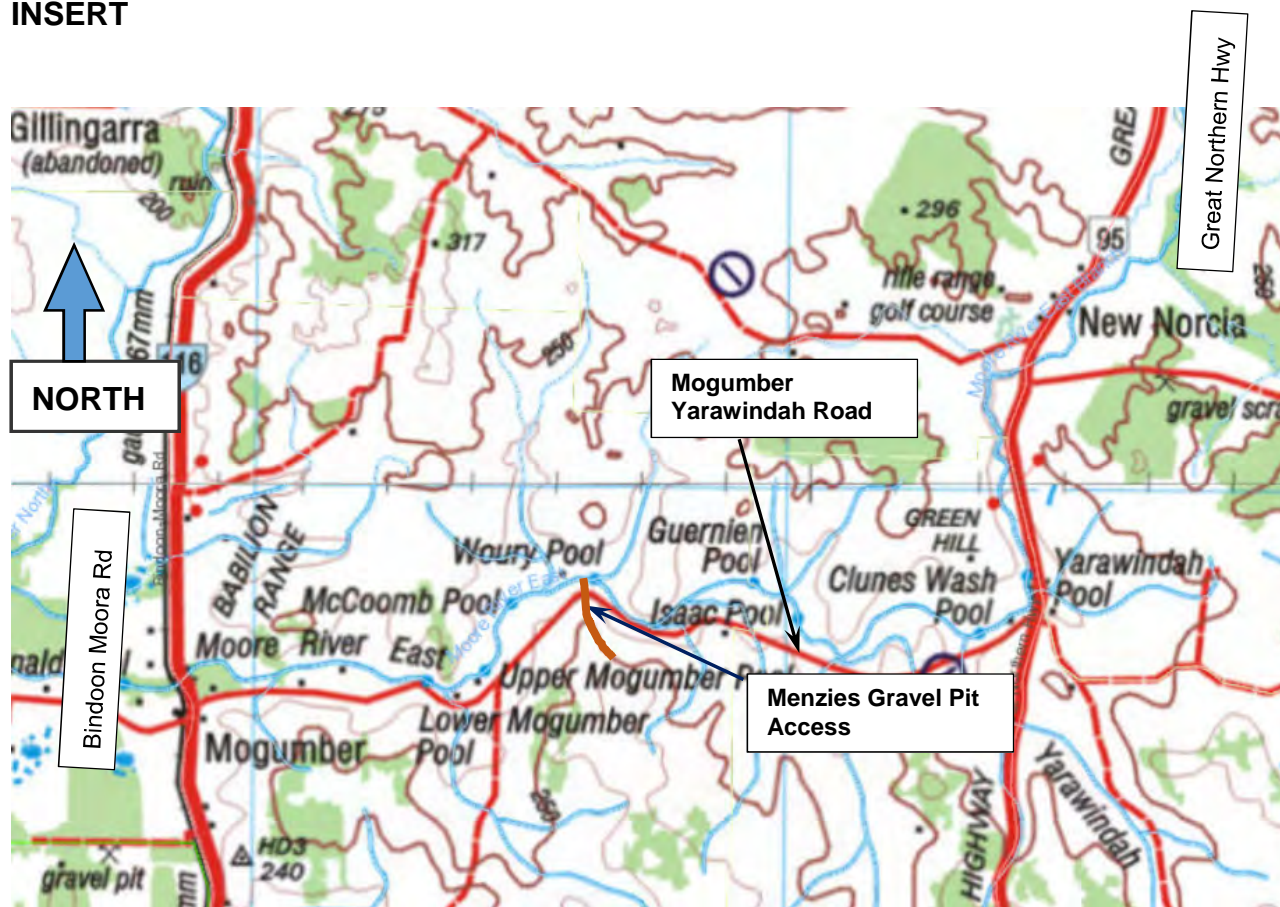
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# 1 Locality Plan





**INSERT**



**NOT TO SCALE**

## **2 Background**

### **2.1 General**

Menzies Quarries operates a commercial gravel pit and landfill site on a property on the southern side of the Mogumber Yarawindah Road in the Shire of Victoria Plains. The site generates a significant amount of heavy truck traffic that enter and exit the site via the Mogumber Yarawindah Road.

This report outlines the methodology adopted and criteria used to undertake an assessment and identify deficiencies of the existing access into the Menzies gravel pit.

The location of the Menzies gravel pit in relation to the adjacent roads within the Shire of Victoria Plains, is shown in Section 1 Locality Plan.

This intersection assessment report is required to provide the Shire of Victoria Plains, with sufficient information to make relevant planning decisions in regards to the future operation of the property.

Figure 1 shows the location of the Menzies gravel pit and access to the adjacent road network.

### **2.2 Site Inspection**

A site inspection of the access to the gravel pit and adjacent section of the Mogumber Yarawindah Roads was undertaken by Mr David McKenna Senior Project Manager for Roadswest Engineering Group Pty Ltd, on 10<sup>th</sup> December 2019.



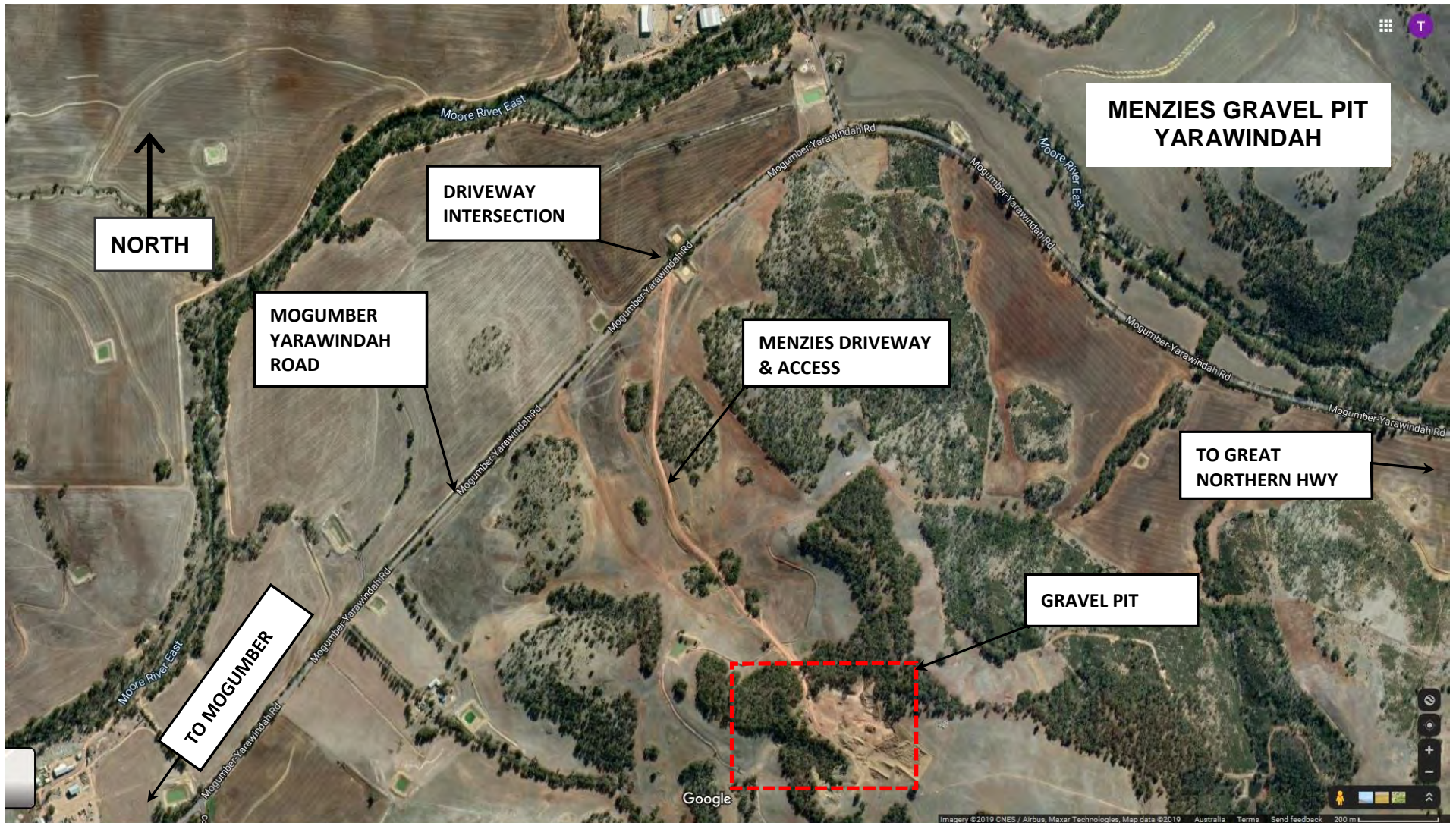


Figure 1. Aerial photograph of existing Menzies gravel pit and access

### 3 Description of the Development

The following is a summary of the operations that take place at the Menzies Quarries gravel pit.

- Gravel material is quarried from a deposit on the property.
- The material is crushed, screened and blended to manufacture materials for road building – mainly granular pavement materials.
- The finished product is loaded onto trucks –using truck trailer combinations and road trains and delivered to clients.
- The site also accepts landfill in the form of earth spoil from various agencies

### 4 Existing Operational Conditions

#### 4.1 Affected roads

The Mogumber – Yarawindah Road (5170006) is a Regional Distributor and is owned and controlled by the Shire of Victoria Plains and as such any proposed development impacting on this road and within their road reserve will require planning, designing and constructing in accordance with their standards and guidelines.

The road is a major east west distributor and is part of Agricultural Lime Route No.2. It provides a link to the coast for agricultural lime sands which is delivered throughout the Shire and wheatbelt in general. It forms a link between the Bindoon Moora Road and Great Northern Highway.

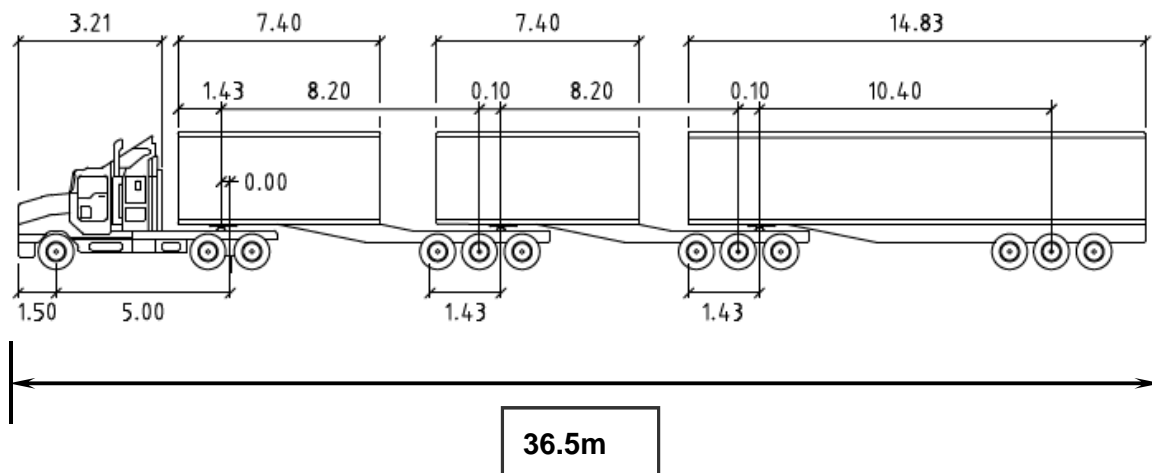
The road is also used to provide access to local agricultural properties for the transport of grains, livestock, agricultural products and other general freight.

#### 4.2 Restricted Access Vehicles (RAV) Network

The Mogumber – Yarawindah Road is designated by Main Roads of Western Australia (MRWA) as RAV 5 road network. RAV 5 can accommodate prime mover and trailer combinations up to a maximum length of 36.5m and up to a maximum gross mass of 84 tonnes. Refer to Figure 3.

Cartage contractors and hauliers that access the Menzies Quarries property use a variety of combinations of truck- trailer/s configurations and a number operate under mass permit conditions.



**RAV CATEGORY 5**

**Figure 3** – Demonstrates a typical vehicle combination that is used on the MRWA RAV 5 road network.

### 4.3 Existing Access

The existing access to the Menzies Gravel pit is via an unsealed gravel road located at SLK 7.94 on the Mogumber Yarawindah Road. The Mogumber – Yarawindah Road has a 7m wide bituminous seal with 1m wide unsealed gravel shoulders each side.

The gravel pit access is in excess of 40m wide at the intersection with the Mogumber – Yarawindah Road. As such the angle of approach of vehicles to the intersection is uncontrolled and may cause sight distance issues if drivers approach the intersection at an angle less than seventy degrees.

Please refer photographs below. Figure 4 shows the location of the photographs on an aerial:-



PHOTOGRAPH 1 Cocking and Co. "Wourie Pool" entrance 8.52 SLK



PHOTOGRAPH 2 Road Trains Entering Sign 8.23 SLK Looking West



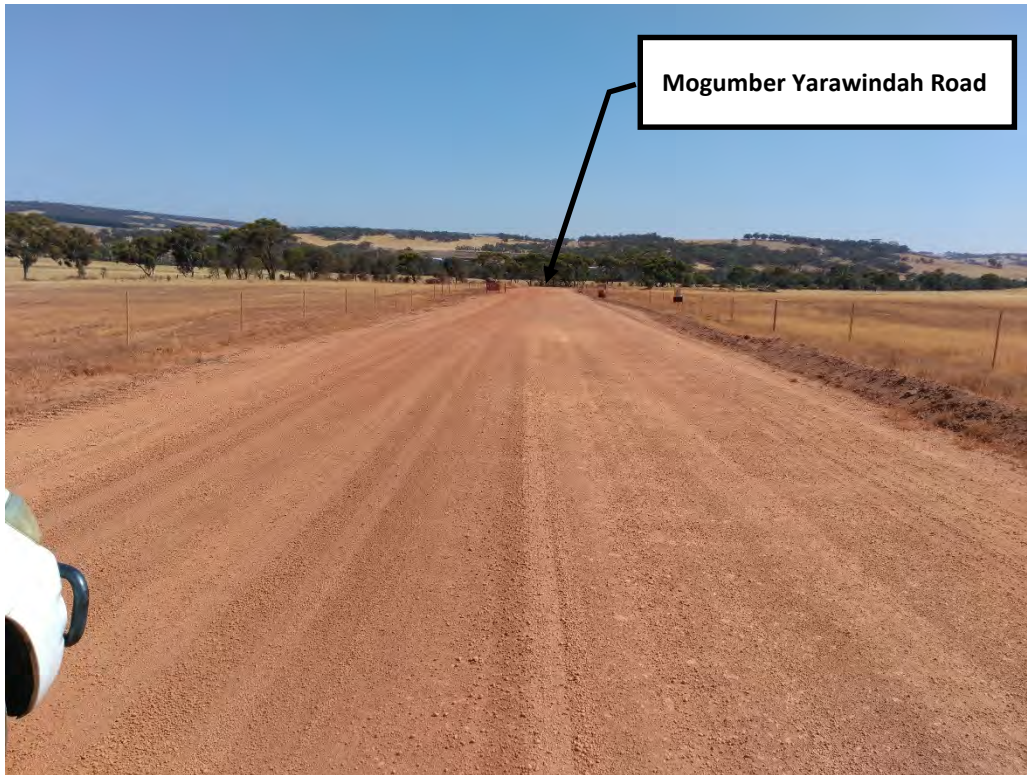


PHOTOGRAPH 3 8.25 SLK Looking West Can see driveway over top of vegetation



PHOTOGRAPH 4 8.19 SLK Looking West Can see driveway without looking over top of vegetation





PHOTOGRAPH 5 7.95 SLK Looking North along Menzies Pit Driveway towards Mogumber Yarawindah Road



PHOTOGRAPH 6 7.95 SLK Seal damage at Menzies Pit Driveway on Mogumber Yarawindah Road





PHOTOGRAPH 7 7.95 SLK Looking East along Mogumber Yarawindah Road from Menzies Pit Driveway



PHOTOGRAPH 8 7.95 SLK Looking West along Mogumber Yarawindah Road from Menzies Pit Driveway





PHOTOGRAPH 9 7.95 SLK Looking South along Menzies Pit driveway from Mogumber Yarawindah Road



PHOTOGRAPH 10 "ROAD TRAINS ENTERING" sign on western approach along Mogumber Yarawindah Road obscured by trees





PHOTOGRAPH 11 Road Trains Entering Sign 7.56 SLK obscured by vegetation



PHOTOGRAPH 12 7.51 SLK Looking East - Can see driveway at this point





PHOTOGRAPH 13 7.51 SLK Looking West



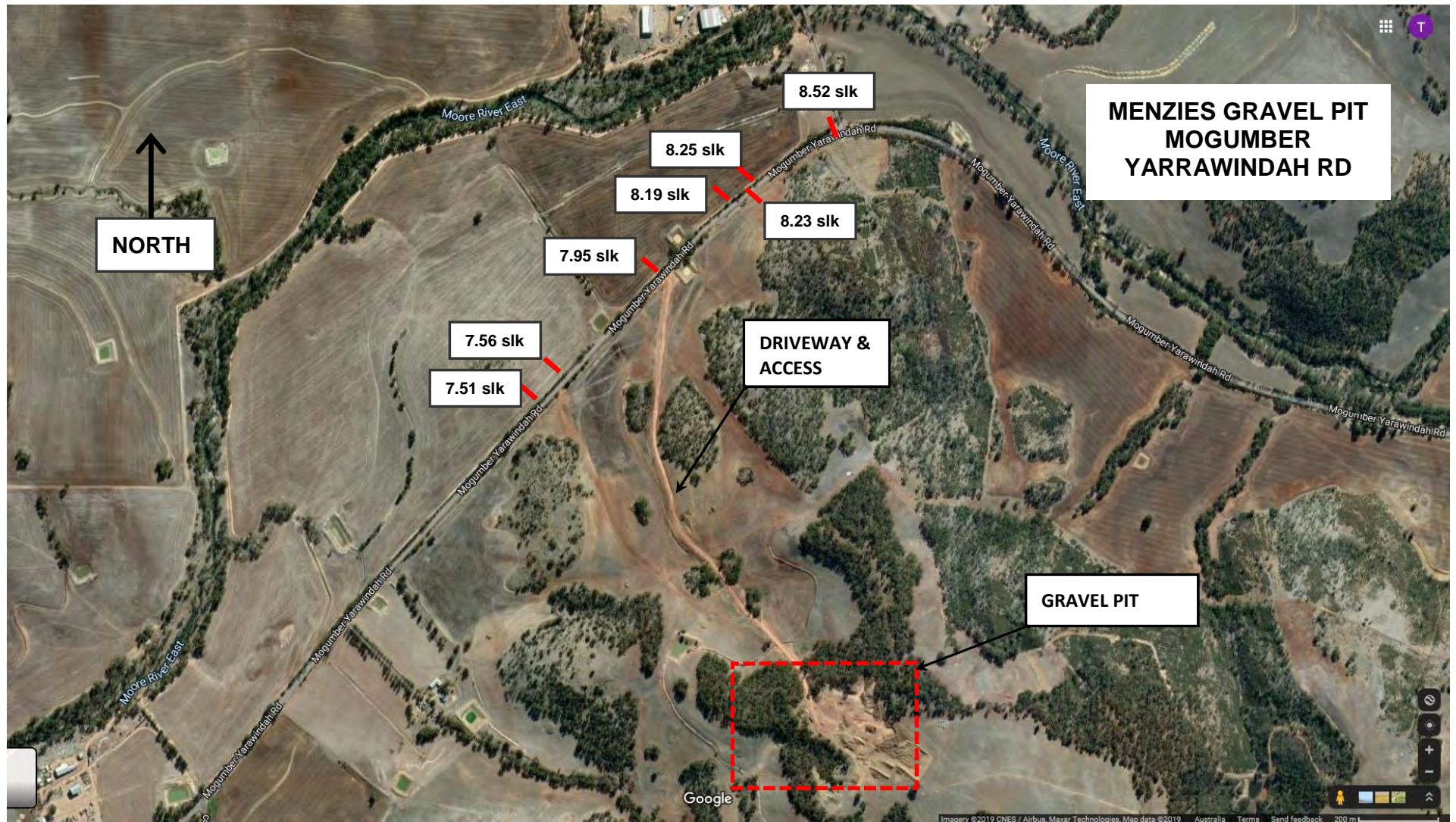


Figure 4: Photograph Locations

#### 4.4 Traffic Data –Affected Roads

Refer to Table 1 for detailed information on existing roads that will be affected by the proposal.

<b>Item</b>	<b>Description</b>	<b>Mogumber Yarrawindah Rd</b>
1	Hierarchy of Road and Road No	Regional Distributor  Road No 5170006 Local Government Road
2	Function and purpose	Mogumber Yarrawindah Rd forms part of the Agricultural Lime Route 2 between Lancelin to Goomalling  The route provides easier access easier access to lime sands being mined at the coast and improve access to the grain receival facilities at Calingiri and Mogumber. Access to important tourist destinations like New Norcia and Lancelin will be improved with greater access to Indian Ocean Drive, Brand Hwy, Bindoon Moora Rd and the Great Northern Highway
3	Width of Existing Seal	Nominally 7.0m seal over 9.0m formation
4	MRWA Restricted Access Vehicle route (RAV)	RAV 5 36.5m long
5	Speed Zones within the study area	The road for its full length has no posted speed signs  However MRWA Road Information Branch identifies this road has a 50 Km/hr or State Limit which is currently 110Km/Hr
6	Average Daily Traffic (ADT)  Refer to APPENDIX 3 for detailed traffic count data obtained from Shire of Victoria Plains and Main Roads WA Road Information Branch	Count Site located at SLK 2.50 (2.5Km east of the Bindoon –Moora Rd) was 181 VPD (both directions) taken from 2nd January 2019 to 2 <sup>nd</sup> March 2019  MRWA Count Site 17800 located at SLK 0.01 (0.10Km east from Bindoon Moora Rd) count taken in 2005/2006 was 66 VPD (both directions)
7	Composition of Traffic	47.6% Heavy Vehicles Classes 3 to 12 March 2019 count 18.6% Heavy Vehicles Classes 3 to 12 2005/2006 count

<b>Item</b>	<b>Description</b>	<b>Mogumber Yarrowindah Rd</b>
8	Estimate for Traffic Growth	63.5% increase in total traffic growth between 2005/2006 to March 2019 29% increase in heavy vehicle traffic

**Table 1** – Affected Roads -Traffic data and other features



#### 4.5 Forecast Traffic Analysis

Vehicle Description	EXISTING Traffic Mogumber- Yarawindah Road ADT(1)	FORECAST TRAFFIC Mogumber- Yarawindah Road ADT(2)
Heavy Vehicles Classes 3 to 12	86	106
Light Vehicles Classes 1 to 2	95	117
TOTAL	181	223

**TABLE 2:** Existing traffic data and forecast growth

#### Legend

ADT = Average Daily Traffic

(1) Traffic count data provided by Shire of Victoria Plains and MRWA (Refer APPENDIX 2 for detailed traffic count reports)

(2) Based on an average growth rate of 4.23% over 15 years

#### **4.6 Accident Data**

Investigations into MRWA's crash information database reveal that from the 1<sup>st</sup> January 2014 to 31<sup>st</sup> December 2018 there was no recorded crash incidents on the Mogumber Yarawindah Rd, in the vicinity of the Menzies Pit Access Rd

Refer to Appendix 3 for detailed crash data report extracted from MRWA

#### **4.7 Existing Speed Zones**

The Mogumber Yarawindah Rd is not speed zoned.  
The road for its full length has no posted speed signs

However MRWA Road Information Branch identifies this road has a 50 Km/hr or State Limit which is currently 110Km/Hr

#### **4.8 Existing Pedestrian Movements**

There are no pedestrian facilities footpaths or tracks along both the Mogumber Yarawindah Rd and Menzies Access

#### **4.9 Existing Road Deficiencies**

##### *4.9.1 Bituminous seal surfaces*

Observations made during the site inspection, show that the existing sealed pavement surfaces at the intersection is in satisfactory condition, however there is a patch repair required at the entry caused by heavy equipment scapping the road surface – Refer Photograph 6 and 7

##### *4.9.2 Loose gravel safety risk*

There is a significant amount of loose gravel built up on the edges of the traffic lane on the Mogumber Yarawindah Rd for the full length of the width of the Menzies Access Rd.

This presents a safety risk for all vehicles which may hit this material at speed and potentially lose control. Refer to Photographs 6, 7 and 8

The Menzies Access Rd is on downgrade towards the intersection, and surface water runoff sheets across the road adding to the build-up of material.

To prevent this from occurring, it is recommended to undertake the following:

Improve the road side drainage along the Menzies road so that surface runoff is allowed to be diverted into Mogumber Yarawindah Rd table drains

Construct a 2 coat bitumen seal on the Menzies Pit access road for the full width and for a minimum distance of 100m, from the traffic lane at Mogumber Yarawindah Rd

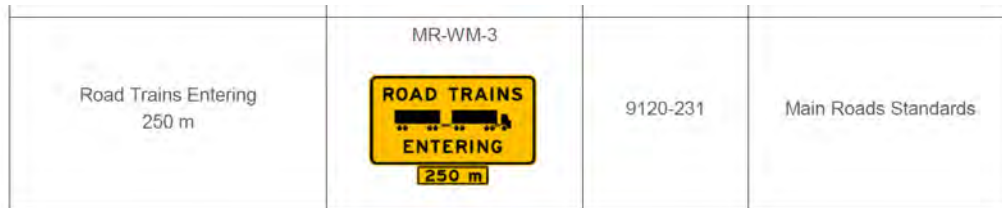
##### *4.9.3 Sight Distance*

The safe intersection sight distance on the eastern approach does not comply with Austroads Guide to Road Design Part 4A Un signalised and Signalised Intersections 2017 and MRWA Guidelines for Approving RAV Access September 2018.

The access entry and any vehicles at the entry are obscured by tree and undergrowth on the southern verge. Refer Photograph No 12.

#### 4.9.4 Road Signage

- 1) The existing advance warning heavy vehicle (Road Train) road signs on Mogumber Yarawindah Rd on the western approach, is obscured by road side vegetation. Refer to Photographs 10 and 11
- 2) The existing advance warning heavy vehicle (Road Train) road signs on Mogumber Yarrawindah Rd for both the eastern and western approaches, requires distance drop tags placed on the bottom of the sign panel to conform with the Australian Standards



- 3) There is a downgrade on Menzies Pit Access on approach to the Mogumber Yarrawindah Rd , and it is difficult to see the approaching intersection . Refer Photograph 5  
To mitigate the safety risk of vehicles not slowing down to allow safe stopping at the junction, it is recommended to install an advance warning intersection warning sign on the Menzies Access, and a Hazard Marker sign No MR-HM-2 on the northern verge opposite the entry point
- 4) There is no guide sign ( finger board) on the northern road verge to identify the Menzies Pit entry

#### 4.9.5 Heavy Vehicle turning movements

A Heavy Vehicle Swept path analysis and drawing has being prepared for the Menzies Pit Access onto the Mogumber Yarawindah Rd, using a 36.5m road train (RAV 5) vehicle. Refer to APPENDIX 1.

The swept path diagram for a RAV 5 vehicle is shown in Drawing No. R2051-SK01-A in Appendix 1. Widening on Mogumber Yarawindah Rd and Menzies Pit Access is required to accommodate vehicles turning left out from Menzies Pit going west.



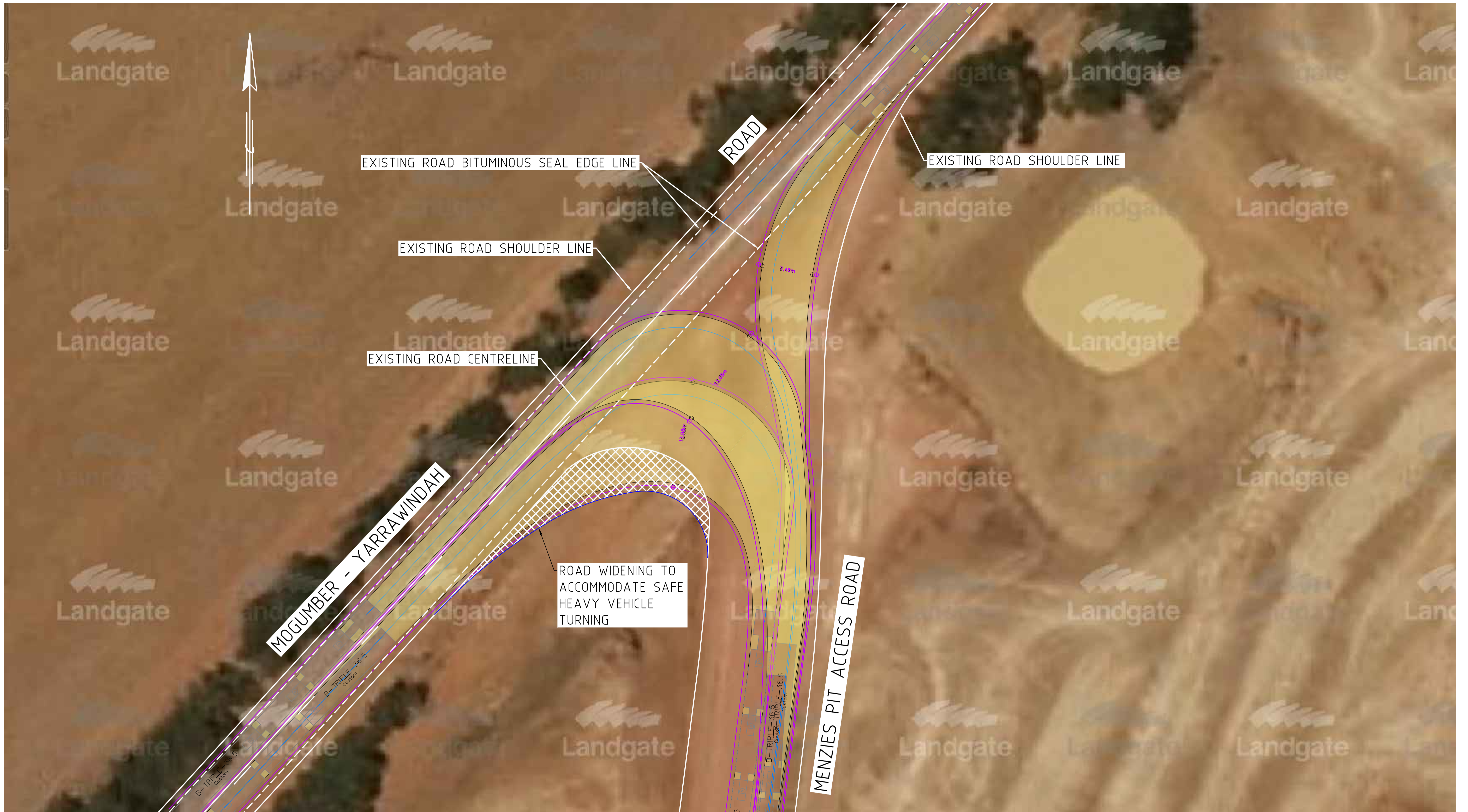
## 5 Recommendations and Conclusions

After consideration of all of the information provided, the traffic data and observations from the site inspection, the author recommends the following:

- Widen the pavement on the southern verge at the Mogumber Yarawindah Rd and Menzies Access intersection, to accommodate the full extent of turning vehicles correctly, particularly the left out from the Access
- Remove undergrowth and lop trees as required on both north and southern road verges for a Minimum of 300m each way along Mogumber Yarawindah Rd to ensure road signs are not obscured and trucks leaving the Menzies Access can be seen.
- Improve the road side drainage along the Menzies access road so that surface runoff is allowed to be diverted into Mogumber Yarawindah Rd table drains
- Construct a 2 coat bitumen chip seal on the Menzies Pit access road for the full width and for a minimum distance of 100m from the traffic lane edge at Mogumber Yarawindah Rd
- The existing advance warning heavy vehicle (Road Train) road signs on Mogumber Yarrawindah Rd for both the eastern and western approaches, requires distance drop tags placed on the bottom of the sign panel to conform with the Australian Standards
- Install an advance warning sign on Menzies access, on approach to the Mogumber Yarawindah Rd,
- Install a guide sign (finger board) and a Hazard Marker sign No MR-HM-2 on the northern verge of the Mogumber Yarawindah Road opposite the Menzies access entry point.

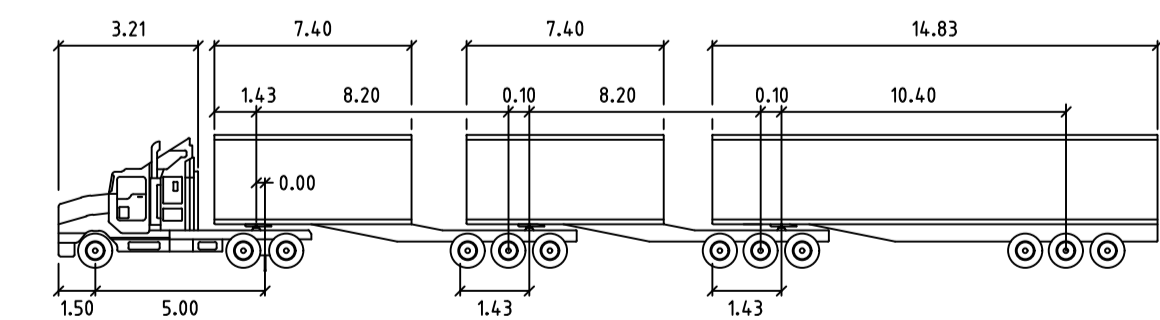
## **APPENDIX 1**

### **Menzies Pit Access Turn Paths**



**PROPOSED TURN MOVEMENTS**

PLAN  
1:250



RAV 5 36.5m B-TRIPLE ROAD TRAIN

MINIMUM TURN RADIUS TO  
OUTER FRONT WHEEL = 15m

SCALE 1:250  
0 2.5m 5 7.5 10 12.5 15 17.5 20 22.5 25 27.5 30 32.5 35 37.5

A  
1

A	ISSUED FOR REVIEW	04-02-2020
No.	DESCRIPTION	APPROVED & DATE
AMENDMENTS		

BASE DATA INFORMATION			
SURVEY GRID:		-	
HEIGHT DATUM:		AHD	
DWG PATH			
DESIGNED TM	10-07-19	DRAWN DM	10-07-19
VERIFIED		APPROVED	

SUITE 13, 6 LEIGH ST  
BURSWOOD WA 6100  
TELEPHONE: (08) 9472 4122

**ROADSWEST**  
ENGINEERING GROUP PTY LTD  
CIVIL ENGINEERING CONSULTANCY & PROJECT MANAGEMENT

MENZIES PIT ACCESS RD  
MOGUMBER - YARROWINDAH RD INTERSECTION  
PROPOSED HEAVY VEHICLE TURN MOVEMENTS  
SITE ACCESS

LOCAL AUTHORITY SHIRE OF VICTORIA PLAINS

**ROADSWEST ENGINEERING GROUP**

JOB NUMBER  
R2051

DRAWING NUMBER  
R2051-SK01 - A

AMEND.

## **APPENDIX 2**

### **Existing Traffic Count Data**



Traffic Count data supplied by Shire of Victoria Plains January 2020

**Class Speed Matrix**

**ClassMatrix-28**

Site: Mog - Yarawindah Rd.0.1WE  
 Description: SLK 2.5 (2.5km east of Moora / Bindoon Rd)  
 Filter time: 0:00 Wednesday, 2 January 2019 => 0:00 Saturday, 2 March 2019  
 Scheme: Vehicle classification (AustRoads94)  
 Filter: Cis(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

km/h	Class												Total	
	SV	SVF	TB2	TB3	T4	ART3	ART4	ART5	ART6	SD	DRT	TRT		
10-20	3	*	*	*	*	*	*	*	*	*	*	*	3	0.0%
20-30	1	*	1	1	6	1	1	*	1	*	*	*	1	0.0%
30-40	2	2	2	1	6	1	1	*	1	*	1	*	15	0.1%
40-50	23	8	9	8	5	2	2	*	2	*	1	*	50	0.5%
50-60	69	11	8	2	5	2	4	*	2	*	9	*	108	1.0%
60-70	282	29	74	1	2	5	4	*	8	17	243	*	615	5.9%
70-80	1318	61	31	16	3	1	6	*	52	96	1733	4	3527	33.6%
80-90	1139	82	27	36	7	3	6	*	110	72	903	*	2416	23.0%
90-100	1516	73	22	16	3	2	5	*	39	28	1335	*	3056	29.1%
100-110	516	16	5	1	*	*	1	*	*	*	20	*	559	5.3%
110-120	121	3	2	*	*	*	*	*	*	*	*	*	126	1.2%
120-130	30	*	*	1	*	*	*	*	*	*	*	*	11	0.1%
130-140	6	*	*	*	*	*	*	*	*	*	*	*	6	0.1%
140-150	1	*	*	*	*	*	*	*	*	*	*	*	1	0.0%
150-160	0	*	*	*	*	*	*	*	*	*	*	*	3	0.0%
<b>Total</b>	<b>5218</b>	<b>285</b>	<b>131</b>	<b>82</b>	<b>26</b>	<b>13</b>	<b>18</b>	<b>48</b>	<b>214</b>	<b>213</b>	<b>4245</b>	<b>4</b>	<b>10497</b>	
	<b>49.7%</b>	<b>2.7%</b>	<b>1.2%</b>	<b>0.8%</b>	<b>0.2%</b>	<b>0.1%</b>	<b>0.2%</b>	<b>0.5%</b>	<b>2.0%</b>	<b>2.0%</b>	<b>40.4%</b>	<b>0.0%</b>		

Traffic in Both Directions - Aglime Season Count (Part of Aglime Route #2)

VPD = 181.0  
 ESA = 505.0

Traffic Count Data Supplied by Shire of Victoria Plains January 2020

**Class Speed Matrix**

**ClassMatrix-27**

Site: Mog - Yarawindah Rd.0.1WE  
 Description: SLK 2.5 (2.5km east of Moora / Blindoon Rd)  
 Filter time: 0:00 Wednesday, 17 October 2018 => 0:00 Saturday, 22 December 2018  
 Scheme: Vehicle classification (AustRoads94)  
 Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

km/h	Class												Total	
	SV	SVT	TB2	TB3	T4	ART3	ART4	ART5	ART6	BD	DRT	TRT		
10-20	2	2	3	1	1	1	1	1	1	1	1	1	2	0.0%
20-30	9	2	3	1	1	1	1	1	1	1	1	1	15	0.3%
30-40	19	14	3	1	1	1	1	1	1	1	1	1	58	1.1%
40-50	25	11	3	3	3	3	3	3	3	3	3	3	50	0.9%
50-60	83	18	6	1	4	3	1	1	3	2	12	1	133	2.5%
60-70	172	42	19	1	1	2	2	1	7	4	40	1	291	5.5%
70-80	398	67	26	13	10	9	3	26	47	44	199	2	844	16.0%
80-90	889	104	37	26	12	9	8	85	133	103	351	1	1757	33.3%
90-100	1118	49	26	10	2	1	10	47	38	10	101	1	1412	26.8%
100-110	497	18	5	1	1	1	1	2	1	1	1	1	522	9.9%
110-120	139	1	1	1	1	1	1	1	1	1	1	1	141	2.7%
120-130	29	1	1	1	1	1	1	1	1	1	1	1	29	0.5%
130-140	8	1	1	1	1	1	1	1	1	1	1	1	8	0.2%
140-150	8	1	1	1	1	1	1	1	1	1	1	1	8	0.2%
150-160	6	1	1	1	1	1	1	1	1	1	1	1	6	0.1%
<b>Total</b>	<b>3402</b>	<b>326</b>	<b>129</b>	<b>50</b>	<b>33</b>	<b>26</b>	<b>24</b>	<b>164</b>	<b>228</b>	<b>163</b>	<b>729</b>	<b>2</b>	<b>5276</b>	
	<b>64.5%</b>	<b>6.2%</b>	<b>2.4%</b>	<b>0.9%</b>	<b>0.6%</b>	<b>0.5%</b>	<b>0.5%</b>	<b>3.1%</b>	<b>4.3%</b>	<b>3.1%</b>	<b>13.8%</b>	<b>0.0%</b>		

Traffic in Both Directions - Grain Harvest Season Count  
 VPD = 79.9  
 ESA = 102.7



SITE 17800

# Hourly Volume

Mogumber Yarawinda Rd (5170006)

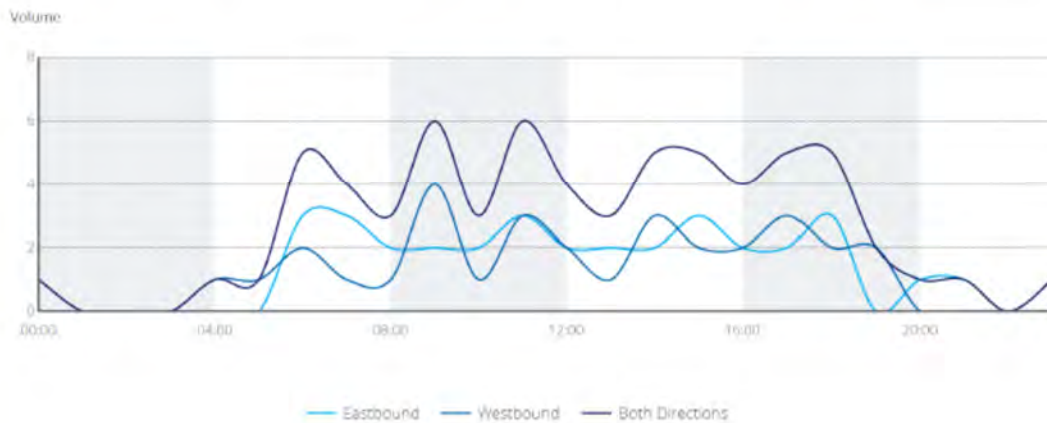
2005/06  
Monday to Friday

East of Bindoon Moora Rd (SLK 0.01)

	All Vehicles			Heavy Vehicles			
	EB	WB	Both	EB	WB	Both	%
00:00	1	0	1	1	0	1	100.0
01:00	0	0	0	0	0	0	0.0
02:00	0	0	0	0	0	0	0.0
03:00	0	0	0	0	0	0	0.0
04:00	0	1	1	0	1	1	100.0
05:00	0	1	1	0	1	1	100.0
06:00	3	2	5	1	0	1	20.0
07:00	3	1	4	0	1	1	25.0
08:00	2	1	3	0	0	0	0.0
09:00	2	4	6	0	1	1	16.7
10:00	2	1	3	0	0	0	0.0
11:00	3	3	6	1	0	1	16.7
12:00	2	2	4	0	0	0	0.0
13:00	2	1	3	0	0	0	0.0
14:00	2	3	5	0	0	0	0.0
15:00	3	2	5	0	1	1	20.0
16:00	2	2	4	0	1	1	25.0
17:00	2	3	5	1	0	1	20.0
18:00	3	2	5	2	0	2	40.0
19:00	0	2	2	0	0	0	0.0
20:00	1	0	1	0	0	0	0.0
21:00	1	0	1	0	0	0	0.0
22:00	0	0	0	0	0	0	0.0
23:00	1	0	1	0	0	0	0.0
TOTAL	35	31	66	6	6	12	18.2

**Peak Statistics**

AM	TIME	06:45	09:00	06:45	00:00	03:30	06:45
	VOL	5	4	7	1	1	2
PM	TIME	18:00	17:15	14:15	17:30	15:45	17:30
	VOL	3	3	6	3	2	3





SITE 17800

# Hourly Volume

Mogumber Yarawinda Rd (5170006)

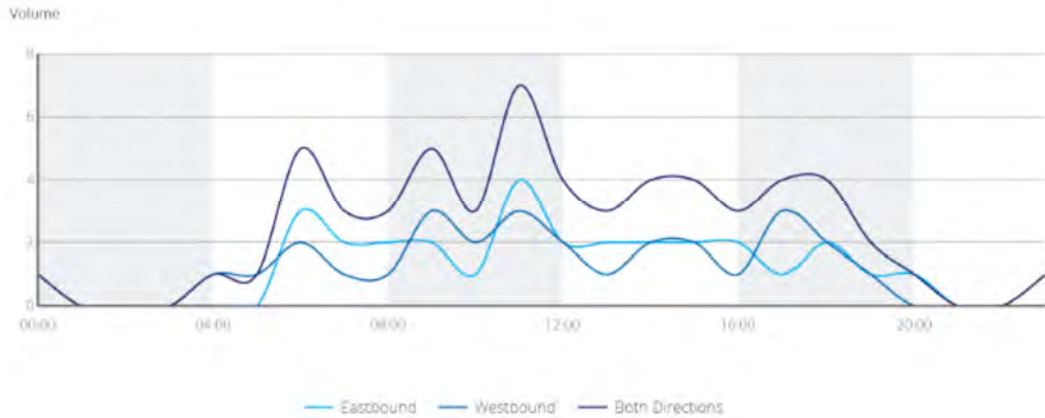
2005/06  
Monday to Sunday

East of Bindoon Moora Rd (SLK 0.01)

	All Vehicles			Heavy Vehicles				%
	EB	WB	Both	EB	WB	Both		
00:00	1	0	1	1	0	1	100.0	
01:00	0	0	0	0	0	0	0.0	
02:00	0	0	0	0	0	0	0.0	
03:00	0	0	0	0	0	0	0.0	
04:00	0	1	1	0	1	1	100.0	
05:00	0	1	1	0	1	1	100.0	
06:00	3	2	5	1	0	1	20.0	
07:00	2	1	3	0	1	1	33.3	
08:00	2	1	3	0	0	0	0.0	
09:00	2	3	5	0	1	1	20.0	
10:00	1	2	3	0	0	0	0.0	
11:00	4	3	7	1	0	1	14.3	
12:00	2	2	4	0	0	0	0.0	
13:00	2	1	3	0	0	0	0.0	
14:00	2	2	4	0	0	0	0.0	
15:00	2	2	4	0	1	1	25.0	
16:00	2	1	3	0	0	0	0.0	
17:00	1	3	4	0	0	0	0.0	
18:00	2	2	4	1	0	1	25.0	
19:00	1	1	2	0	0	0	0.0	
20:00	1	0	1	0	0	0	0.0	
21:00	0	0	0	0	0	0	0.0	
22:00	0	0	0	0	0	0	0.0	
23:00	1	0	1	0	0	0	0.0	
TOTAL	31	28	59	4	5	9	15.3	

**Peak Statistics**

AM	TIME	06:45	10:30	06:45	00:00	03:30	06:45
	VOL	5	4	7	1	1	2
PM	TIME	18:15	17:15	14:15	18:15	15:45	18:15
	VOL	3	3	5	1	1	1







SITE 17800

# Hourly Volume

Mogumber Yarawinda Rd (5170006)

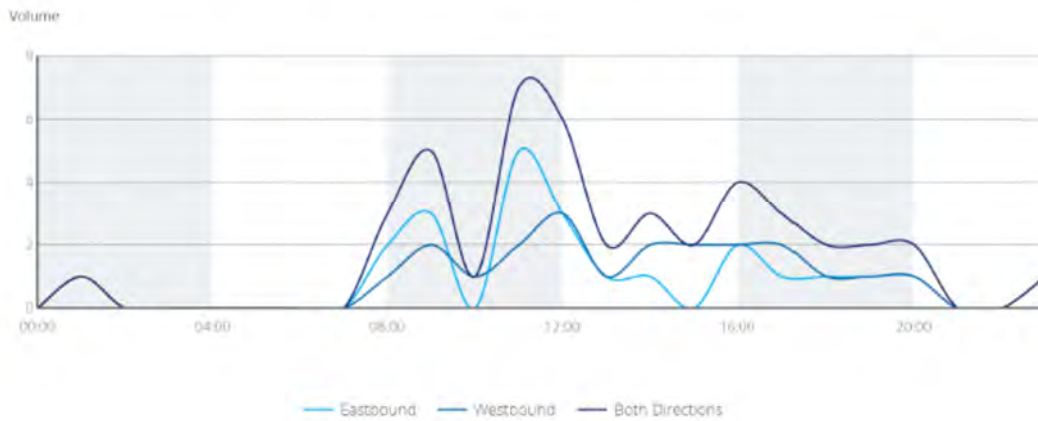
2005/06  
Weekend

East of Bindoon Moora Rd (SLK 0.01)

	All Vehicles			Heavy Vehicles			
	EB	WB	Both	EB	WB	Both	%
00:00	0	0	0	0	0	0	0.0
01:00	0	1	1	0	0	0	0.0
02:00	0	0	0	0	0	0	0.0
03:00	0	0	0	0	0	0	0.0
04:00	0	0	0	0	0	0	0.0
05:00	0	0	0	0	0	0	0.0
06:00	0	0	0	0	0	0	0.0
07:00	0	0	0	0	0	0	0.0
08:00	2	1	3	0	0	0	0.0
09:00	3	2	5	0	0	0	0.0
10:00	0	1	1	0	0	0	0.0
11:00	5	2	7	1	0	1	14.3
12:00	3	3	6	0	0	0	0.0
13:00	1	1	2	0	0	0	0.0
14:00	1	2	3	0	0	0	0.0
15:00	0	2	2	0	0	0	0.0
16:00	2	2	4	1	0	1	25.0
17:00	1	2	3	0	1	1	33.3
18:00	1	1	2	0	0	0	0.0
19:00	1	1	2	0	0	0	0.0
20:00	1	1	2	0	0	0	0.0
21:00	0	0	0	0	0	0	0.0
22:00	0	0	0	0	0	0	0.0
23:00	1	0	1	0	0	0	0.0
TOTAL	22	22	44	2	1	3	6.8

## Peak Statistics

AM	TIME	11:30	11:15	11:30	10:45	00:00	10:45
	VOL	7	4	11	1	0	1
PM	TIME	12:00	16:45	12:00	16:30	17:30	17:30
	VOL	3	3	6	1	1	1





SITE 17198

# Hourly Volume

Wagin Dumbleyung Rd (M037)

2013/14  
Weekend

West of Katanning Dumbleyung Rd (SLK 194.56)

	All Vehicles			Heavy Vehicles				%
	EB	WB	Both	EB	WB	Both		
00:00	2	1	3	1	1	2	66.7	
01:00	0	0	0	0	0	0	0.0	
02:00	1	0	1	0	0	0	0.0	
03:00	2	1	3	1	0	1	33.3	
04:00	0	0	0	0	0	0	0.0	
05:00	1	4	5	1	1	2	40.0	
06:00	1	3	4	0	2	2	50.0	
07:00	2	6	8	1	1	2	25.0	
08:00	7	7	14	3	3	6	42.9	
09:00	10	9	19	1	3	4	21.1	
10:00	12	11	23	3	2	5	21.7	
11:00	14	12	26	2	2	4	15.4	
12:00	16	14	30	2	2	4	13.3	
13:00	14	9	23	2	0	2	8.7	
14:00	14	14	28	2	1	3	10.7	
15:00	11	14	25	2	3	5	20.0	
16:00	12	13	25	3	2	5	20.0	
17:00	6	8	14	1	2	3	21.4	
18:00	5	4	9	1	1	2	22.2	
19:00	8	2	10	3	0	3	30.0	
20:00	4	4	8	2	2	4	50.0	
21:00	1	4	5	0	1	1	20.0	
22:00	2	1	3	1	0	1	33.3	
23:00	2	0	2	1	0	1	50.0	
<b>TOTAL</b>	<b>147</b>	<b>141</b>	<b>288</b>	<b>33</b>	<b>29</b>	<b>62</b>	<b>21.5</b>	



## Peak Statistics

AM	TIME	11:45	10:30	11:45	08:00	07:15	08:00
	VOL	21	15	32	3	3	6
PM	TIME	12:30	15:30	15:30	15:30	16:45	15:30
	VOL	17	15	30	5	3	7

Volume

## **APPENDIX 3**

### **Detailed Crash Report – MRWA Database**

### Detailed Crash History



Report Criteria

Road	SLK	CWY
5170006 - Mogumber - Yarawindah Rd	0.00 to 18.04	All

Parameter	Value	Description
From Date	01/01/2014	
To Date	31/12/2018	
Crash Type	All	
Severity	All	

Road	Road Name	SLK	AKO	True Dist	Intersection	Date	Day	Time	Severity	Crash No.	Type	Light Cond	Road Cond	Speed Limit	Traffic Control	Road Feature	Road Alignment	Speed Factor	MR Nature	Location	RUM	Unit	Unit Type	From Dir	To Dir	Veh/Ped Move	First Object Hit	Second Object Hit	Third Object Hit	Target Impact Point
5170006	Mogumber - Yarawindah Rd	5.00	S	5.00		05/01/2018	Friday	1615	PDO Major	2018000520	Midblock	Daylight		110	No Sign Or Control				Hit Object	On Left Verge After Leaving Cway	72:Off Path On Straight: Off Left Cway Obj	Colliding	Four Wheel Drive (Not Car Design)	W	E	Out Of Control: Gravel Shoulder	Guide Post	Embankment		
5170006	Mogumber - Yarawindah Rd	18.04	S	18.04	GREAT NORTHERN HWY (005008)	07/07/2018	Saturday	1200	PDO Minor	2018182315	Intersection	Daylight	Dry		Give Way Sign	3-way Inbx (T-junction)	Curve		Non Collision	On Cway	76:Less Of Control: Left Turn - Inbx	Colliding	Motor Cycle	W - MOGUMBER - YARAWINDAH NDA HRD	N - GREAT NORTHERN HWY	Out Of Control				

END OF REPORT