



**DEVELOPMENT APPLICATION  
&  
ENVIRONMENTAL MANAGEMENT PLAN (EMP)**

**LOTS 1910. 3943, 8749, 1967, 11583 AND 1370 SOUTH WESTERN HIGHWAY  
YORNUP, SHIRE OF BRIDGETOWN-GREENBUSHES**

April 2023

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# Development Application and Environmental Management Plan

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LOTS 1910, 3943, 8749, 1967, 11583 AND 1370  
SOUTH WESTERN HIGHWAY, YORNUP



REPORT PREPARED BY  
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Lot 8 on Plan 9755 Lot 623 on Deposited Plan 62546  
South Western Hwy, Yornup

Shire of Bridgetown-Greenbushes

## Development Application and Environmental Management Plan

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# 1 LOCALITY PLAN

The purpose of this report is to provide all the necessary information required in support of a Development Approval (DA) application (Appendix 1) for Lots 1910, 3943, 8749, 1967, 11583 and 1370 South Western Hwy, Yornup, Shire of Bridgetown-Greenbushes.

This report sets out the details of the proposed future lateritic gravel extraction on the properties together with maps. It also provides an environmental assessment of the proposal and environmental management plans.

The properties are situated within a farm approximately 10km by road south of Bridgetown. A locality plan is included as Figure 1. The property details are summarised in Table 1. All properties are owned by Peter Raymond Bloxsome.

Lot 1910 is the only lot where extraction is currently proposed to occur.

Table 1. Property description

Property Description	Volume	Folio	Area (ha)
Lot 1910 on Deposited Plan 122450	1097	9494	64.801
Lot 3943 on Deposited Plan 134218	1044	616	20.207
Lot 8749 on Deposited Plan 153461	1110	124	41.833
Lot 1967 on Deposited Plan 112279	1110	124	22.919
Lot 11583 on Deposited Plan 159703	1229	98	21.659
Lot 1370 on Deposited Plan 123445	4006	984	16.714

The proposed extraction area intersects Exploration Licence 70/5421 held by Venture Lithium Pty Ltd (expiry 22<sup>nd</sup> December 2025), however surface rights on these properties have not been granted, so the tenement holder does not have access to surface resources such as basic raw materials.

## 1.1 CURRENT ZONING

Lots 1910, 3943 and 8749 are zoned as “Rural 1 – Extensive Farming” and the remainder of the properties are zoned as “Rural 2 - General Agriculture” in terms of the Shire of Bridgetown-Greenbushes Town Planning Scheme No 4.

## 2 SITE PLAN

The site and surrounds are shown on Figure 2. The proposed extraction area is located on Lot 1910 with the access road occurring through the remaining properties.

The properties consist primarily of cleared agricultural land and some remnant native vegetation. No gravel extraction has occurred at the properties previously. B&J Catalano Pty Ltd are extracting gravel at Glenlynn Gravel Quarry located approximately 3km to the north. This pit will close in July 2023.

A plan of the proposed extraction site to a scale of 1:2000 is shown on Figure 3.

The surface area and depth and staging of the proposed extraction site is described in Section 4. Extraction will occur over a total area of 15.2 ha within 4 stages with an area of approximately 3.8 ha. It is not practical to have smaller stages because this will not accommodate the larger and more modern equipment which extracts and rehabilitates the land at a much faster rate than in the past.

Relevant setbacks shown on Figure 3 include:

- a minimum of 20m from the property boundary,
- a minimum of 40 metres from , adjoining Crown land (State Forest); and
- a minimum of 40m from a watercourse.

There are no overhead power lines located in the vicinity of the extraction area. A dial before you dig also did not reveal any underground services in the vicinity. There are no known easements or encumbrances associated with properties on which the development will occur.

The Bloxsome properties shown on Figure 2, are completely fenced. There is a gate at the entrance to the properties. The extraction area is at the back of the property and to gain excess to it visitors will need to pass via the site office which will be set up in existing buildings at the site. Unauthorised entry will be fully restricted. Signs with the notice "Excavation Keep Out" with the contact details of the site operator and PPE requirements will be installed at the property entrance (similar to those attached as Appendix 2). In addition, "Caution Excavation Site" signs will be posted on the fences around the excavation site.



### **3 SURVEY INFORMATION**

The extraction area has been surveyed by a licenced surveyor (Appendix 3). The survey shows the existing topography at 0.25 m contour intervals which and 1m contours are also illustrated on Figure 3.

## 4 WORKS AND EXTRACTION

### 4.1 PROPOSED GRAVEL EXTRACTION

The Development Approval application is required for the following proposed extractive activities:

- Extraction over 15.2 ha within 4 stages. Each stage will be approximately 3.8ha and yield approximately 38,000 m<sup>3</sup> of gravel.
- These Stages are labelled Stages 1 – 4 (see Figure 3).
- Total extraction from Stages 1 to 4 will be approximately 152,000m<sup>3</sup> (in situ volume) or approximately 273,600 tonnes.
- Progressive rehabilitation of the extraction area will occur as each stage is extracted.
- Topsoil and overburden will be removed from the extraction areas in the stages, with only the areas targeted for immediate extraction being opened.
- Topsoil and overburden will be stockpiled separately along the edges of the extraction area, to a maximum height of 2m.
- Extraction will result in the lowering of the ground level by on average 1.25 metres, but once topsoil and overburden is replaced, the final surface will be approximately 1 metre lower than the original ground level.
- Crushing and screening will be undertaken in 4 campaigns (one for each stage) of around 38,000 m<sup>3</sup> (68,400 tonnes) each. It is anticipated that crushing will occur annually over a 4 week period.
- Measures to limit noise and dust from this part of the operation are discussed separately in Sections 12.1 and 12.3 below.
- There will be no blasting.
- Batters of 1:6 will be maintained throughout the operation. The completion of rehabilitation commitments will be undertaken as detailed in Section 6.
- Extraction areas are setback at least 20 metres from the property boundaries.

Table 2 below summarises the actions that are to take place on the property over the 5 year extraction period. Table 2 refers to the stages of extraction that are illustrated on Figure 3.

Table 2. Proposed Stages of Extraction 2023 to 2026

Stage	Action	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
1	Topsoil stripping and stockpiling (~1 week)						
1	Rip and blade 38,000m <sup>3</sup> of laterite to crusher site (~3weeks)						
1	Crushing, screening and stockpiling of 38,000m <sup>3</sup> of gravel (4 weeks)						
1	Remove gravel product (38,000m <sup>3</sup> )						
1	Rehabilitate 3.8ha mined area						
2	Topsoil stripping and stockpiling (~1 week)						
2	Rip and blade 38,000m <sup>3</sup> laterite to crusher site (~3weeks)						
2	Crushing, screening and stockpiling of 38,000m <sup>3</sup> gravel (4 weeks)						
2	Remove gravel product (38,000m <sup>3</sup> )						
2	Rehabilitate 3.8ha mined area						
3	Topsoil stripping and stockpiling (~1 week)						
3	Rip and blade 38,000m <sup>3</sup> laterite to crusher site (~3weeks)						
3	Crushing, screening and stockpiling of 38,000m <sup>3</sup> gravel (4 weeks)						
3	Remove gravel product (38,000m <sup>3</sup> )						
3	Rehabilitate 3.8ha mined area						
4	Topsoil stripping and stockpiling (~1 week)						
4	Rip and blade 38,000m <sup>3</sup> laterite to crusher site (~3weeks)						
4	Crushing, screening and stockpiling of 38,000m <sup>3</sup> gravel (4 weeks)						
4	Remove gravel product (38,000m <sup>3</sup> )						
4	Rehabilitate 3.8ha mined area						
All	Monitoring and remediation of rehabilitated areas						

When operations are carried out, the following equipment is present/used on site:

- D10/D9 Bulldozer
- CAT 980 Front End Loader (FEL)
- Striker 1320 Crusher
- Finlay Screen 693
- Striker 25m Stacker
- Standard Rigid Truck (14 tonnes)
- Single Semi-loader (24 tonnes)
- Truck and Dog (40 tonnes)
- Road Train (50 tonnes)
- Water Carts
- Amenities building
- A mobile refuelling vehicle will refuel all machinery on a daily basis. No fuel or lubricant will be stored on site.

The site will operate Monday to Saturday and no work will be conducted on Sundays and Public Holidays. Operating times will be 7am to 5.30pm.

## 5 RESOURCE HAULAGE PLAN AND TRAFFIC IMPACT ASSESSMENT

### 5.1 SITE ACCESS AND EGRESS ROADS

Access to the site will be from South Western Highway using an existing access road shown on Figures 2 and 3. The access road will be extended to the proposed extraction area.

### 5.2 ESTIMATED TRAFFIC TO BE GENERATED

Trucks that will be entering and exiting the site will be a combination of sizes between 24 tonne (and less), 40 tonne and 50 tonnes. The 40 tonne and under will make up approximately 70% of vehicle movements.

Estimates of truck movements also assume the following:

- Estimated annual gravel removal: 68,400 tonnes
- Number of working days per month: 24 days

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

B & J Catalano maintains a high standard of driver training and awareness and hold a Heavy Vehicle Accreditation (HVA) Certificate. Vehicles entering the quarry are required to abide by all relevant legislation and company policy requirements.

### 5.3 TRANSPORT IMPACT STATEMENT

A transport impact statement was completed for the proposed operation (Appendix 4) and concluded the following:

- A swept path analysis indicates that some minor widening of the existing access will be required to accommodate the swept path of the proposed RAV 4 trucks. A portion of the access road will need to be sealed to prevent tracking of material onto the highway. The length of sealed road is to be determined by the Regional Manager and is typically at least the length of the largest vehicle proposed to use the site.
- The minimum required Safe Intersection Sight Distance is achieved at the proposed access in both directions.
- The existing road network will have sufficient capacity to accommodate the traffic generated by the development.
- The estimated peak hour turning volumes at the access warrant simple left and right turn treatments.
- A review of the crash history along South Western Highway did not identify any safety issues that would be exacerbated by the proposal.

## 6 DECOMMISSIONING AND REHABILITATION PLAN

Although a clearing permit is not required, rehabilitation of each stage of extraction area will be completed in accordance with best practice as outlined in the Clearing Permit Guidelines (DWER 2019a). There will be no pit wall gradients of any significance. The extraction area will be taken to an average depth of 1 metre. A gentle sloping gradient will be maintained at a maximum of 1:6 throughout the pit area.

### 6.1 PROPOSED REHABILITATION MEASURES

The following steps will be implemented to rehabilitate the landsurface and establish pastures:

- Rehabilitation will be progressive and no more than one stage (~4ha) will be open at one time.
- Topsoil and overburden will be retained on the site to be used during rehabilitation.
- Once stockpiles have been removed, the area will be ripped and smoothed with the edges of the excavation being blended into the adjacent land and seeded with pasture grasses.
- During each winter that the extraction activities are operational, progressive rehabilitation of previously extracted areas will take place.

The restoration goals proposed for the extraction area are as follows:

- To restore the area to resemble as closely as possible that which is currently present on the site (agricultural farmland).
- To create a landform that is stable, erosion resistant, aesthetically pleasing and safe for humans and animals, both on and surrounding the site.
- To encourage rapid reuse of the area for agricultural use.

### 6.2 MONITORING AND MAINTENANCE

Monitoring of rehabilitated areas will be undertaken by the proponent, according to Shire requirements, to ensure that any areas requiring remedial work are identified. Monitoring will be carried out on an annual basis to assess:

- The physical stability of the landform in the rehabilitated areas.
- The success of rehabilitation for cropping.
- The emergence of weeds.

Monitoring will continue until the completion criteria presented in Section 6.3 have been fulfilled. Maintenance procedures will be carried out where necessary and may include:

- Repair of any erosion damage.
- Weed control.

### 6.3 COMPLETION CRITERIA

Completion criteria must be sufficiently stringent to ensure that the overall objectives of the rehabilitation have been met. These criteria must also be designed to allow effective reporting and

auditing to define an endpoint for the rehabilitation activities. The completion criteria proposed for extractive operations on the properties are presented in Table 3.

Table 3. Closure Criteria, Objectives and Interim Targets

Criteria	Objective	Interim Targets
a) Safety	The site is safe to humans and animals.	<ul style="list-style-type: none"> <li>Site is safe to humans and animals during operations.</li> </ul>
b) Sustainability	The site is sustainable in the long term without additional management inputs.	<ul style="list-style-type: none"> <li>On-going Management of short-term impacts</li> </ul>
c) Suitability	The site is suitable for the agreed land uses.	<ul style="list-style-type: none"> <li>On-going Management of short-term impacts</li> </ul>
d) Visual amenity and heritage	The rehabilitated extraction area blends into the surrounding environment.	<ul style="list-style-type: none"> <li>On-going Management of short-term impacts</li> </ul>
e) Off-site impacts	Significant adverse off-site impacts are prevented.	<ul style="list-style-type: none"> <li>Significant adverse off-site impacts are prevented.</li> </ul>
f) Hydrology	<ol style="list-style-type: none"> <li>Site hydrology does not prevent the establishment of desired vegetation.</li> <li>Site hydrology does not reduce the stability of the landform.</li> <li>Stormwater is contained within the site.</li> </ol>	<ul style="list-style-type: none"> <li>Stormwater is contained within the site during operations.</li> <li>Identification and mitigation of any hydrology related issues during operations.</li> </ul>
g) Soils and stability	<ol style="list-style-type: none"> <li>Soil profiles and structures are sufficient to ensure the desired agricultural use can be established.</li> <li>The landform is stable.</li> </ol>	<ul style="list-style-type: none"> <li>Topsoil is respread in all rehabilitation areas.</li> <li>Identification and mitigation of potential erosion scars and scours during operations.</li> </ul>
h) Vegetation	<ol style="list-style-type: none"> <li>The site is returned to its former land use of agriculture.</li> </ol>	<ul style="list-style-type: none"> <li>Agricultural production returns to its former levels</li> </ul>
i) Weeds	<ol style="list-style-type: none"> <li>Declared pest weeds are absent.</li> <li>The level of weed species should not be detrimental to the planted seedlings.</li> </ol>	<ul style="list-style-type: none"> <li>Declared weed species removed systematically during operations.</li> </ul>

## 6.4 DECOMMISSIONING PLAN

No buildings or any other permanent structures are planned to be developed so there will be none to be removed.

All plant used on the site is portable and will be removed immediately once the extraction activities are complete. Personal waste such as food packaging will be removed by workers on site on a daily

basis. A portable toilet will be installed on the site which will be regularly serviced by the proponent and removed immediately once the project is completed.



## **7 COMMUNITY IMPACT ASSESSMENT**

### **7.1 CLOSEST RESIDENCES**

As shown on Figure 2 the nearest residences are located more than 1.5km from the proposed extraction.

Impacts to surrounding residences and their management area discussed in more details in the following sections:

Section 4 – Transport Impact Assessment

Section 8 – Landscape Impact Assessment.

Section 10 – Noise and Vibration Assessment.

Section 12 – Management of other issues including dust.

### **7.2 LOCAL ECONOMY**

The proposed gravel extraction operation will provide access to gravel resources for the surrounding area to meet local demand for this product at a low cost. The majority of operational staff are direct employees of B&J Catalano.

### **7.3 COMMUNITY SERVICES, COMMUNITY HEALTH AND LOCAL AMENITY**

The placement of the operation will have minimal impact upon landscape values and local amenity, due to minimal alteration of the land surface and distance and screening from views from nearby residences and Southwestern Highway as discussed in Section 8.

### **7.4 TRANSPORT NETWORK**

As outlined in Section 4 and the transport impact statement (TIS) provided as Appendix 4 the existing road network will have sufficient capacity to accommodate the traffic generated by the development. School bus routes. The development should not have any negative impact on other road users.

The TIS stated that “the closest schools are located in Bridgetown and Manjimup. The schools in these areas are served by School Bus Services (SBS) which is a private service which operates under a contractual agreement with the Public Transport Authority. The coverage areas for Bridgetown and Manjimup are limited to the townsites and the immediate surrounding areas and do not extend past Yornup.

There does not appear to be any bus services that would be impacted by the proposed development.”

### **7.5 ADVERTISING AND COMMUNITY CONSULTATION**

In accordance with the Shire of Bridgetown-Greenbushes’ updated Extractive Industry Policy, any community consultation and advertising will be undertaken by the Shire.

## **7.6 HERITAGE SITES**

### **7.6.1 Aboriginal Heritage**

A search of the Department of Planning, Lands and Heritage (DPLH) Aboriginal Heritage Inquiry System (AHIS) shows no registered sites or other heritage places on the properties (DPLH 2022). The nearest registered site is the Blackwood River located approximately 7km to the north of the proposed extraction area (Type: Mythological, ID 20434). As outlined below in Section 12.4.1, stormwater management measures will be implemented to ensure the water quality of downstream water bodies, including the Blackwood River will not be impacted by the extraction activities.

### **7.6.2 Other Heritage Sites**

The proposed extractive operations are unlikely to impact any other heritages sites due to lack of proximity to any sites. A search of the inHerit database of non-Aboriginal cultural heritage places in Western Australia did not return any records of any heritage places within the property or within a 2.5km radius of the proposed extraction area (Heritage Council 2022).

## **8 LANDSCAPE IMPACT ASSESSMENT**

### **8.1 ALTERATION OF THE LAND SURFACE**

No steep slopes will remain after extraction, and this will ensure that the extraction area will blend into the surrounding landscape. The final land surface will be approximately 1 metre below the original ground level after topsoil and overburden are replaced and the edges will be battered down at a gradient of 1:6. As the gravel resource is only on average 1 metre deep, the extraction process does not significantly impact upon the land surface as there are no deep pits created.

### **8.2 VISUAL IMPACT**

The proposed extraction will occur in an agricultural region. It is highly unlikely to create a visual impact because the nearest residences are located more than 1.5km to the east the proposed extraction area and Southwestern Highway is located at an even further distance. Furthermore, the extraction area is shielded from view of these receptors by vegetation and the undulation of the land as shown on Figure 2.

Once rehabilitation has been completed and the site has been returned to agricultural use, there will be little evidence that extraction has taken place.

Google street views taken from the Southwestern Highway provided in Appendix 5 show the extraction area will not be visible from the highway due to screening from remnant vegetation. The location and direction of these street views is provided on Figure 2.

Topsoil stockpiles placed on the western side of the extraction area (Figure 3) will provide screening to the residents located to the east. In addition, a vegetated hill shown on Figure 2 provides further natural screening between the extraction area and the nearby residents.

## 9 NOISE AND VIBRATION ASSESSMENT

The proposed extraction activities will create some operational noise, the majority of which will be generated by bulldozers, crushing and screening, loaders and haulage trucks.

### 9.1 POTENTIALLY SENSITIVE RECEPTORS

The EPA (2015) draft Environmental Assessment Guidelines "Separation distances between Industrial and sensitive land uses" lists the generic buffer for extractive industries where "grinding and milling works but no blasting" are proposed as 500-1 000m, depending on the type of processing.

There are no residents located within 1km of the proposed extraction area. The nearest residences are located more than 1.5km from the proposed extraction (Figure 2).

### 9.2 NOISE ASSESSMENT

The noise impacts on the nearest potential residents, located more than 1.5km away, is expected to be minimal because they are located outside the maximum buffer distance of 1km recommended by the EPA (2015).

The results of a noise modelling assessment undertaken by Lloyd George Acoustic's for Catalano's existing gravel extraction operation at Lynam Road Glenlynn demonstrated that with similar variables including the gravel extraction operation and equipment, the projections of noise impacts to the residences on that site with a buffer distance of 1km or more complied with the assigned noise levels in accordance with the Environmental Protection (Noise Regulations) 1997. By using this data by interpolation and the recommended separation distances as referenced by the EPA draft Environmental Assessment Guidelines above it is projected that noise impacts on residences in the area will be complied with given the 1.5km buffer distance proposed to the nearest residence.

Although, noise is unlikely to be an issue for the proposed operation in Yornup as a precaution noise will be managed according to the procedures outlined in Section 12.1

# 10 ENVIRONMENTAL IMPACT ASSESSMENT

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

## 10.1 GEOLOGY AND SOILS

It is expected the geology is similar to nearby Glenlynn Gravel Quarry which consists of a thin veneer of topsoil overlying approximately 1m of laterite caprock and gravel. The indurated material grades into kaolinic clays which are approximately 20 metres deep before fresh granitoid material is encountered.

## 10.2 ACID SULFATE SOILS

A search of the CSIRO's Australian Soil Resource Information System (ASRIS) database (CSIRO 2011) identified the area as having an extremely low probability of occurrence for acid sulfate soils. If ASS is present, it will be in small localised areas, generally within upper 1 m in wet / riparian areas with Calcarosols (soils dominated by carbonate sediments, often windblown). Although confidence in the mapping at this location is low, it indicates that it is highly unlikely that acid sulfate soils will be present in the laterite that will be the target of the mining.

## 10.3 VEGETATION

The area is cleared agricultural land and therefore no clearing permit is required to proceed with the proposed extraction.

The Yornup State Forest area, the nearest area of state forest to the east of the extraction area is managed by the Department of Biodiversity Conservation and Attractions. Mapped vegetation types within this forest (Mattiske and Havel, 1998) include:

- Bevan 1: Tall open forest of *Corymbia calophylla-Eucalyptus marginata subsp. marginata* on uplands in perhumid and humid zones; and
- Catterick: Open forest of *Eucalyptus marginata subsp. marginata-Corymbia calophylla* mixed with *Eucalyptus patens* on slopes, *Eucalyptus rudis* and *Banksia littoralis* on valley floors in the humid zone.

The nearest mapped Threatened and Priority Flora is located approximately 2.8km to the south east of the proposed extraction area (DBCA 2021).

No Department of Biodiversity Conservation and Attractions (DBCA) listed Threatened Ecological Communities (TECs) are mapped within a 5km radius of the proposed extraction boundary (Landgate 2022).

## 10.4 ENVIRONMENTALLY SENSITIVE AREAS

An Environmentally Sensitive Area (ESA) is an area where the vegetation has high conservation value. ESAs are declared by the Minister in the Environmental Protection (Environmentally Sensitive Areas) Notice 55 (2005) under section 51B of the *Environmental Protection Act 1986*. There are no Environmentally Sensitive Areas (ESA) as defined by the Clearing Regulations (DWER, 2019a) within or adjacent to the proposed extraction area. The closest ESA is approximately 2.9 kilometres southeast of the proposed extraction area.

## 10.5 FLORA AND FAUNA

Some of the remnant vegetation on the properties and the Yornup State Forest may be feeding habitat for Carnaby's black cockatoo (*Calyptorhynchus latorostris*) (Landgate 2022).

The nearest mapped Threatened and Priority Fauna are located more than 2km to the east of the proposed extraction area (DBCA, 2020).

No clearing is required for the proposed extractive operations as the site is located within existing cleared agricultural land. No habitat will be disturbed since no clearing will occur. The area will be returned to agricultural use once extraction is completed. Therefore, it is unlikely there will be significant impact to indigenous flora and fauna.

## 10.6 DIEBACK

The remnant vegetation within the properties and surrounds including neighbouring State Forest is mapped as having a high susceptibility to *Phytophthora cinnamomi* but the dieback status of the properties is not mapped (Dieback Public Map 2022). Since the area within which the extraction is to be undertaken has been cleared, the status of this area could not readily be ascertained. Based on this, the site should be classified as uninterpretable and managed as such. Guidelines for the management of the pit and the movement of vehicles in and out of the pit are contained in the Dieback Working Group guideline document for basic raw materials industries (Dieback Working Group 2021).

Dieback will be managed according to the procedure outlined in Section 12.2.

## 10.7 BUSHFIRE PRONE AREAS

A portion of the properties and most of the extraction area falls within a bushfire prone area (Figure 2) as designated by the Fire and Emergency Services (FES) Commissioner on 28 September 2019 (Landgate 2022). However, the threat of bushfire from this operation is considered low. The development area is on cleared agricultural land. There are no habitable buildings or any other permanent structures. None are planned to be developed.

## 10.8 DUST

The proposed gravel extraction may emit dust to the atmosphere from the following activities:

- Removing topsoil.
- Excavation of gravel.
- Stockpiles.
- Crushing and screening.

- Loading of haulage trucks.
- Trafficking on unsealed surfaces. Potential for dust uplift by trucks exists using the unsealed access road (Figure 2). The remaining haulage route is on pre-existing sealed roads and highways.

The EPA draft Environmental Assessment Guidelines “Separation distances between Industrial and sensitive land uses” list the generic buffer for extractive industries that apply as noted in Section 9.

Dust will be managed according to the procedures outlined in Section 12.3 to ensure no sensitive receptors are impacted by dust from the proposed operations.

# 11 SURFACE AND GROUNDWATER ASSESSMENT

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

## 11.1 TOPOGRAPHY

The extraction area has an elevation range between approximately 320 to 300m AHD. The north east corner of the extraction area falls towards the north and the remainder of the area generally falls towards the east, with an average slope of approximately 1 in 20 (5%).

## 11.2 SURFACE WATER, DRAINAGE AND WETLANDS

Drainage from the proposed extraction area is to the north and east towards a drainage line that is part of a drainage network intersected by numerous farm dams that flows towards the Blackwood River. It appears this drainage network terminates before reaching the Blackwood River. The proposed extraction area is located in the Hardy Estuary Blackwood River Catchment within the Blackwood River Basin (Landgate 2022).

The Blackwood River is located approximately 7km to the north of the proposed extraction area.

There are numerous farm dams within the properties, but no known lakes or wetlands exist within 1 000 metres of the proposed extraction area (Landgate 2022). The property owner is constructing a new dam on the drainage line located immediately to the east of the proposed extraction area.

The properties do not fall within a Public Drinking Water Source Area or a *Rights in Water and Irrigation (RIWI) Act 1914* Surface Water Proclamation Area.

Details of the methods that will be used to manage stormwater and off-site sedimentation are discussed in Section 12.4.1 of this report.

## 11.3 GROUNDWATER HYDROLOGY

It is expected the groundwater hydrology is similar to nearby Glenlynn Gravel Quarry therefore groundwater resources will be limited within the area due to the low permeability of the sub-surface materials. Small quantities may be obtained at some depth below the weathered clays. This may be at between 15 to 20m below ground level at the base of the clay layer which is part of the laterite profile (De Silva et al 2000). The maximum seasonal groundwater level is expected to be at least 10m below the base of the pit. Due to the very low permeability of the clay materials below the laterite, it is unlikely that proposed gravel extraction will impact permanent groundwater.

Whilst there may be temporary perching of rainwater during winter storms at the contact between the gravel and the clay layer below, this is very quickly dispersed by infiltration and evaporation.

The site does not fall within a *Rights in Water and Irrigation (RIWI) Act 1914* Groundwater Proclamation Area.

Groundwater management is discussed in Section 12.4.2 of this report.



# 12 APPLICATION MANAGEMENT REPORT

## 12.1 NOISE MANAGEMENT

As outlined in Section 10, noise impacts are unlikely to be an issue for the proposed operation but as a precaution the following measures will be implemented to reduce noise emissions from the operation:

- The crusher plant will be shield by product and topsoil stockpiles.
- All plant will be maintained in good condition with efficient mufflers and noise shielding.
- Mobile equipment will be fitted with broadband reversing alarms.
- As mentioned in Section 4 above the site operations will be limited to the hours between 7am to 5.30pm Monday to Saturday. No work will be conducted on Sundays and Public Holidays.

A contact number for complaints will be advertised on the site notice board at the entrance to the property, and a complaints system will be in place with any complaints recorded by the Operations Manager and acted on promptly.

## 12.2 DIEBACK MANAGEMENT

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

- The properties will be fenced at all times.
- Access to the properties will be via a single entrance gate.
- All machinery, trucks and other vehicles will arrive in a clean condition free of soil and organic matter that may contain dieback fungus.
- Any soil and plant material brought to the site for rehabilitation purposes should be from dieback free sources.
- Employees and contractors working on the site will be informed of the purpose of the above measures and their responsibilities in relation to dieback prevention.

## 12.3 DUST MANAGEMENT

A Dust Management Plan (DMP) is presented in Appendix 6 and a summary of dust control measures to be implemented are summarised in Table 4. Management actions will ensure no sensitive receptors are impacted by dust from the proposed operations.

As stated in the Water Management Plan attached as Appendix 7, when water is required for dust management, it will be abstracted from the existing farm dams on the property or off-site from the nearest available commercial (scheme) source.

Table 4. Summary of Dust Control Actions

Activity	Action	Control Measure	Result
<b>Daily</b>			
Topsoil Stripping and stockpiling	Visual inspection of site and access road for dust generation that is moving off site.	Water cart application over dust prone areas to reduce dust lift off.	Reduced dust generation. No dust leaving the properties.
Gravel extraction and product loading	Visual inspection of site and access road for dust generation that is moving off site.	Water cart application over dust prone areas to reduce dust lift off. Crushing and stockpiling activities located in topographic low points with stockpiles arranged such that windbreaks are created to further shield sensitive receptors.	Reduced dust generation. No dust leaving the properties.
Product transport	All loads covered before leaving the properties.	Cover loads.	Reduced dust generation from product transport.
<b>As Required</b>			
Training	Induct all employees and contractors working on site.	Site induction includes awareness of dust generation and management measures to be utilised by all personnel on site.	Activities undertaken to minimise dust generation on site.
Dust complaints	Provide a contact number for dust complaints.	Undertake review of potential complaints and implement appropriate action to reduce dust generation from site.	Reduced dust generation from the properties.
Rehabilitation /stabilisation of completed areas	Undertake rehabilitation on completed areas.	As per Section 6 of this report.	Reduced dust generation from the properties.

Visual monitoring will be undertaken to confirm dust management measures are effectively maintaining dust emissions at acceptable levels.

## 12.4 WATER MANAGEMENT

### 12.4.1 Surface Water and Stormwater Management

The methodology implemented to manage stormwater within the extraction area has been obtained from Water Quality Protection Note 15 for extractive industries (DWER, 2019b).

Four surface water management areas (Sub-catchments 1 to 4), each containing one stage of extraction have been defined. Sub-catchment 1 has been divided into two catchments (A and B) in order to follow the natural sub-catchment boundaries. Five detention ponds are proposed, one per subcatchment as shown on Figure 3.

Runoff generated within each sub-catchment for the 2hr 10% Annual Exceedance Probability (AEP) rainfall event, has been calculated using the Rational Method. Storm-water management infrastructure (detention ponds and contour bunds) will be designed to manage at minimum this

runoff. Runoff from areas outside the defined sub-catchments will be diverted away using diversion bunds.

Surface water and stormwater management is discussed in more detail in the Water Management Plan (Appendix 7).

With the implementation of the above stormwater management measures, the surrounding land surface and natural drainage channels should not be impacted by the extraction activities. The proposed management measures will also ensure there will be no significant impacts on the water quality of surrounding streams, which appear to terminate before reaching the Blackwood River. In line with the Shire of Bridgetown-Greenbushes Extractive Industry Policy requirements there is more than 40 metres separation distance between the proposed extraction operation and any water course.

#### **12.4.2 Groundwater Management**

The project does not involve abstracting ground water for operational purposes. No groundwater will be exposed as the floor of the pit will be at least 10 to 15 metres above the permanent water table level.

Due to the low scale nature of the operations and limited groundwater, no groundwater contamination is anticipated and there is no risk to any private groundwater supply. No fuel or lubricant storage will occur on the site. Refuelling will take place using a mobile refuelling vehicle which is equipped with a "snap-on snap-off, fast-fill and auto shut-off" facility. Detailed hydrocarbon management is outlined in the Water Management Plan (Appendix 7).

#### **12.5 WEED MANAGEMENT**

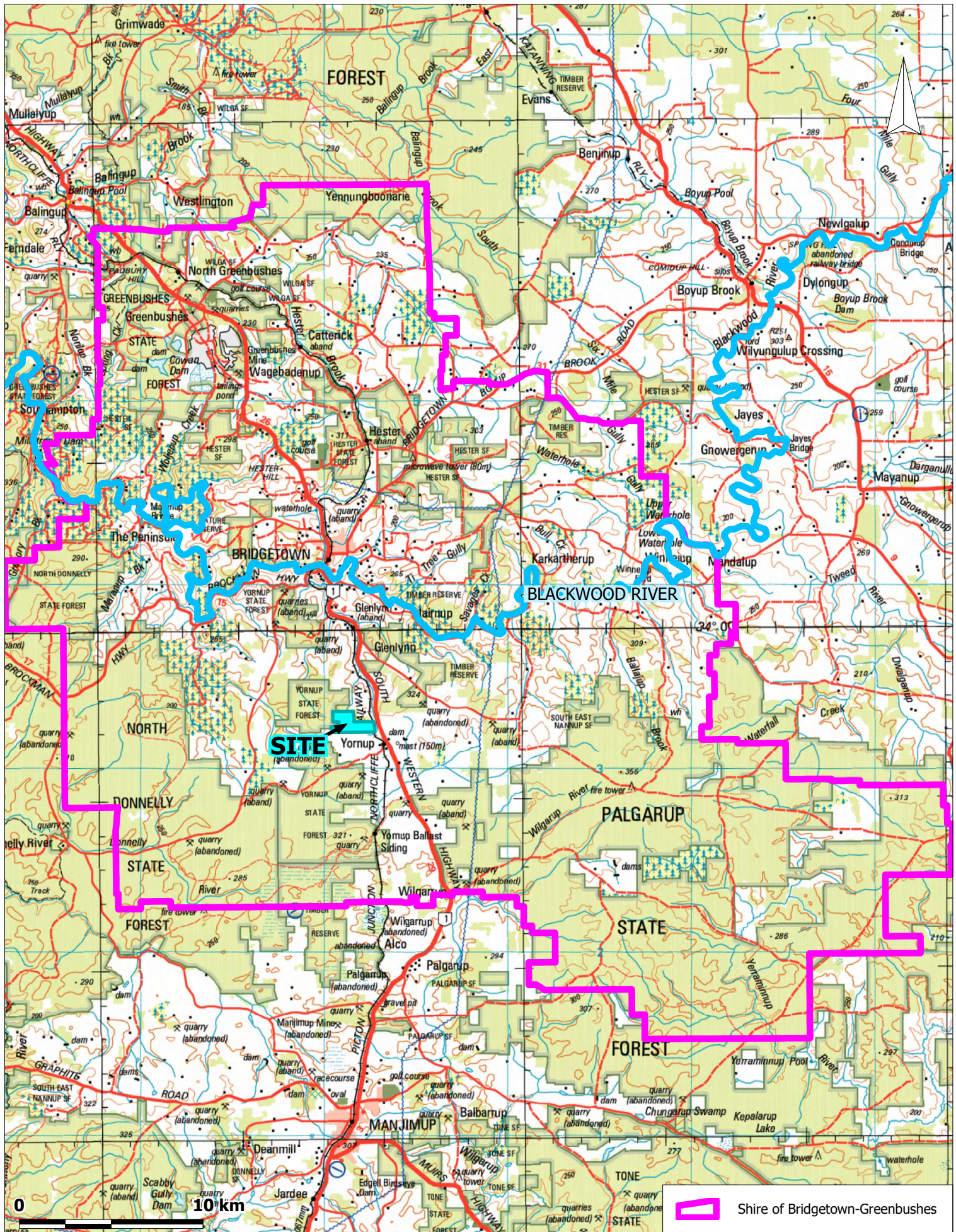
B & J Catalano will implement a weed management plan as is described in Appendix 8 of this report.

## 13 REFERENCES

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Busselton- Margaret River, Mt Barker, and Perth, Western Australia. Scale 1:250,000.  
Department of Conservation and Land Management, Perth.

## **FIGURES**



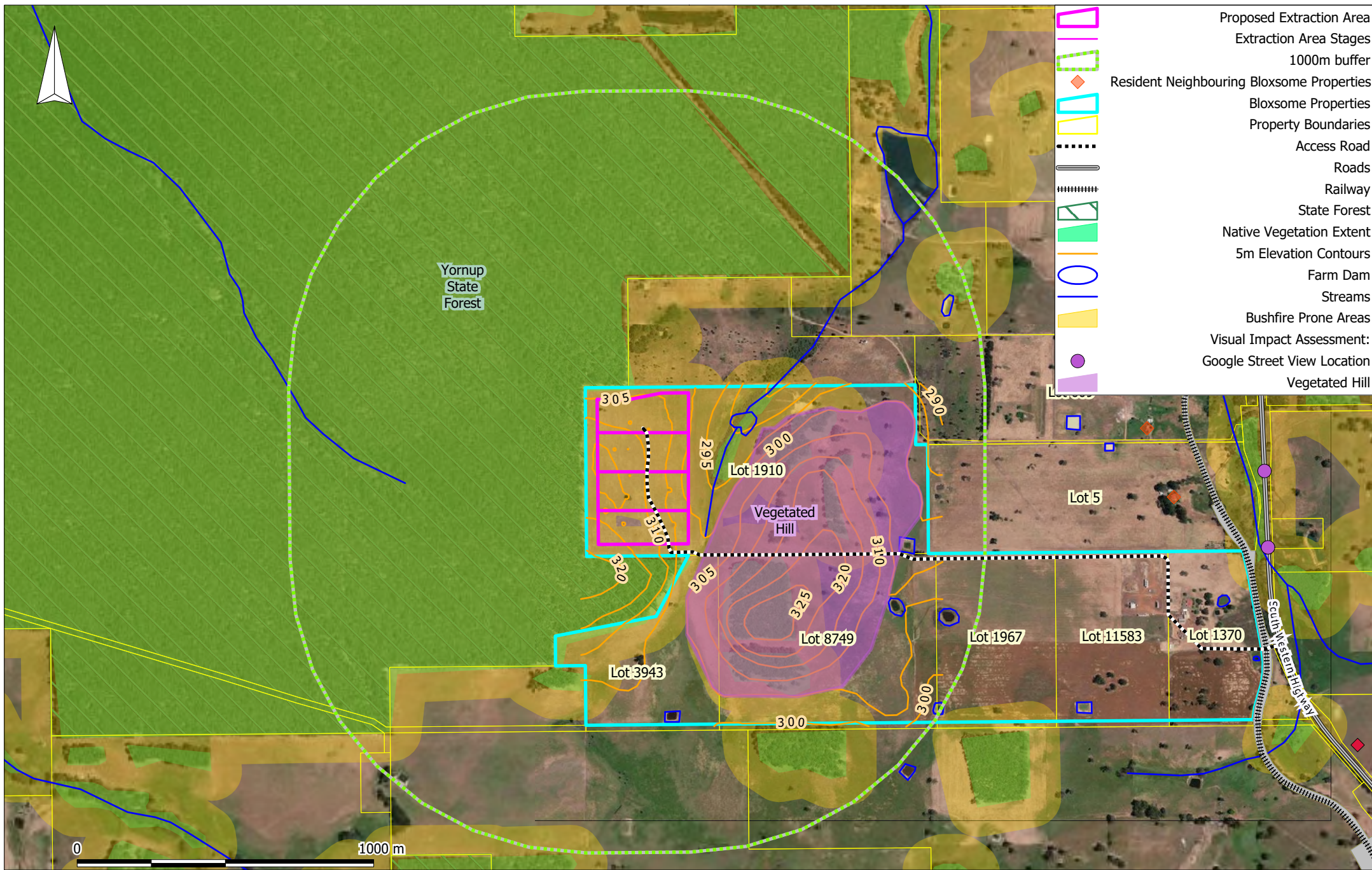
**Lundstrom Environmental Consultants Pty Ltd**


















Leeming WA 6149  
 Mob: 0417934863  
 mikelund1@bigpond.com

Scale: 1:260000  
 Original Size: A4  
 Datum: GDA94  
 Projection: Australia MGA94 (50)

Client: B & J Catalano  
 Project: Gravel Extraction  
 Location: South Western Hwy  
 Yornup

**Figure 1:**  
**Locality Plan**



-  Proposed Extraction Area
-  Extraction Area Stages
-  1000m buffer
-  Resident Neighbouring Bloxsome Properties
-  Bloxsome Properties
-  Property Boundaries
-  Access Road
-  Roads
-  Railway
-  State Forest
-  Native Vegetation Extent
-  5m Elevation Contours
-  Farm Dam
-  Streams
-  Bushfire Prone Areas
-  Visual Impact Assessment: Google Street View Location
-  Vegetated Hill



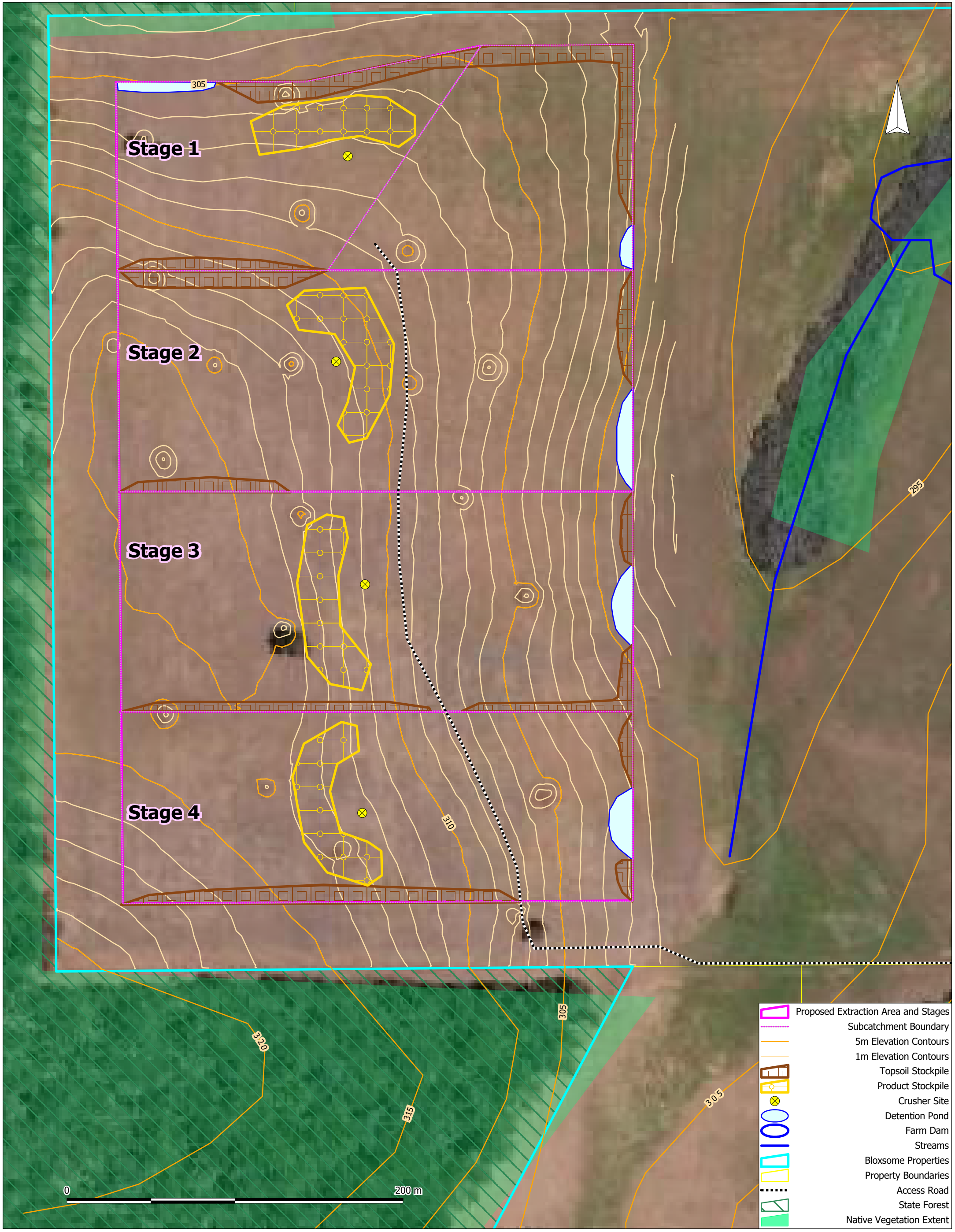
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














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 Air Photo Source: ArcGIS World Imagery (Maxar) Nov 2020  
 Datum: GDA94  
 Projection: Australia MGA94 (50)

Client: B & J Catalano  
 Project: Gravel Extraction  
 Location: Southwestern Highway Yornup

**Figure 2**  
**Site and Surrounds**





-  Proposed Extraction Area and Stages
-  Subcatchment Boundary
-  5m Elevation Contours
-  1m Elevation Contours
-  Topsoil Stockpile
-  Product Stockpile
-  Crusher Site
-  Detention Pond
-  Farm Dam
-  Streams
-  Bloxsome Properties
-  Property Boundaries
-  Access Road
-  State Forest
-  Native Vegetation Extent



**Lundstrom Environmental  
Consultants Pty Ltd**

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Scale: 1:2000  
Original Size: A3  
Datum: GDA94  
Projection: Australia MGA94 (50)

Client: B & J Catalano  
Project: Gravel Extraction  
Location: South Western Hwy  
Yornup

**Figure 3:  
Proposed  
Operations**

**APPENDIX 1:**

**DEVELOPMENT APPROVAL APPLICATION FORM**



## DEVELOPMENT APPLICATION FORM

OWNER DETAILS		
Names(s): Peter Bloxsome		ABN (if applicable): 49 855 736 139
Postal Address: PO box 448, Bridgetown W.A 6255		State/Post Code: WA, 6255
Home Phone:	Work Phone:	Mobile Phone: 0427 619 099
E-mail Address: peter@millross.com.au		Fax:
Owner's Signature(s): <i>P. R. Bloxsome</i>		Date: <i>19/08/2022</i>
Contact person for correspondence:		

APPLICANT DETAILS (IF DIFFERENT FROM OWNER)		
Name(s): B&J Catalano		ABN (if applicable): 68 008 961 975
Postal Address: South Western Hwy, Brunswick Junction		State/Post Code: WA/ 6224
Home Phone:	Work Phone: 9726 8100	Mobile Phone: 0407 857 026
E-mail Address: peterbennett@catalano.com.au		Fax:
Applicant's Signature: <i>P. Bennett</i>	Director: <i>P. Bennett</i>	Date: 15th August 2022
Contact person for correspondence: Peter Bennett (must be signed)		
The information and plans provided with this application may be made available by the local government for public viewing in connection with the application. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

PROPERTY DETAILS		
Location No(s):	Lot No(s): 1910, 3943, 8749, 1967, 11583 and 1370.	Street No(s)(urban or rural):
Diagram or Plan No: 122450, 134218, 153461, 112279, 159703 and 123445	Certificate of Title Volume/Folio: 1097/94, 1044/616, 1110/124, 1229/98, 4006/984	Title Encumbrances (if any): None
Street Name: South Western Highway		Suburb/Locality: Yornup
Nearest Street Intersection: Donnelly Mill Rd		Total Land Area (m <sup>2</sup> or ha): 188.133 ha (all properties) The extraction area is 15.2 ha on Lot 1910.

PROPOSED DEVELOPMENT			
Nature of development:      Works <input type="checkbox"/> Use <input type="checkbox"/> Works and Use <input checked="" type="checkbox"/>			
Description of proposed works and/or land use: Gravel extraction.			
Nature of any existing buildings and/or use: house/sheds (Lots 11583 and 1370)			
Is an exemption from approval claimed for part of the development? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> If yes, is the exemption for:    Works <input type="checkbox"/> Use <input type="checkbox"/>			
Description of exemption claimed (if relevant):			
Approximate cost of proposed development: <\$5000		Estimated time of completion: 5 years	
Services known to be available:		Y	N
Electricity			
Scheme water			
Reticulated sewer			
Stormwater drainage			
Sealed road access			
		Development already commenced or completed?  * Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
* Penalty fees may apply			

OFFICE USE ONLY:	Date received: _____	Shire Reference: _____
Checked (Officer's Initials): _____	Fee received: _____	Plans Attached: Y <input type="checkbox"/> N <input type="checkbox"/>

- The signature of the owner(s) is required on all applications. This application will not proceed without that signature. For the purposes of signing this application and owner includes the persons referred to in the Planning and Development (Local Planning Schemes) Regulations Schedule 2 clause 62(2).
- All registered proprietors must sign the application form. If signing on behalf of a Company authority must be signed by: one director of the company accompanied by the company seal; or two directors of the company; or one director and one secretary of the company, or one director if a sole proprietorship company. Applications made by either private owners or companies that have recently changed names must provide supporting documentation showing the change of name.
- Applications made by prospective purchasers under contract of sale must be accompanied by a letter of consent from the current owners of the property giving the purchaser authority to make the application; or a copy of the Landgate transfer lodgement approval to make the application; or contract(s) of sale or offers and acceptances expressly including a provision of consent by the Vendor to the application proposed.
- The executor(s) of a deceased estate must provide evidence of grant of probate.
- Applications made by a State government agency must be signed by an 'authorised officer,' clearly stating their name and position held.
- An 'authorised officer' of Landgate must sign applications made on Crown Land.
- Where the Crown Land has been vested in a local/government authority, an 'authorised officer' of that local authority can sign the application form, stating his/her full name and position held.



## **DEVELOPMENT APPLICATION CHECKLIST**

*All sections to be ticked ✓ where relevant or crossed X where not applicable*

- Development Application Form**
  - All required sections completed
  - Signature of Applicant
  - Signature(s) of each Owner/Registered Proprietor(s) of subject land
  
- Covering Letter** (may be waived for compliant or minor proposals)
  - Addressed to the Chief Executive Officer
  - Thoroughly, accurately and truthfully outlines details of the proposal
  - If applicable, justification why the proposal does not comply with requirements of the Residential Design Codes (see Part 3 of the R-Codes), relevant Town Planning Scheme or Shire Policy
  
- Development Application Checklist** (this form)
  - All required section completed
  - Signature of Applicant
  
- Site Plan x 2 (A4 or A3 only)**
  - For Residential zoned development see application information matrix in Part 3 of R-Codes
  - Scale not less than 1:100 or 1:200 (Residential, Commercial, Industrial), 1:1000 (Rural)
  - Full Address: Lot No, Street No. (urban or rural), Street Name and Suburb/Locality
  - North Point and Scale Bar
  - Natural features (e.g. streams, lakes, rock outcrops)
  - Setbacks of all structures from lot boundaries or building envelope
  - Stream or Landscape Protection Area
  - Full site area and all lot boundaries
  - Dimensions of all boundaries (Rural and Special Rural zones exempt)
  - Site area by survey
  - Location of any easements and services (ie. power lines, water lines, service lines)
  - Vehicle entrance and exit points
  - Vehicle access ways and parking bays, all pedestrian areas
  - Location and description of open space areas, landscaped areas, types of screening or fencing
  - Proximity of adjoining buildings and their uses
  - Existing and proposed buildings and structures
  - Structures and vegetation proposed to be removed
  - Height Contours and Spot Levels
  - Finished Ground Levels and Finished Floor Levels
  - Height of Cut and Fill and Location of Embankments
  - Onsite effluent disposal system
  
- Floor Plan x 2 (A4 or A3 only)**
  - For Residential zoned development see application information matrix in Part 3 of R-Codes
  - Scale not less than 1:100
  - Finished Floor Levels
  - Proposed and existing buildings
  - All windows, doors and other entryways
  - Use of buildings clearly indicated

- Elevations x 2 (A4 or A3 only)**
- For Residential zoned development see application information matrix in Part 3 of R-Codes
  - Scale not less than 1:100
  - All elevations (views)
  - Proposed buildings and signage
  - Windows, doors and other entryways
  - Materials, colours and finishes of exterior construction
  - Natural and Finished Ground Levels (cross section)
  - Wall and Roof Heights (above natural and finished ground levels)
  - Dimensions of Patios, Verandahs and Balconies, etc
- Heritage Issues**
- Desktop assessment of Aboriginal Heritage Issues (any findings)
  - Desktop assessment of Post-Settlement Heritage Issues (any findings)
- Bushfire Issues**
- Desktop assessment of property located within bushfire prone area
  - Desktop assessment of development site located within bushfire prone area
  - Bushfire Attack Level (BAL) Assessment (including BAL Basic)
  - Bushfire Management Plan/Statement
- Development Application Fees**
- Refer to Town Planning section of the Shire's Schedule of Fees and Charges

By signing the development application form and the development application checklist, the applicant acknowledges, without prejudice, the accuracy and content of the forms, plans and supporting information submitted with or subsequent to lodgement of the development application.

Applicant's Signature:  Date: 15th August 2022

**Faxed or email copies of applications may be accepted initially however an original copy bearing all signatures is required, unless otherwise agreed.**

**Incomplete applications may be returned or suspended pending receipt of all required information. Additional information not stipulated above may also be required.**

**The information is required as part of the assessment process for an application and compliance with the checklist does not necessarily mean that a proposal will be supported.**

## **APPENDIX 2**

### **EXAMPLES OF WARNING SIGNS AROUND THE LAND**

1200 mm

**B&J Catalano**

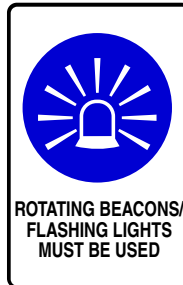
**9207 8401  
0408 729 722**

**EXCAVATION KEEP OUT**

**GRAVEL PIT**

800 mm

**OPERATING  
HOURS:  
MONDAY -  
FRIDAY  
7am to 4pm**



**SPEED LIMIT  
ON SITE**



**CONTACT LOADER OPERATOR  
ON UHF CHANNEL**



Description: 1-off fabricated single-sided ACM framed sign & legs  
Scale 1:6.66666@A4  
CLIENT: B & J Catalano

**APPROVED BY**

**SIGNED**

**DATE**

Whilst every care is taken in checking artwork,  
Front-line Signs accepts  
**NO RESPONSIBILITY** for any errors.  
Please check artwork carefully.  
**PRODUCTION WILL NOT PROCEED UNTIL APPROVAL  
IS GIVEN**

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8 Poat Street, Picton Western Australia 6229 Ph: (08) 9725 7066 Fax: (08) 9725 7166 Email: signs@frontlinesigns.com.au

[www.frontlinesigns.com.au](http://www.frontlinesigns.com.au)  
 [facebook.com/frontlinesigns](https://facebook.com/frontlinesigns)



1200 mm

800 mm



**THIS PROTECTIVE EQUIPMENT  
MUST BE USED  
BEYOND THIS POINT**

*B & J Catalano*

**SPEED LIMIT  
ON SITE**



**CONTACT LOADER OPERATOR  
ON UHF CHANNEL 20**



Description: 1-off fabricated single-sided ACM framed sign & legs  
Scale 1:4@A4  
CLIENT: B & J Catalano

**APPROVED BY**

**SIGNED**

**DATE**

Whilst every care is taken in checking artwork, Front-line Signs accepts **NO RESPONSIBILITY** for any errors. Please check artwork carefully.  
**PRODUCTION WILL NOT PROCEED UNTIL APPROVAL IS GIVEN**

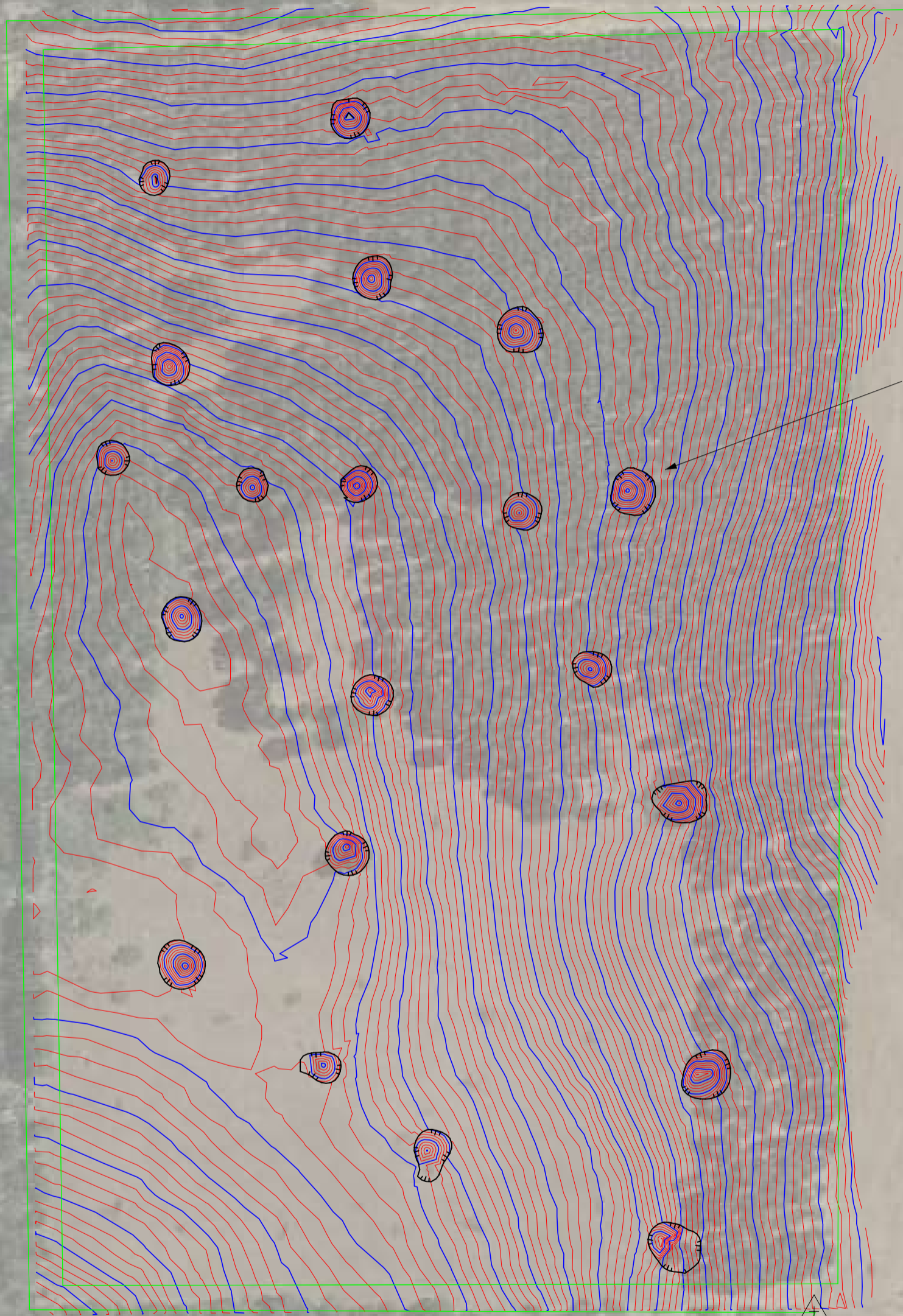
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 [facebook.com/frontlinesigns](https://facebook.com/frontlinesigns)

## **APPENDIX 3**

**CERTIFIED SURVEY OCTOBER 2022**



ROCK STOCKPILES

BCE9000  
420824.19  
6232546.05  
302.323

CLIENT: B & J CATALANO							COORDINATE DATUM HORIZONTAL : MGA94 VERTICAL : AHD CONTOUR INTERVAL : 0.250m CAD MODEL : E5638-02		NORTH POINT 		<b>CONTOUR SURVEY SOUTH WEST HIGHWAY YORNUP</b>			JOB No. <b>E5638</b>			
BAR SCALE: 0 50 100 							 <small>est 1994</small> 		<b>BCE SURVEYING</b> LICENSED & ENGINEERING SURVEYING CONSULTANTS					BUNBURY 24 MOLLOY STREET BUNBURY WA 6230 Ph: (08) 9791 7411 Fax: (08) 9791 6315 admin@bcesurveying.com.au		PERTH SUITE 4, 7 KENTAL ROAD APPLICROSS WA 6153 Ph: (08) 9364 6408 Fax: (08) 9364 6396 admin@bcesurveying.com.au	
REV	REV DATE	SURV DATE	DESCRIPTION	DRAWN	SURVEYOR	APPROVED						<small>DISCLAIMER This plan / data has been prepared to assist in planning &amp; design and should not be used in whole or part for any other purpose. The plan shows visible services only. Any underground services should be located by the appropriate service authorities prior to any works. Cadastral boundaries were not established during survey and are shown in accordance with/from digital data/plan/diagram and limited on-site information where existing. The true boundary position may differ from that shown. Prior to any works boundaries should be re-established and marked</small>					
A	07/10/2022	06/10/2022	INITIAL ISSUE	B.G	B.G	D.M											

## **APPENDIX 4**

### **TRANSPORT IMPACT STATEMENT**



# Transport Impact Statement

Project: Proposed Gravel Extraction  
Lot 1910 South Western Highway, Yornup

Client: B&J Catalano c/- Lundstrom Environmental

Author: Nimisha Baby/Liomar De Leon

Date: 22<sup>nd</sup> March 2023

Shawmac Document #: 2301004-TIS-001

CONSULTING CIVIL AND TRAFFIC ENGINEERS  
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## 1. Introduction

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### 1.1. Proponent

Shawmac Pty Ltd has been engaged by B&J Catalano on behalf of Lundstrom Environmental to prepare a Transport Impact Statement (TIS) for a proposed gravel extraction site in Yornup.

This TIS has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 4 – Individual Developments*.

### 1.2. Site Location

The site address is Lot 1910 South Western Highway in Yornup. The local authority is the Shire of Bridgetown - Greenbushes.

The general site location is shown in **Figure 1**.

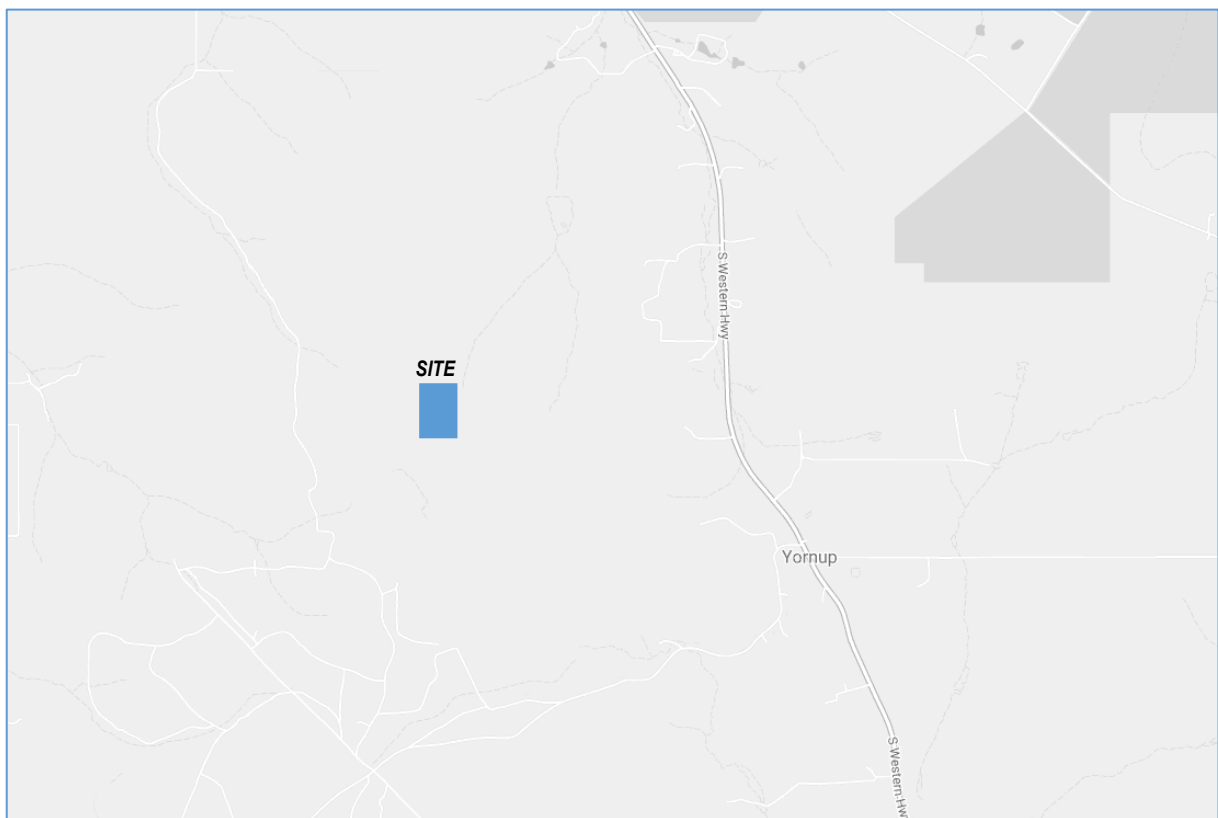


Figure 1: Site Location

An aerial view of the existing site is shown in **Figure 2**.



Figure 2: Aerial View



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## 2. Proposed Development

---

### 2.1. Land Use

Based on aerial imagery the site is currently vacant.

The site is proposed for extraction of gravel.

Access to the gravel extraction site will be from South Western Highway using an existing access road at 25410 South Western Highway. The existing access road will be extended to the proposed extraction area through various other properties which are understood to be owned by the same owner of the proposed extraction site.

It is confirmed that the daily truck movements will be 11 loaded trucks per day, varying depending on demand.

The trucks that will be used is a combination of the following:

- Standard Rigid Truck (14 Tonnes)
- Single Semi-loader (24 Tonnes)
- Truck and Dog (40 Tonnes)
- Road Train (50 Tonnes)

The proposed site layout and extraction plan is shown in **Figure 3**.

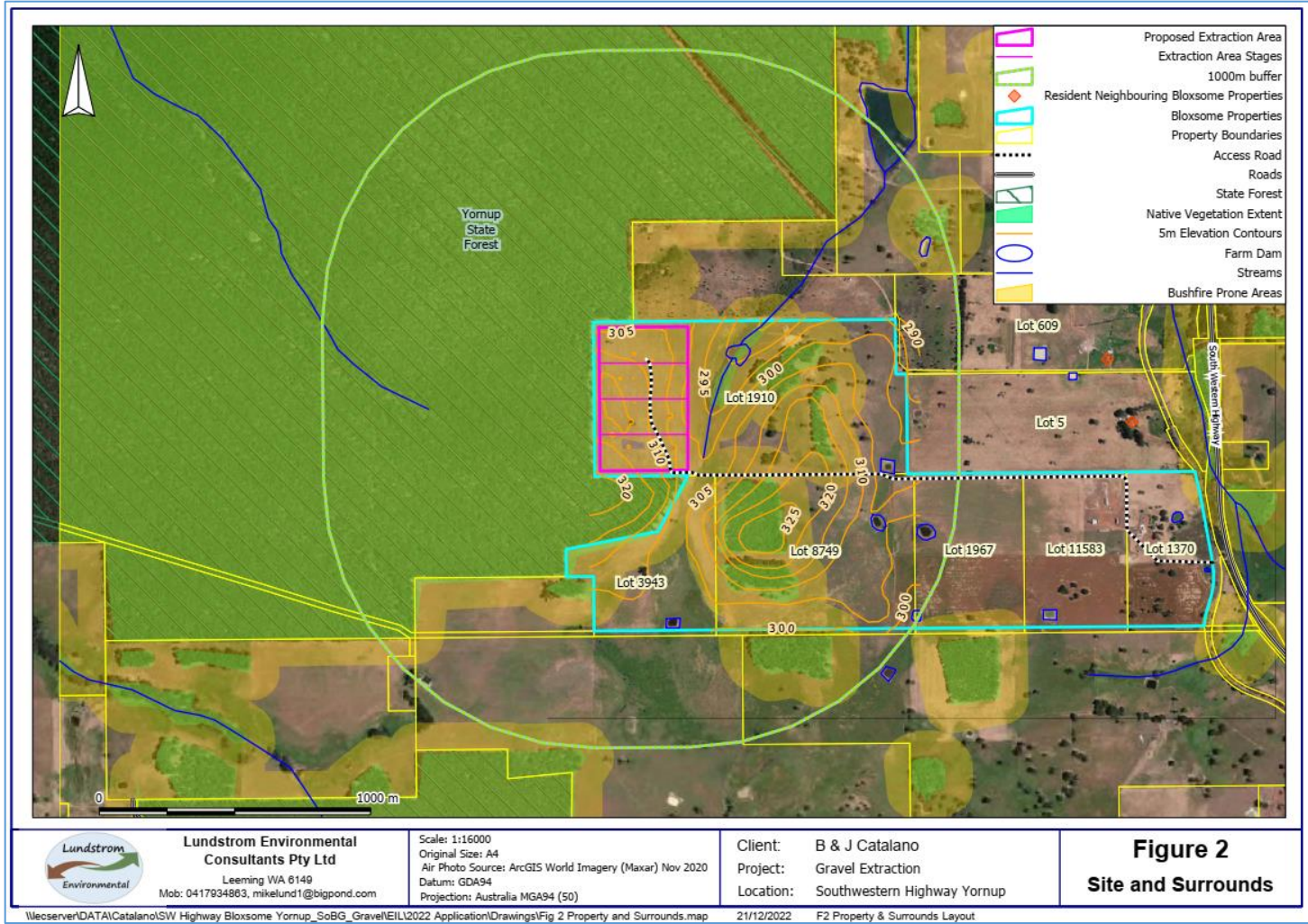


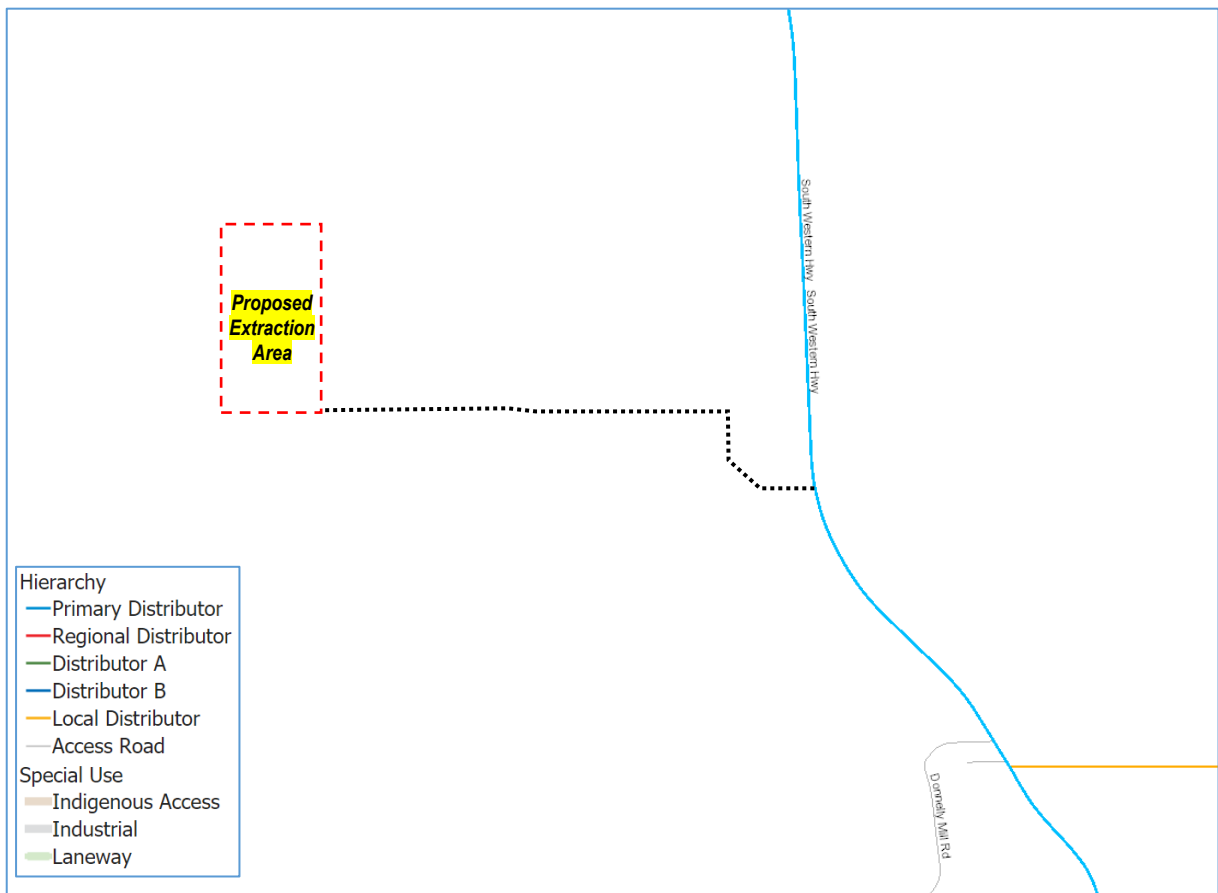
Figure 3: Site Layout

### 3. Traffic Management on Frontage Streets

#### 3.1. Road Network

##### 3.1.1. Existing Road Layout and Hierarchy

The layout and hierarchy of the existing local road network according to the Main Roads WA *Road Information Mapping System* is shown in **Figure 4**.

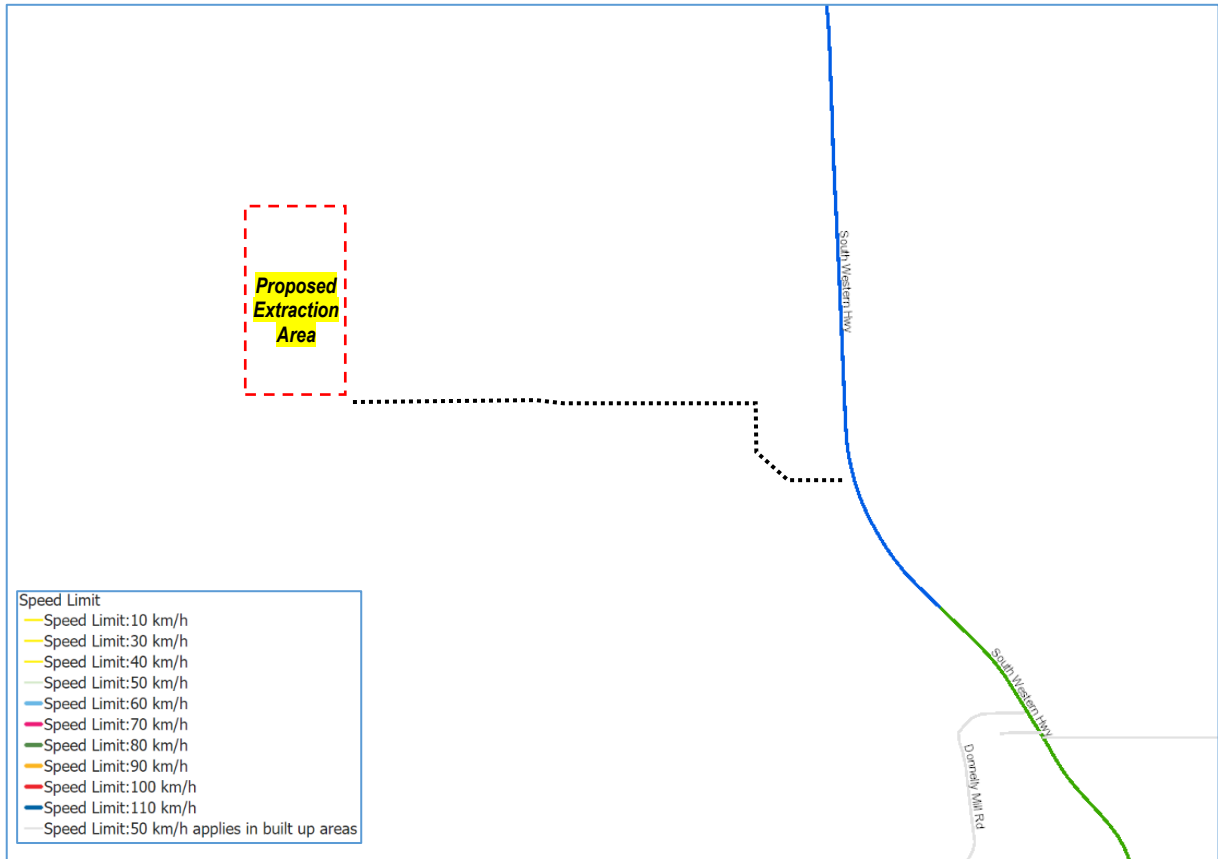


**Figure 4: Existing Road Network Hierarchy**

As shown, South Western Highway is classified under the MRWA Mapping Information System as a Primary Distributor. It is currently constructed as a single carriageway road with a single lane for each direction. The road pavement is approximately 9m wide with 1m wide shoulders along both sides.

### 3.1.2. Speed Limits

The existing speed limits are shown in **Figure 5**.



**Figure 5: Existing Speed Limits**

As shown, South Western Highway is operating under a 110km/h speed limit.

### 3.2. Traffic Volumes

The latest traffic volumes along the adjacent roads were obtained from Main Roads WA *Traffic Map* as summarised in **Figure 6**.

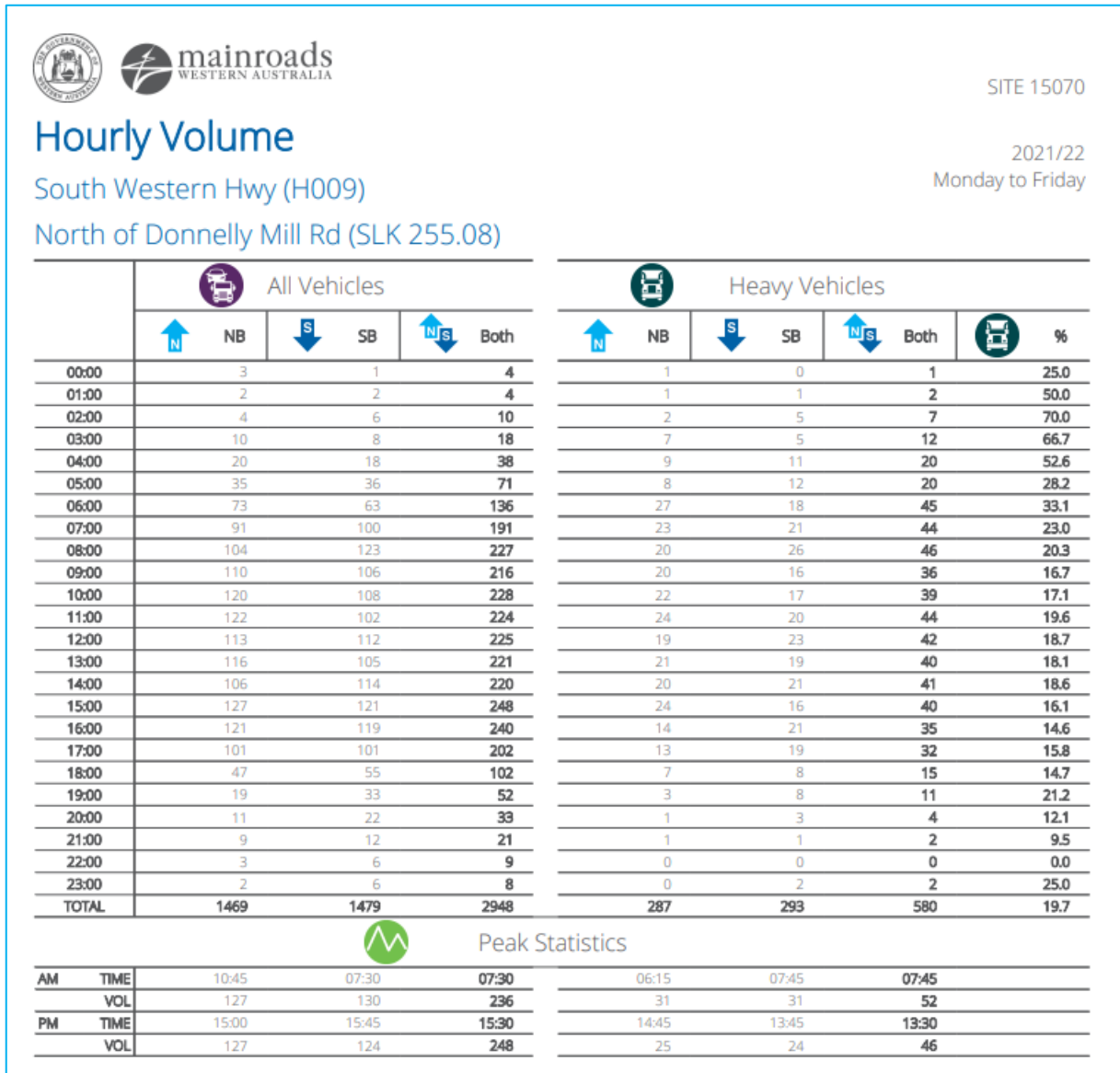


Figure 6: South Western Highway Traffic Volumes

### 3.3. RAV Status

As per MRWA's HVS Network Mapping Tool, South Western Highway is categorised on the Tandem Drive 4.3 and Tri Drive 3.1 networks without conditions as shown in **Figure 7** and **Figure 8**.

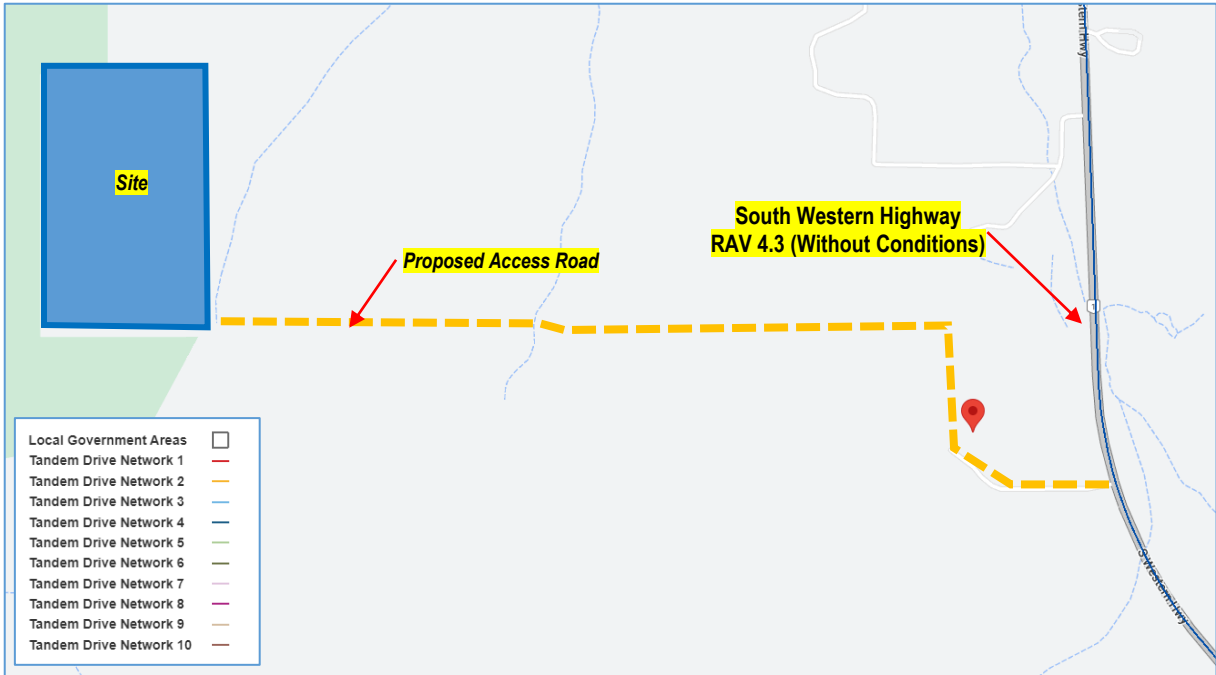


Figure 7: Tandem Drive RAV Network

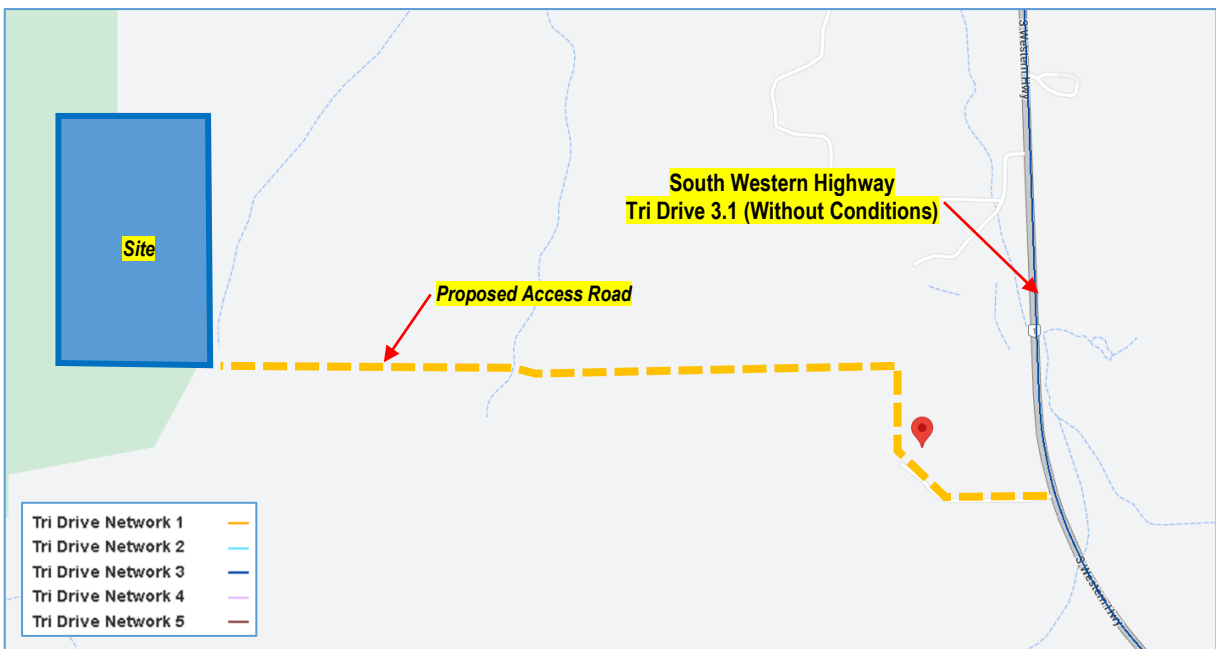


Figure 8: Tri-Drive Network



## 4. Traffic Impact

### 4.1. Proposed Haulage Vehicle

It is proposed to use up to RAV4 trucks up to 27.5m long for the transport of gravel, which is consistent with the current situation. **Figure 9** shows a typical RAV4 vehicle.

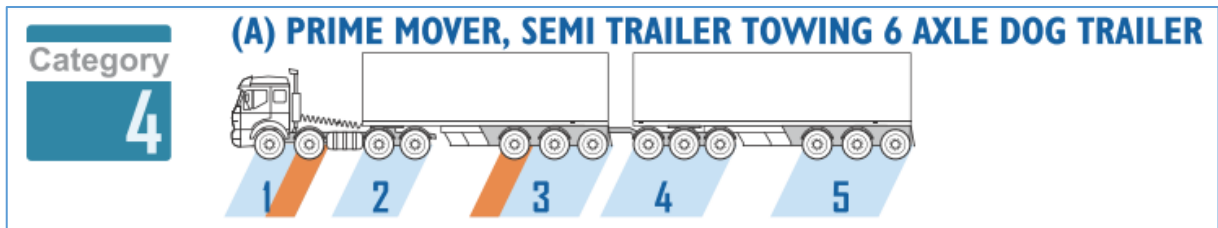


Figure 9: Typical RAV 4 Vehicle

### 4.2. Traffic Generation

It is confirmed by the client that the expected daily truck movements will be 11 loaded trucks per day. The peak hour traffic movements will be well below 10 vehicles per hour.

According to the WAPC TIA guidelines, an increase of between 10 to 100 peak hour vehicles is considered to have a low to moderate impact and is generally deemed acceptable without requiring detailed capacity analysis.

The likely peak hour traffic generation is below this range and so the development traffic is considered to have a low impact and can be accommodated within the existing capacity of the road network.

## 5. Vehicle Access

### 5.1. Site Access

Access to the extraction site will be from South Western Highway entering from an existing unsealed access road shown in **Figure 10** and **Figure 11**. The access road will be extended to the proposed extraction area.

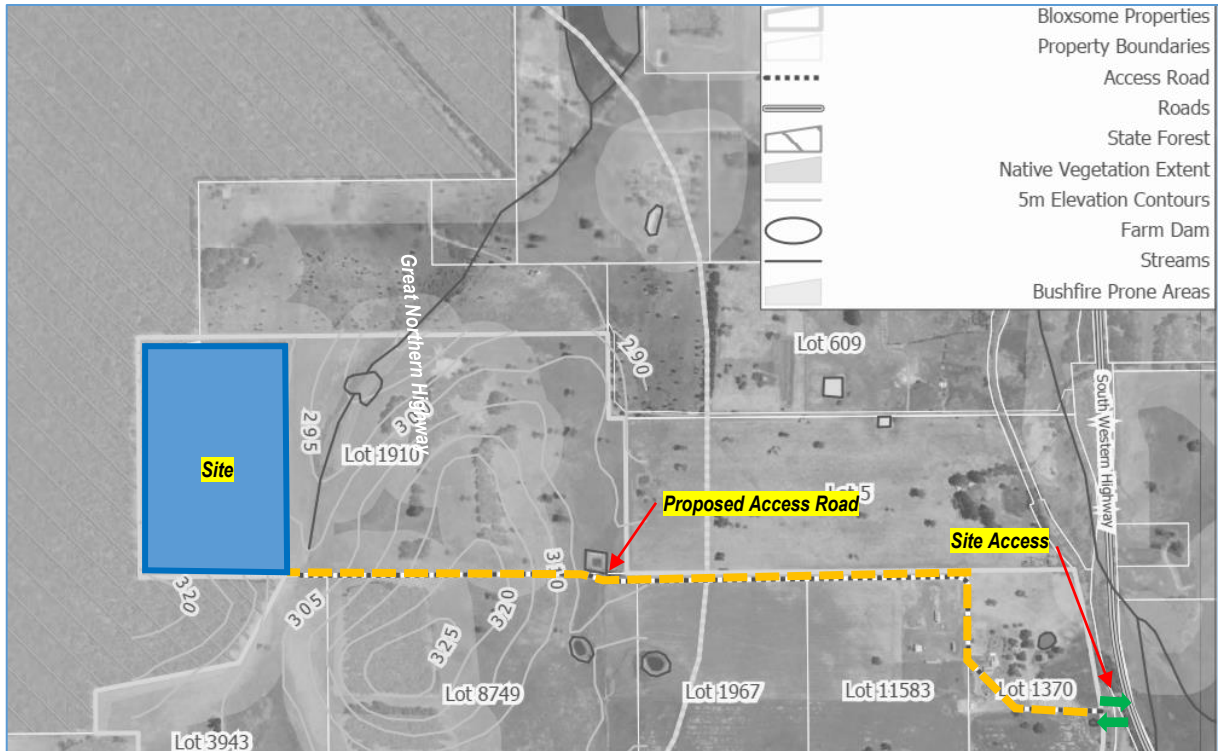


Figure 10: Proposed Access Road From South Western Highway



Figure 11: Google Street View (August 2022) - Existing Access Road

## 5.2. Sight Distance

Main Roads WA recommends that sight distance from driveways along an arterial road should satisfy the Austroads Safe Intersection Sight Distance (SISD) or the Stopping Sight Distance (SSD) as an absolute minimum. The minimum required SISD (based on a 110km/h design speed, 2.5s reaction time, deceleration coefficient of 0.36 and a 0% grade) is 300m.

As shown in **Figure 12** and **Figure 13**, the minimum 300m SISD is achieved to the north. It is also demonstrated in **Figure 14** and **Figure 15** the minimum 300m SISD is achieved to the south.

Vertically, there are no major crests that reduce the available sight distance below the minimum required SISD.

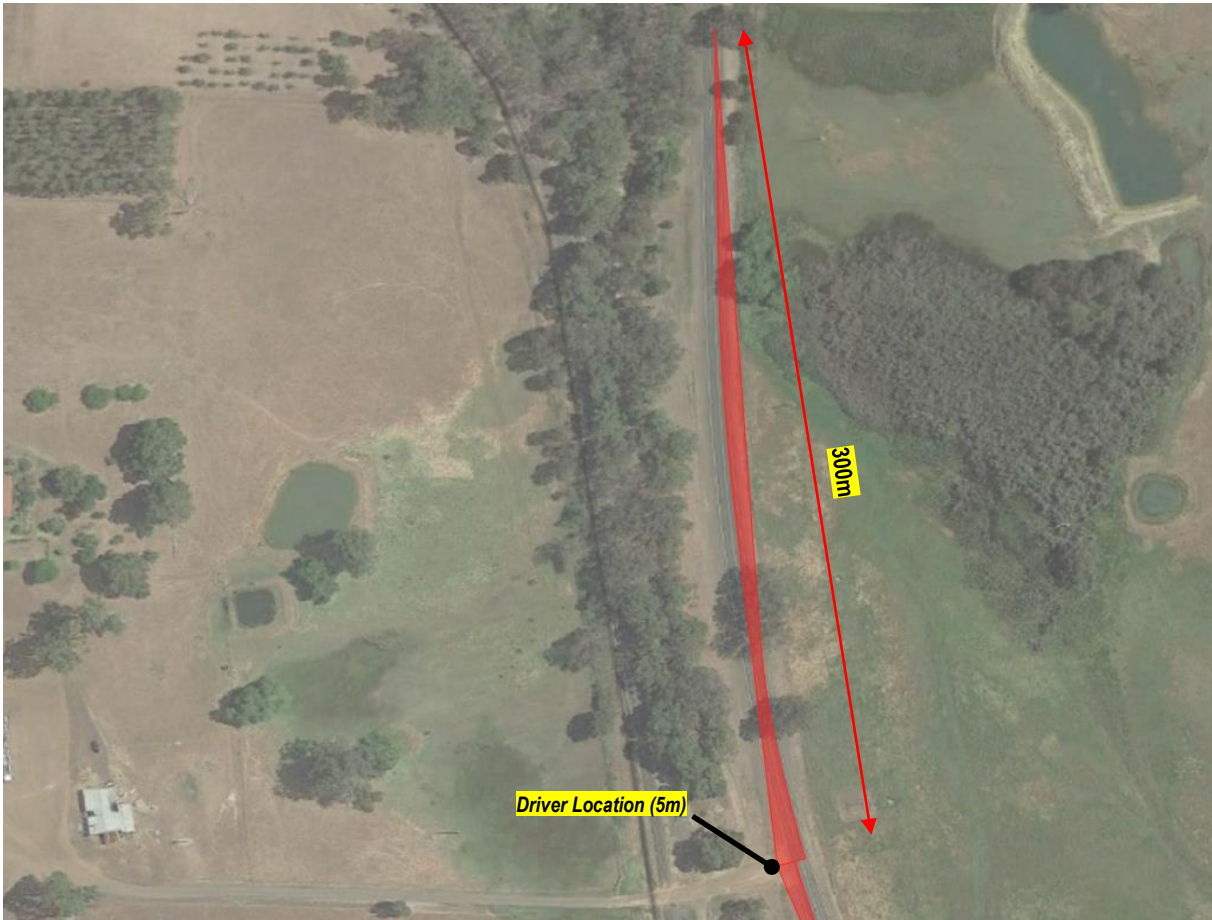


Figure 12: Sight Distance Measurement to the North – Site Access



Figure 13: Google Street View (August 2022) Towards the North

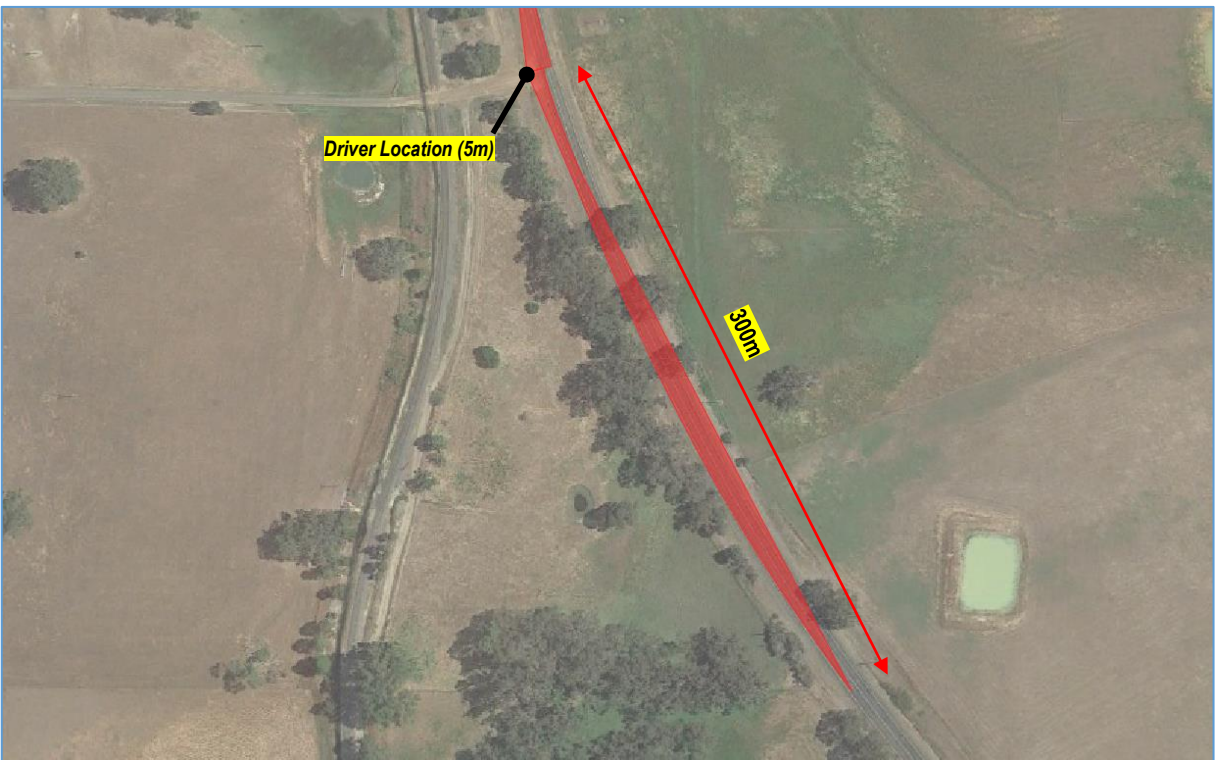


Figure 14: Sight Distance Measurement to the South – Site Access



Figure 15: Google Street View (August 2022) Towards the South

### 5.3. Access Geometry

The driveway will need to accommodate the turning path of the largest vehicle proposed to access the site. It is confirmed that the largest truck that will be used for the operation will be a 27.5m RAV 4 truck.

A preliminary swept path analysis has been undertaken in Autodesk Vehicle Tracking using the Main Roads WA standard RAV 2-4 vehicle as shown in **Figure 16** and **Figure 17**.

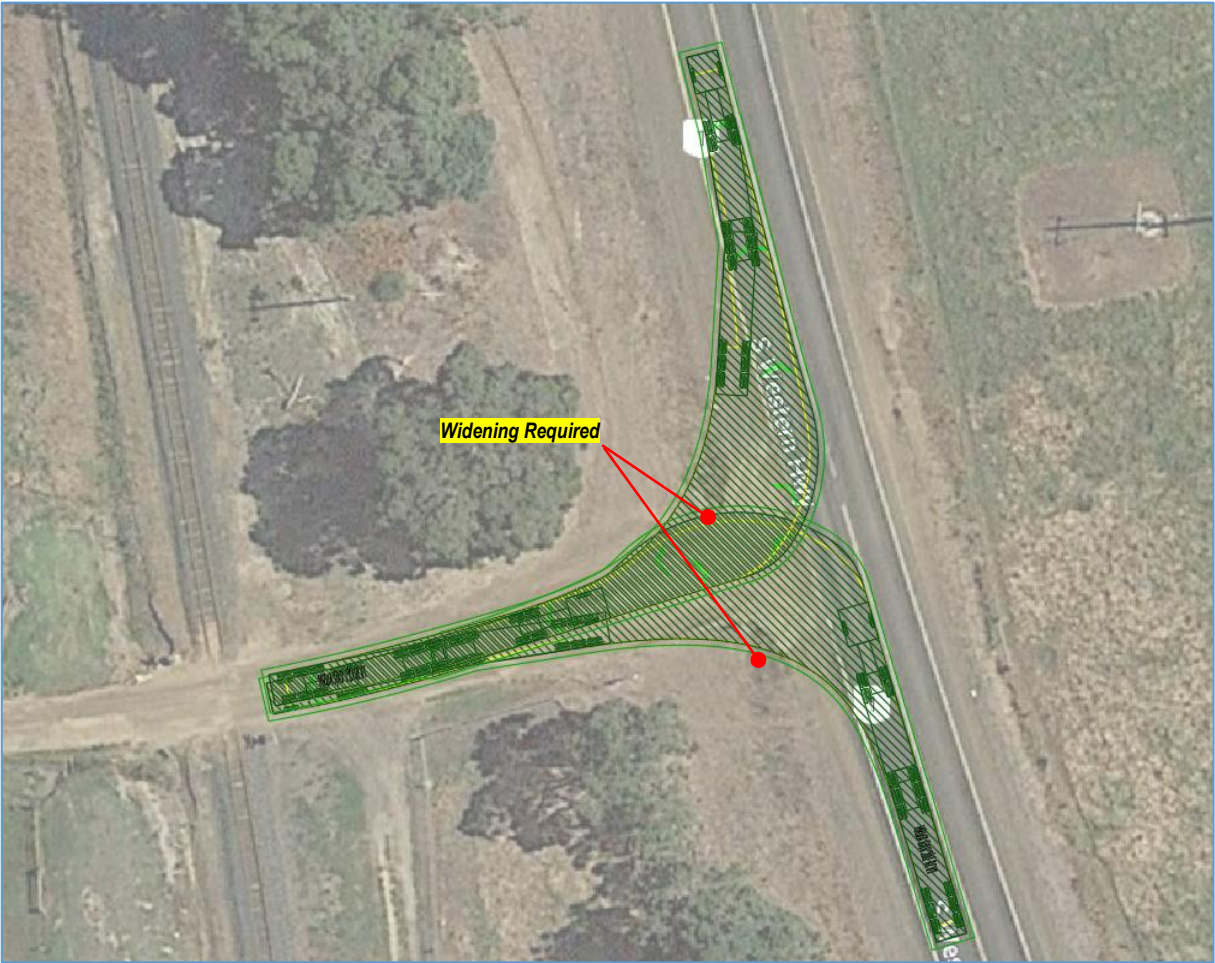


Figure 16: Site Access - Entry and Exit (Northbound)



**Figure 17: Site Access - Entry and Exit (Southbound)**

As shown, the existing access road will need to be widened to accommodate the largest vehicle which is a 27.5m road train. A portion of the access road will need to be sealed to prevent tracking of material onto the highway. The length of sealed road is to be determined by the Regional Manager and is typically at least the length of the largest vehicle proposed to use the site.



### 5.3.1. Auxiliary Lanes

The requirements for turning treatments for the site access was calculated using the Intersection Warrants calculator provided in Main Roads WA Supplement to Austroads Guide to Road Design - Part 4 A.8. The turn warrant assessment for the existing site access is shown in **Figure 18** and **Figure 19**. It is assumed as a worst case scenario that the site would generate 4 truck movements during the peak hours (2 in each direction).

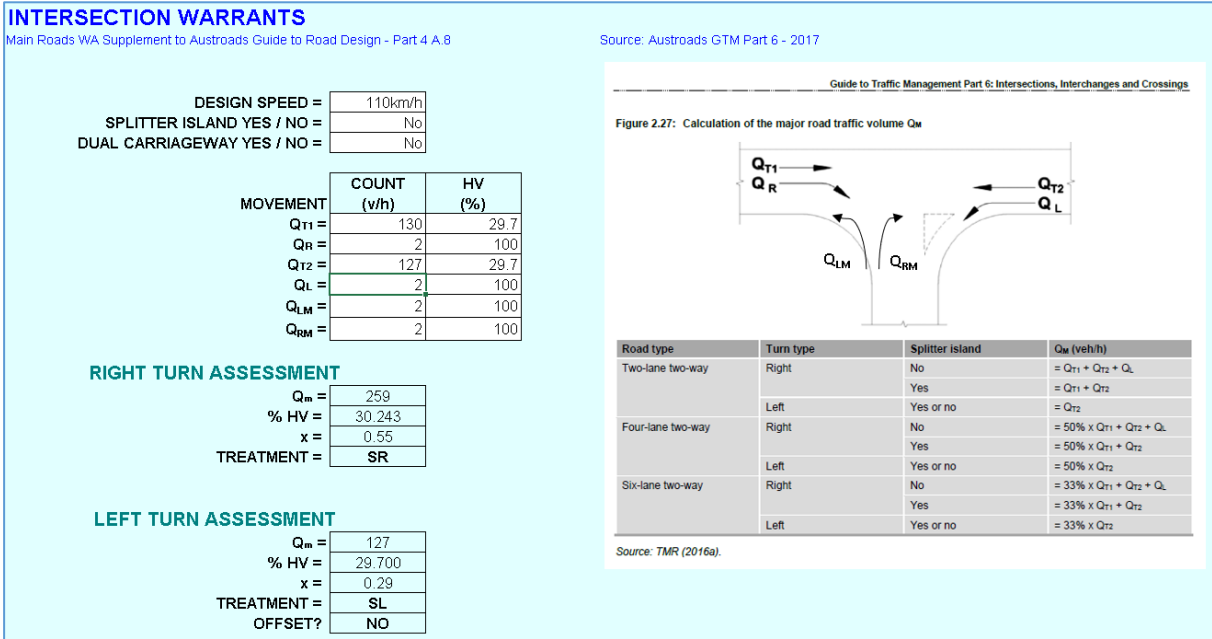


Figure 18: Intersection Configuration Warrants (AM Peak Hour)

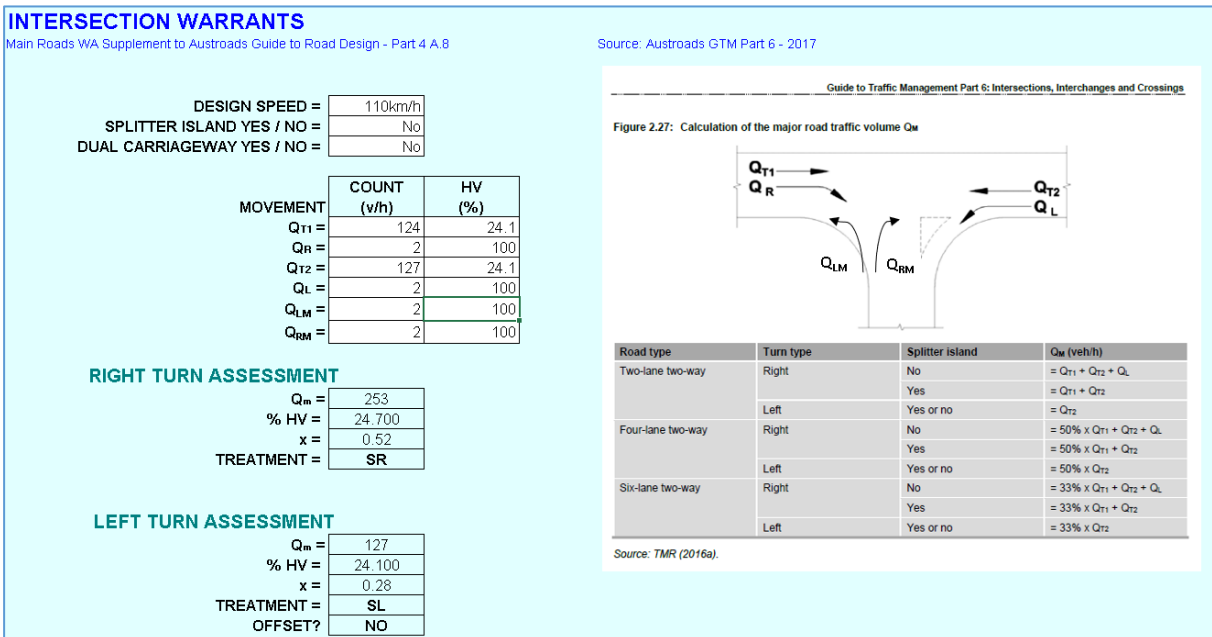
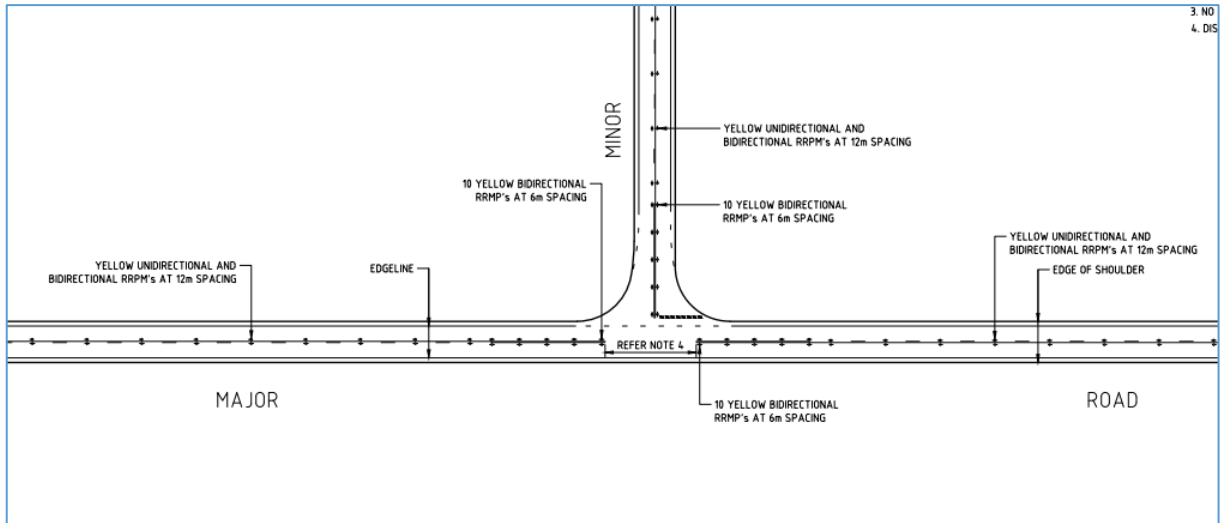


Figure 19: Intersection Configuration Warrants (PM Peak Hour)

As shown, a Simple Right Turn and a Simple Left Turn are the warranted treatments at site access intersection. MRWA have recently updated their guideline drawings for these treatments (refer MRWA drawings 200131-0081 and 202231-0008). Excerpts of these guideline drawings are provided in **Figure 20**.



**Figure 20: Simple Left/Simple Right (SL) Treatment**

## 5.4. Rail Crossing

The existing access road that will be used for the proposed development crosses a railway line running adjacent to South Western Highway in the vicinity of the site. The railway crossing is approximately 47 metres from the edge of South Western Highway and is currently controlled by give-way signs. The railway crossing is shown in **Figure 21** and **Figure 22**.

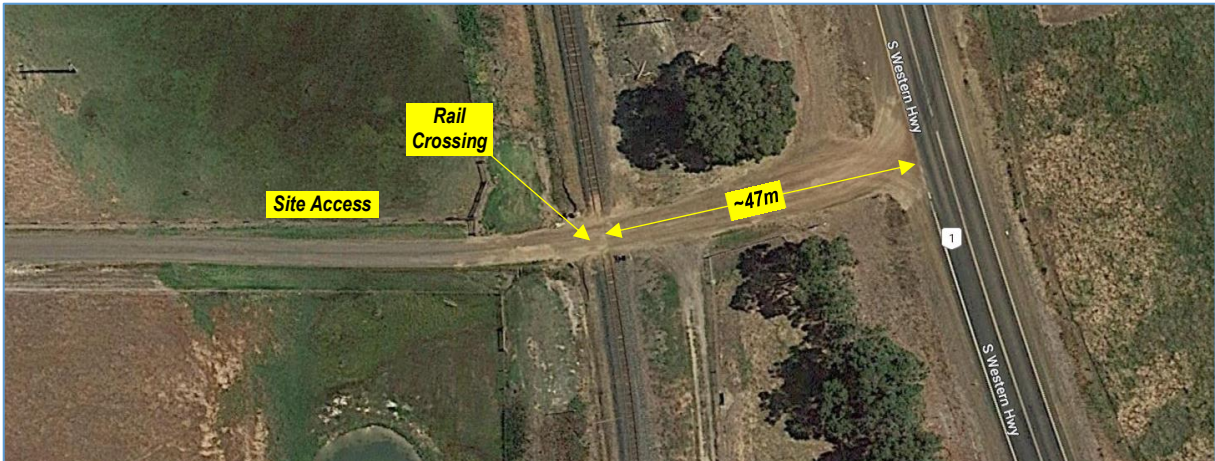


Figure 21: Railway Crossing



Figure 22: Railway Crossing from Street View (August 2022)

According to ARC Infrastructure mapping, this railway is on the Picton to Northcliffe Line and the adjacent section of railway is no longer used for freight or railway services. In the event that the railway is used in the future, a railway crossing assessment has been undertaken in accordance with the requirements of the Main Roads WA *Standard Restricted Access Vehicle Route Assessment Guidelines* (RAV Guidelines).

#### 5.4.1. Stacking Distance

Figure 5 of the RAV guidelines, shown below as **Figure 23**, demonstrates the methodology for measuring approach and departure stacking distances between the railway line and adjacent intersections.

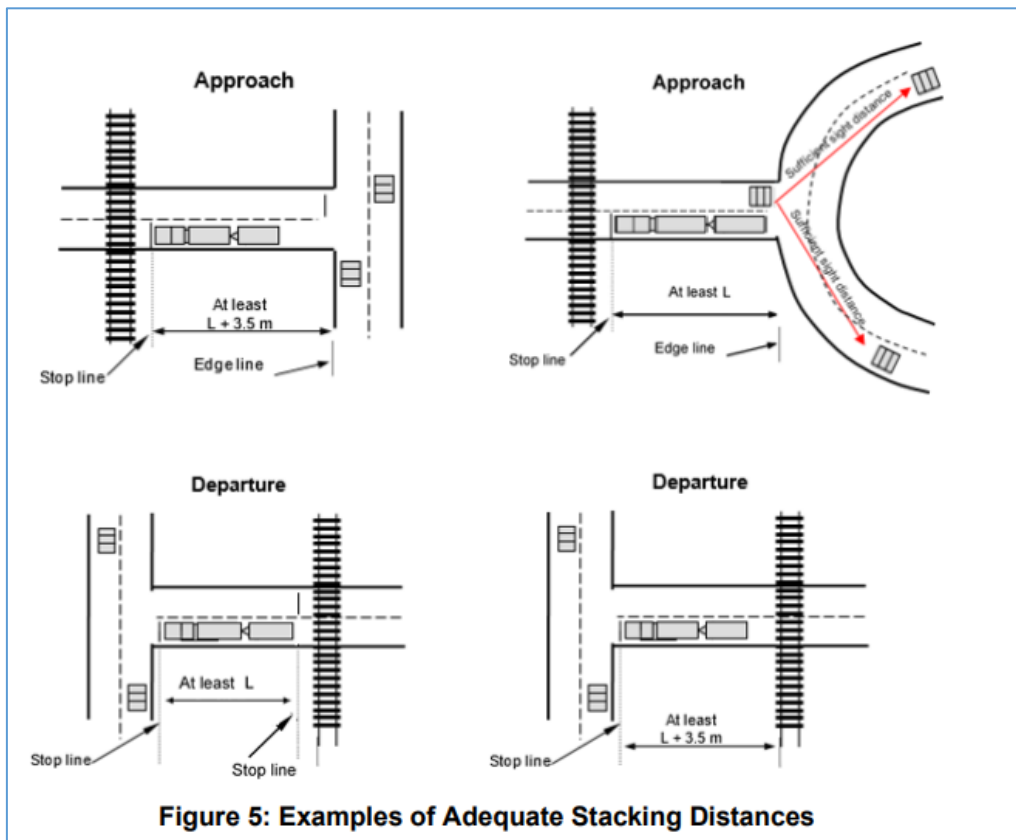


Figure 23: Stacking Distance Requirements

The largest proposed RAV to be used is a Category 4 (max. 27.5m) and so the required stacking distance is 31m. As shown previously, there is approximately 47m between the rail crossing and South Western Highway which is sufficient for one RAV4 vehicle. Based on the low traffic generation, it is highly unlikely that more than one inbound RAV 4 vehicle will pass the railway at the same time. For outbound vehicles, there is more than 200m stacking distance back to the start of the existing development.

### 5.4.2. Approach Sight Distance

The driver of a RAV approaching a railway crossing needs to be able to see the crossing from a sufficient distance to allow enough time to stop the RAV if required. The Approach Sight Distance (ASD) to a railway crossing must meet the values outlined in Appendix D of the RAV Guidelines.

For outbound vehicles, a maximum travel speed of 50km/h is assumed and the minimum ASD requirement is 89m. Inbound vehicles turning from South Western Highway will be travelling at a very low speed and so minimal sight distance is required from this direction.

As shown in **Figure 24**, there is approximately 230m sight distance towards the railway crossing for outbound vehicles.



Figure 24: Approach Sight Distance Check

### 5.5. School Bus Routes

The closest schools are located in Bridgetown and Manjimup. The schools in these areas are served by School Bus Services (SBS) which is a private service which operates under a contractual agreement with the Public Transport Authority. The coverage areas for Bridgetown and Manjimup are limited to the townsites and the immediate surrounding areas and do not extend past Yornup.

There does not appear to be any bus services that would be impacted by the proposed development.

## 6. Road Safety Assessment

### 6.1. Crash History

The crash history of the adjacent road network was obtained from the MRWA Reporting Centre. The search included the length South Western Highway 1km north and south of the site access.

A summary of crashes over the 5-year period between January 2017 and December 2021 is shown in **Figure 25**.

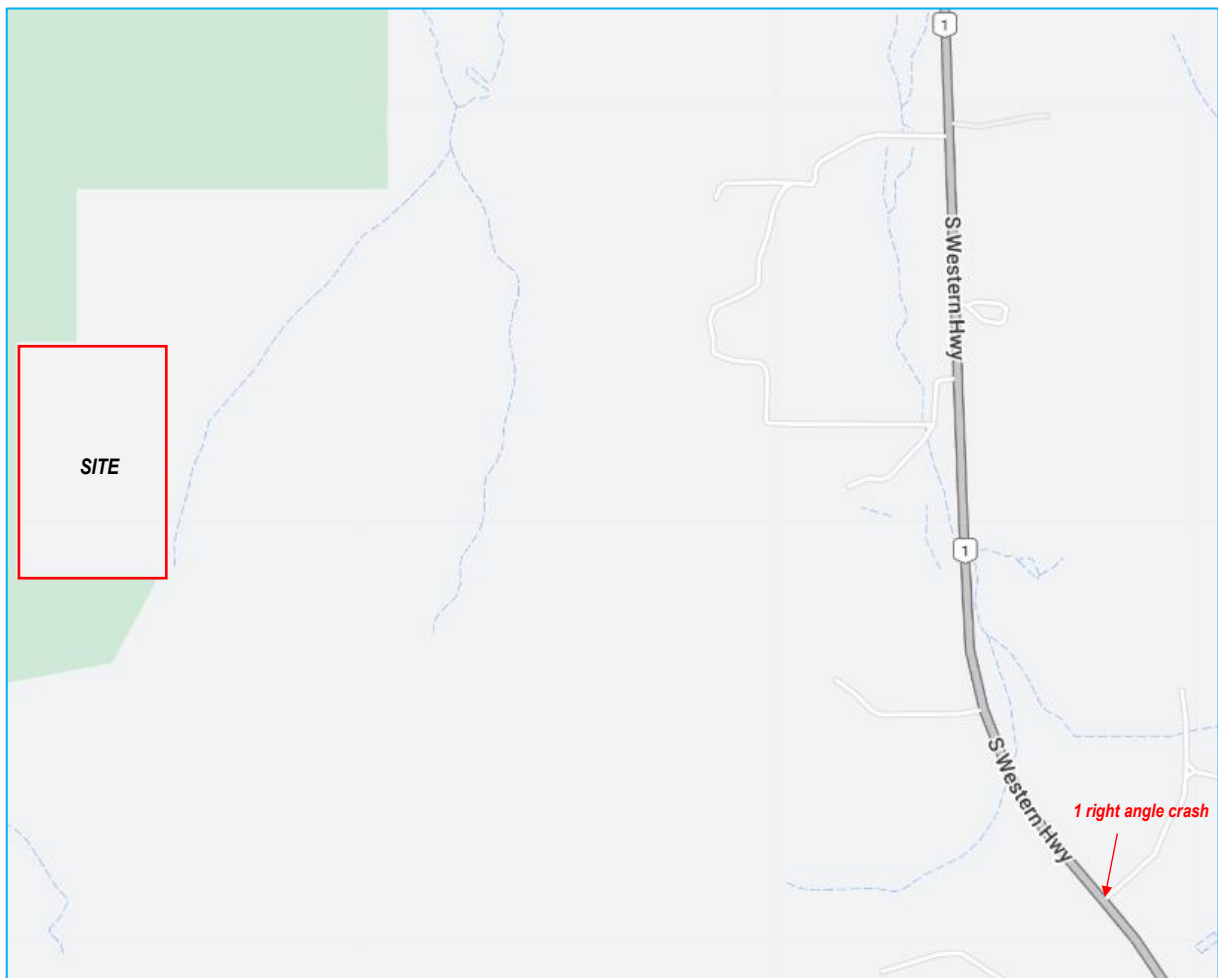


Figure 25: Crash History – January 2017 to December 2021

As shown, there is only one right angle crash recorded at a driveway towards the south, which is reported in 2017. There are no recent crashes reported along the South Western Highway in the vicinity of site.

Therefore, crash history does not indicate any safety issues.



## 7. Conclusion

---

A Transport Impact Statement for the proposed gravel extraction at Lot 1910 South Western Highway in Yornup concluded the following:

- The existing road network will have sufficient capacity to accommodate the traffic generated by the development.
- The minimum required Safe Intersection Sight Distance is achieved at the proposed access in both directions.
- A swept path analysis indicates that some minor widening of the existing access will be required to accommodate the swept path of the proposed RAV 4 trucks. A portion of the access road will need to be sealed to prevent tracking of material onto the highway. The length of sealed road is to be determined by the Regional Manager and is typically at least the length of the largest vehicle proposed to use the site.
- The estimated peak hour turning volumes at the access warrant simple left and right turn treatments.
- The existing access road that will be used for the proposed development crosses a railway line running adjacent to South Western Highway in the vicinity of the site. According to ARC Infrastructure mapping, this railway is on the Picton to Northcliffe Line and the adjacent section of railway is no longer used for freight or railway services.
- There does not appear to be any bus services that would be impacted by the proposed development.
- A review of the crash history along South Western Highway did not identify any safety issues that would be exacerbated by the proposal.


## **APPENDIX 5**

### **VISUAL IMPACT ASSESSMENT FROM SOUTHWESTERN HIGHWAY**



← 25330 S Western Hwy

Yornup, Western Australia

 Google Street View

Aug 2022

[See more dates](#)





25330 S Western Hwy



Yornup, Western Australia



Google Street View


Aug 2022

[See more dates](#)



← 399 National Route 1

Yornup, Western Australia

 Google Street View

Aug 2022

[See more dates](#)



## **APPENDIX 6**

### **DUST MANAGEMENT PLAN**



## DUST MANAGEMENT PLAN

Prepared for B & J Catalano Pty Ltd

**Lots 1910, 3943, 8749, 1967, 11583 and 1370 South Western Hwy, Yornup**

**Shire of Bridgetown-Greenbushes**

### 1. INTRODUCTION

This Dust Management Plan (DMP) has been prepared in accordance with guidelines published by the Department of Environment and Conservation (DEC) (Jan. 2011), now the Department of Water and Environmental Regulation (DWER). This Dust Management Plan should be read in conjunction with the report entitled *“Development Approval Application and Environmental Management Plan Lots 1910, 3943, 8749, 1967, 11583 and 1370 South Western Hwy, Yornup, Shire of Bridgetown-Greenbushes”*, prepared for B&J Catalano Pty Ltd by Lundstrom Environmental Consultants Pty Ltd in March 2023.

The objectives of this DMP are as follows:

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

### 2. SITE BACKGROUND

The properties are situated within a farm approximately 10km by road, south of Bridgetown. The site and surrounds are shown on Figure 1. All properties are owned by Peter Raymond Bloxsome.

Figure 1 is a recent aerial photograph showing the property and its surrounds and the proposed operations areas covered by this application.

#### 2.1 Land Use

The property and surrounding land consists of cleared agricultural land and pockets of remnant vegetation (Figure 1).

## 2.2 Geology and Soils

It is expected the geology is similar to nearby Glenlynn Gravel Quarry, which consists of a thin veneer of topsoil overlying approximately 1m of laterite caprock and gravel. The indurated material grades into kaolinitic clays which are approximately 20 metres deep before fresh granitoid material is encountered.

## 2.3 Nuisance Potential of materials

The crushed material texture is predominantly gravel with moderate amounts of sand and trace amounts of fines (clays and silts), with grain size distribution (ISO 14688-1) being approximately as follows:

Gravel (>2.0mm):	58%
Sand (0.063<2.0mm):	33%
Fines (Silt & Clay; <0.063mm):	9%

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

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

Whilst the analysis presented above does not determine the quantity of PM50 particles, it is estimated that the potential for total suspended particles (TSP) less than PM50 is approximately 7.5%. Mitigation measures are discussed in Section 4 below.

Potentially significant sources of airborne particulates from the site have been assessed as being limited to:

- Dust lift-off from exposed extraction areas or rehabilitated surfaces
- Dust lift-off from stockpiles (topsoil and extracted product)
- Dust lift-off from haul roads and tracks resulting from light vehicle and heavy earthmoving traffic
- Dust generation from crushing and screening processes, loading and transportation of extracted material.

The majority of airborne particulates from the site are likely to be visible dust.

Mitigation measures for the operations are discussed in Section 4 below.

## 3. PROPOSED WORKS AND POTENTIAL IMPACTS

B & J Catalano Pty Ltd intend to extract approximately 68,400 tonnes/year of gravel from the area indicated on Figure 1 in four approximately equal stages of approximately 3.8 ha. The total area to be disturbed is 15.2ha and the final land surface will be approximately 1m below ground level. The DA application is for 5 years and all extraction should be completed within this time.

Equipment to be used in these operations includes:

- D10/D9 Bulldozer
- CAT 980 Front End Loader (FEL)
- Striker 1320 Crusher
- Finlay Screen 693
- Striker 25m Stacker
- Standard Rigid Truck (14 tonnes)
- Single Semi-loader (24 tonnes)
- Truck and Dog (40 tonnes)
- Road Train (50 tonnes)
- Water Carts

Extractive operations within the stages will include topsoil removal, ripping, blading, crushing and stockpiling of gravel, truck loading of gravel and rehabilitation of the extraction area.

Stripped topsoil from each stage will be placed in windrows along the edges of the working area to serve as noise, stormwater and visual barriers.

A bulldozer will rip the laterite and then blade it into the crusher sites until a large raw material stockpile has accumulated. It is anticipated that the ripping and blading phase of the operation will be undertaken for approximately one week per each stage.

Once all the raw material has been stockpiled, a crusher, screen and stacker unit will be deployed for a period of approximately four weeks per year. At the end of this period all material will be processed and ready for use. Trucks, as required, will enter and cart material out of the site over the remainder of the five year extraction period.

After extraction, the land surface will be approximately 1m lower than the original height, apart from the batters which will be at a maximum gradient of 1:6.

The first stage of rehabilitation is topsoil replacement and contour ripping. This will be conducted immediately after completion of extraction in each stage.

Rehabilitation will be done in progressive stages over the life of the extraction.

Table 1 provides a description of all activities, their duration, aspect and an assessment of potential for dust impacts.

**Table 1: Aspects and Impacts of Dust Generating Activities**

Activity	Duration	Aspect	Impact
Construction of internal driveway / access road	~1 week	Actions may release dust into the atmosphere	Dust may create an amenity issue with nearby residents
Topsoil Stripping and stockpiling	Up to 1 week per annum in 4 stages.	Disturbance of grass and soil exposes ground to wind erosion	Dust may create an amenity issue with nearby residents
Rip and blade laterite to crusher site	Up to 3 weeks per annum in 4 stages.	Actions may release dust into the atmosphere	Fine red dust may create an amenity issue with nearby residents
Crushing, screening and stockpiling of gravel	Up to 4 weeks per annum in 4 stages.	Crushing and screening actions may release dust into the atmosphere	Fine red dust may create an amenity issue with nearby residents
Loading of trucks from stockpiles	5 years at a maximum of 11 loaded trucks per day.	Loading of gravel may release dust into the atmosphere	Fine red dust may create an amenity issue with nearby residents
Transport of gravel from site	5 years at a maximum of 11 loaded trucks per day.	Dust could escape from trucks in transit	Amenity, health or traffic safety issue
Rehabilitation of completed stages	Up to 2 weeks per year from 2023 onwards	Disturbance of topsoil could release dust into the atmosphere	Dust may create an amenity issue with nearby residents

### 2.3 Potentially Sensitive Receptors

The Environmental Protection Authority (EPA) draft Environmental Assessment Guidelines “Separation distances between Industrial and sensitive land uses” lists the generic buffer for extractive industries grinding and milling works but no blasting as 500 - 1 000m depending on the type of processing. As this operation would be considered to be a “low scale” operation, the minimum generic buffer would be likely to apply.

There are no residential dwellings within 1000m of the proposed extraction area.

The nearest residences are located more than 1.5km from the proposed extraction (Figure 1)

### 2.4 Prevailing Winds

Winds are strongest in this area in the afternoon and data has been extracted for this time from the Bridgetown weather station (Bureau of Meteorology 2018). These data were analysed for the Glenynn Gravel Quarry application (LEC 2019) and showed that prevailing winds are from the west, north-west and north during the wetter months of winter and spring and from the south, south east and east during the drier months of summer and autumn. During the drier parts of the year, when there is potential for dust to be generated, it will mainly be blown in the opposite direction of the nearest residents.



### 3.2 Site Risk Assessment and Classification

Based on the risk assessment conducted (Annexure 1), the classification derived is “negligible risk” (Classification 2). Measures for managing dust impacts are discussed in Section 4 below.

### 4. MEASURES PROPOSED FOR MANAGING DUST

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

- Activities likely to generate the most dust including construction of access roads, topsoil stripping and crushing and screen activities will be timed to occur in winter.
- A water cart will be on site during periods when the internal access road is being constructed, material is being moved or crushing is being conducted. When dust is caused to occur during these periods, the water cart will be employed to damp down the areas of concern.
- If necessary, loads will be dampened prior to loading/unloading.
- If dust can be seen to be carried outside The Site, the source of dust will be identified and measures implemented to prevent or minimise further dust emissions.
- If there are high winds and conditions are dusty, then operations will be stopped until such time as adequate wetting down has occurred or conditions have changed.
- Stockpiles will be located where lift-off from the prevailing wind is minimised. If necessary stockpiles will be treated with sprays or polymer binders.
- Handling of materials will be kept to a minimum.
- Internal roads will be surfaced with gravel. A 20km per hour speed limit will apply to trucks on these internal roads at all times.
- Truck loads will be covered for preventing dust generation in transit.
- Employees and contractors working on site will be provided with information on how to minimise dust emissions.
- No burning of waste will occur.
- A notice will be erected at the front gate that provides emergency contact details for the Operations Manager.
- A complaints system will be put in place and these will be recorded by the Operations Manager and acted on promptly.

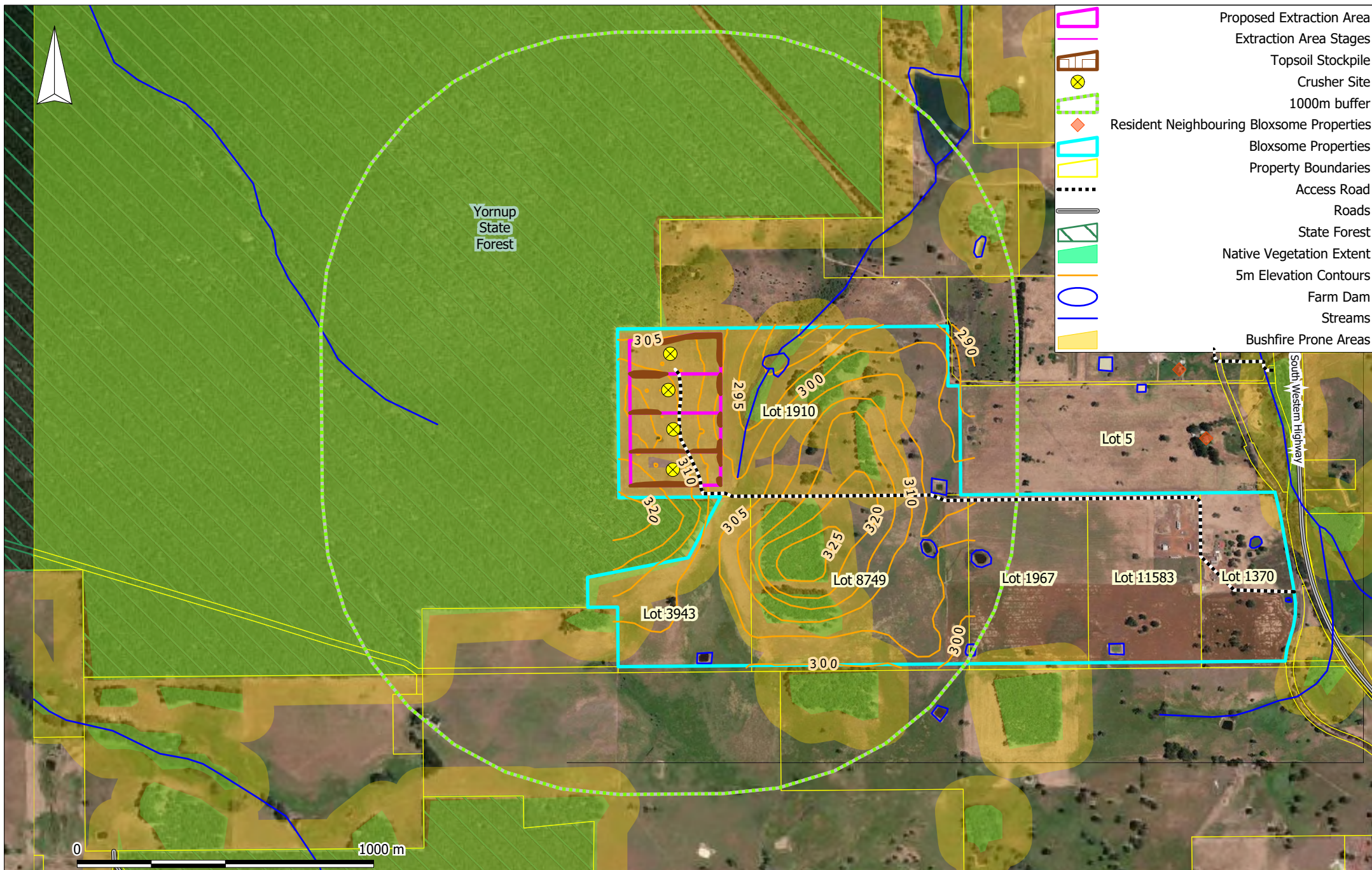
Visual monitoring will be undertaken to confirm dust management measures are effectively maintaining dust emissions at acceptable levels.

### 5. REFERENCES

Lundstrom Environmental Consultants (LEC) (2019) *Extractive Industry Application and Environmental Management Plan (EMP). Lots 1400 & 963 South Western Highway Glenlynn, Shire of Bridgetown-Greenbushes*. Report dated June 2019.

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

## **FIGURES**



- Proposed Extraction Area
- Extraction Area Stages
- Topsoil Stockpile
- Crusher Site
- 1000m buffer
- Resident Neighbouring Bloxsome Properties
- Bloxsome Properties
- Property Boundaries
- Access Road
- Roads
- State Forest
- Native Vegetation Extent
- 5m Elevation Contours
- Farm Dam
- Streams
- Bushfire Prone Areas



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Scale: 1:16000  
 Original Size: A4  
 Air Photo Source: ArcGIS World Imagery (Maxar) Nov 2020  
 Datum: GDA94  
 Projection: Australia MGA94 (50)

Client: B & J Catalano  
 Project: Gravel Extraction  
 Location: Southwestern Highway Yornup

**Figure 1**  
**Site and Surrounds**

## **ANNEXURE 1**

### **Site Classification Assessment Chart**

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

### Sheet 1: Site classification assessment chart

#### Part A. Nature of site

Item	Score options				Allocated score
1. Nuisance potential of soil, when disturbed	Very low.....1	Low.....2	Medium.....4	High.....6	4
2. Topography and protection provided by undisturbed vegetation	Sheltered and screened.....1	Medium screening....6	Little screening.....12	Exposed and wind prone.....18	6
3. Area of site disturbed by the works	Less than 1ha.....1	Between 1 and 5ha..3	Between 5 and 10ha.....6	More than 10ha.....9	6
4. Type of work being done	roads or shallow trenches.....1	roads, drains and medium depth sewers.....3	Roads, drains, sewers and partial earthworks.....6	Bulk earthworks and deep trenches.....9	9
<b>TOTAL score for Part A</b>					<b>23</b>

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

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

<b>SITE CLASSIFICATION SCORE (A X B) =</b>	<b>46</b>
--	-----------

### **Sheet 3: Notes relating to 'site assessment classification chart'**

1. The site assessment chart is used to differentiate between Classifications 1, 2, 3 and 4, as defined within these guidelines. Classifications 2 and 3 are subject to Note 4, below.
2. Sites may be divided into two or more classifications depending mainly on the proximity of existing land uses.
3. In assessing the relevant score level, the 'effect of prevailing winds' must be carefully considered. While houses, commercial areas, market gardens, schools and factories have high sensitivity ratings, roads, parks and recreational areas have lower sensitivity ratings.
4. Construction during dry period (1 October – 31 March).
  - (a) Where other land uses are within 100 metres of the site:
    - (i) sites assessed as Class 3 will automatically become Class 4, and
    - (ii) sites assessed as Class 2 will automatically become Class 3.
  - (b) Where other land uses are situated between 100 metres and 500 metres from the site, an on-site re-evaluation of Class 3 sites shall be conducted by the engineer for the developer, the local government or the DEC to determine the extent of additional Class 4 requirements considered necessary (if any).

## Sheet 4: Dust management and monitoring requirements for each site classification score

Based on the total score obtained from the 'SITE CLASSIFICATION ASSESSMENT CHART' and notwithstanding any allowance for special site conditions during the dry period, (refer to Note 4, Appendix 1) the following site classification will apply:

Site classification 1 — under 199;

Site classification 2 — 200 to 399;

Site classification 3 — 400 to 799, and

Site classification 4 — over 800.

**Note:**

- Unique sites may need special assessment.
- It is essential that any contracts for construction work on site include the relevant contingency arrangements appropriate for the site classification.

- **Classification 1 (score under 199, considered negligible risk)**

Provisions:

- None required.

Contingency arrangements:

- None required.

- **Classification 2 (score between 200 and 399, considered low risk)**

Provisions:

- The developer shall supply a contingency plan to the local government, which shall detail the activities to be undertaken should dust impacts occur.

Contingency arrangements:

- Include an allowance for water-cart operation, wind fencing and surface stabilisation during the construction period for the purposes of dust suppression.
- All areas of disturbed land should be stabilised to ensure that the disturbed area exposed at any time is kept to a practical minimum.

Monitoring requirements:

- Complaints management system in place (complaints recorded and acted on promptly).
- Notice to be erected at the site, providing contact details of the person to be contacted and works.

- **Classification 3 (score between 400 and 799, considered medium risk)**

Provisions:

- Appropriate wind fencing of a length specified in the air quality management programme needs to be stored on site or available within one hour of being required by the engineer for the developer/local government/DEC.
- All areas of disturbed land should be stabilised to ensure that the disturbed area exposed at any time is kept to a practical minimum to prevent exceedence of dust standards (see Section 4.4.2).
- The engineer for the developer shall maintain close control of works with dust creating potential (for example, allowable length of open trenching).
- After all siteworks are completed, and before the contractor has vacated the site, the developer should ensure that the entire site is stable. The developer then retains responsibility for site stability until change of ownership/control takes place. After the change of ownership/control has taken place, the new owner or controlling party will inherit responsibility for site stabilisation.

Contingency arrangements:

- Suitable water-carts in good working condition and of not less than 10,000 litres capacity per 7.5 hectares of disturbed site, or other suitable alternatives, shall be available to commence watering on the site within 18 hours of being required to do so by the engineer for the developer/local government/DEC.
- Surface stabilisation equipment shall be available to commence operation on site within 48 hours of being required to do so by the engineer for the developer/local government/DEC and with sufficient capacity to cover the disturbed site area within a further 48 hours.
- Wind fencing shall be erected within 18 hours of the contractor being required to do so by the engineer for the developer/local government/DEC. Dust generating works on the site shall cease in the interim.
- If dust-related complaints are generated due to activities on the site, the developer may be required by the local government or an authorised DEC officer to distribute advisory notices to adjoining land occupiers within 48 hours. A notice form is provided in Sheet 5 of Appendix 1.
- If dust-related complaints are generated due to material which has been excavated for trenching, the developer shall ensure this material is stabilised within 48 hours of being requested to do so by the engineer for the developer, local government or an authorised DEC officer.
- Include an allowance for water-cart operation, wind fencing and surface stabilisation during the construction period for the purposes of dust and wind-borne material suppression.
- Include an allowance for surface stabilisation for the purposes of dust and wind-borne material suppression to be maintained after the construction period and until change of ownership/control takes place.

Monitoring requirements

- Site dust management system in place.
- On-site dust monitoring against short term criteria.
- Off-site (compliance) dust monitoring at site boundary (if close to sensitive receptors) or at sensitive receptors. See Section 4 and Appendix 4.
- Complaints management system in place (complaints recorded and acted on promptly).
- Exceedences to be reported to the relevant authority – DEC, Local Government or DOH.
- Notice to be erected at the site, providing contact details of the person to be contacted regarding the works.



#### **Classification 4 (score over 800, considered high risk)**

##### Provisions:

- Advisory notices shall be issued to adjoining land occupiers, the local government and the DEC at least 48 hours before site works commence. The notices shall include the name of the developer, engineer for the developer, contractor/s, contract period, contact telephone numbers of the site engineer and local government environmental health officer as detailed in Sheet 5 of Appendix 1.
- Fencing to the extent and in locations agreed to by the developer and local government shall be erected before any part of the site surface is disturbed.

**Note: This provision does not necessarily mean that the total site boundary is to be fenced. The fence is to be installed to an extent which will protect adjacent land uses and in most cases should be erected on the edge of the area which will be disturbed rather than on the site boundary.**

- An amount of wind fencing of a length specified in the air quality management programme needs to be stored on site or available within one hour of being required by the engineer for the developer/local government/DEC.
- The nominated wind fencing is to remain in position until the disturbed surface is stable.
- Surface stabilisation is to be applied to the disturbed area of each section of the site upon completion of the works in that section.
- The engineer for the developer shall maintain strict control of works with dust-creating potential. Material which has been excavated for trenching shall be stabilised if the trench is to be left exposed for longer than 72 hours.
- After all siteworks are completed, and before the contractor has vacated the site, the developer should ensure that the entire site is stable. The developer then retains responsibility for site stability until change of ownership/control takes place. After the change of ownership/control has taken place, the new owner or controlling party will inherit responsibility for site stabilisation.

##### Contingency arrangements:

- Suitable water-carts in good working condition and of not less than 10,000 litres capacity per 5 hectares of disturbed site, or an appropriate alternative, shall be available to commence immediate watering on the site.
- Surface stabilisation equipment shall be available to commence operation on site within 48 hours of being required to do so by the engineer for the developer/local government/DEC and with sufficient capacity to cover the disturbed site area within a further 48 hours.
- Additional wind fencing shall be erected within 18 hours of the contractor being required to do so by the engineer for the developer/local government/DEC. Dust generating works on the site shall cease in the interim.
- Include an allowance for water-cart operation, wind fencing and surface stabilisation during the construction period for the purposes of dust and wind-borne material suppression.
- Include an allowance for surface stabilisation for the purposes of dust and wind-borne material suppression to be maintained after the construction period and until change of ownership/control takes place.

##### Monitoring requirements

As for Classification 3.

## **APPENDIX 7**

### **WATER MANAGEMENT PLAN**



## WATER MANAGEMENT PLAN

Prepared for B&J Catalano Pty Ltd

Lots 1910, 3943, 8749, 1967, 11583 and 1370 South Western Hwy, Yornup

Shire of Bridgetown-Greenbushes

### 1. INTRODUCTION

This Water Management Plan (WMP) has been prepared for the purpose of a Development Approval (DA) application for gravel extraction on Lots 1910, 3943, 8749, 1967, 11583 and 1370 South Western Hwy, Yornup, Shire of Bridgetown-Greenbushes.

Approval is sought for extraction of gravel from a 15.21 ha area, as shown in Figure 1

This WMP should be read in conjunction with the report entitled *“Development Application and Environmental Management Plan Lots 1910, 3943, 8749, 1967, 11583 and 1370 South Western Hwy, Yornup, Shire of Bridgetown-Greenbushes”*, prepared for B&J Catalano Pty Ltd by Lundstrom Environmental Consultants Pty Ltd in March 2023.

#### 1.1 PROPERTY DESCRIPTION, OWNERSHIP AND LOCALITY

The properties are situated within a farm approximately 10km by road south of Bridgetown. The site and surrounds are shown on Figure 1. The property details are summarised in Table 1. All properties are owned by Peter Raymond Bloxsome.

**Table 1: Property Description**

Property Description	Volume	Folio	Area (ha)
Lot 1910 on Deposited Plan 122450	1097	94	64.801
Lot 3943 on Deposited Plan 134218	1044	616	20.207
Lot 8749 on Deposited Plan 153461	1110	124	41.833
Lot 1967 on Deposited Plan 112279	1110	124	22.919
Lot 11583 on Deposited Plan 159703	1229	98	21.659
Lot 1370 on Deposited Plan 123445	4006	984	16.714

Latitude: -31.081  
Longitude: 116.201

## **1.2 HISTORIC AND PRESENT LAND USE**

Figure 1 is a recent aerial photograph showing the proposed and existing operations on the property.

The property and surrounding land comprise cleared agricultural land and some remnant native vegetation.

Lots 1910, 3943 and 8749 are zoned as “Rural 1 – Extensive Farming” and the remainder of the properties are zoned as “Rural 2 - General Agriculture” in terms of the Shire of Bridgetown-Greenbushes Town Planning Scheme No 4.

## **2. THE DEVELOPMENT PROPOSAL**

### **2.1 PROPOSED EXTRACTION ACTIVITIES**

B & J Catalano Pty Ltd intend to extract gravel from a 15.2 ha area.

Annual gravel extraction is estimated to be around 68,400 tonnes/year, dependent on demand. Gravel extraction will occur in approximately four equal stages. Table 2 below summarises the actions that are to take place on the property over the next 5 years (2022 to 2026). A summary of the actions is given below:

- Topsoil and overburden will be removed from the extraction area over the four stages with only the areas targeted for immediate extraction (~3.8 ha at a time) being opened. Topsoil and over-burden will be stockpiled separately along the edges of the extraction area, with stockpiles being no higher than 2m.
- Extraction activity will result in the lowering of the final ground surface by approximately 1.0m.
- Crushing and screening will be undertaken over the four stages.
- Measures to limit noise and dust will be undertaken.
- There will be no blasting.
- Rehabilitation and stormwater management measures will be implemented.
- The area will be returned to agricultural use.

**Table 2: Stages of the Extraction Operation**

Stage	Action	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
1	Topsoil stripping and stockpiling (~1 week)						
1	Rip and blade 38,000m <sup>3</sup> of laterite to crusher site (~3weeks)						
1	Crushing, screening and stockpiling of 38,000m <sup>3</sup> of gravel (4 weeks)						
1	Remove gravel product (38,000m <sup>3</sup> )						
1	Rehabilitate 3.8ha mined area						
2	Topsoil stripping and stockpiling (~1 week)						
2	Rip and blade 38,000m <sup>3</sup> laterite to crusher site (~3weeks)						
2	Crushing, screening and stockpiling of 38,000m <sup>3</sup> gravel (4 weeks)						
2	Remove gravel product (38,000m <sup>3</sup> )						
2	Rehabilitate 3.8ha mined area						
3	Topsoil stripping and stockpiling (~1 week)						
3	Rip and blade 38,000m <sup>3</sup> laterite to crusher site (~3weeks)						
3	Crushing, screening and stockpiling of 38,000m <sup>3</sup> gravel (4 weeks)						
3	Remove gravel product (38,000m <sup>3</sup> )						
3	Rehabilitate 3.8ha mined area						
4	Topsoil stripping and stockpiling (~1 week)						
4	Rip and blade 38,000m <sup>3</sup> laterite to crusher site (~3weeks)						
4	Crushing, screening and stockpiling of 38,000m <sup>3</sup> gravel (4 weeks)						
4	Remove gravel product (38,000m <sup>3</sup> )						
4	Rehabilitate 3.8ha mined area						
All	Monitoring and remediation of rehabilitated areas						

### 3. EXISTING ENVIRONMENT

#### 3.1 TOPOGRAPHY, HYDROLOGY AND WETLANDS

The extraction area has an elevation range between approximately 320 to 300m AHD. The north east corner of the extraction area falls towards the north and the remainder of the area generally falls towards the east, with an average slope of approximately 1 in 20 (5%).

Drainage from the proposed extraction area is to the north and east towards a drainage line that is part of a drainage network intersected by numerous farm dams that flows towards the Blackwood River. It appears this drainage network terminates before reaching the Blackwood River. The proposed extraction area is located in the Hardy Estuary Blackwood River Catchment within the Blackwood River Basin (Landgate 2022).

The Blackwood River is located approximately 7km to the north of the proposed extraction area.

There are numerous farm dams within the properties, but no known lakes or wetlands exist within 1 000 metres of the proposed extraction area (Landgate 2022). The property owner is constructing a new dam on the drainage line located immediately to the east of the proposed extraction area.

The properties do not fall within a Public Drinking Water Source Area or a *Rights in Water and Irrigation (RIWI) Act 1914* Surface Water Proclamation Area.

### **3.2 GEOLOGY AND SOILS**

It is expected the geology is similar to nearby Glenlynn Gravel Quarry which consists of a thin veneer of topsoil overlying approximately 1m of laterite caprock and gravel. The indurated material grades into kaolinitic clays which are approximately 20 metres deep before fresh granitoid material is encountered.

### **3.3 GROUNDWATER HYDROLOGY**

It is expected the groundwater hydrology is similar to nearby Glenlynn Gravel Quarry therefore groundwater resources will be limited within the area due to the low permeability of the sub-surface materials. Small quantities may be obtained at some depth below the weathered clays. This may be at between 15 to 20m below ground level at the base of the clay layer which is part of the laterite profile (De Silva et al 2000). Due to the very low permeability of the clay materials below the laterite, it is unlikely that proposed gravel extraction will impact permanent groundwater.

Whilst there may be temporary perching of rainwater during winter storms at the contact between the gravel and the clay layer below, this is very quickly dispersed by infiltration and evaporation.

The site does not fall within a *Rights in Water and Irrigation (RIWI) Act 1914* Groundwater Proclamation Area.

### **3.4 RAINFALL**

One of the closest rainfall recording stations is Wilgarrup (Station 9619) and it has a mean annual rainfall of 916.4 mm (based on observations recorded since 1900) (BoM 2021a). The wettest months are June, July and August and the driest months are December, January and February.

Rainfall intensity has been calculated using the Bureau of Meteorology (BoM) Rainfall Intensity-Frequency-Duration (IFD) data system (BoM 2021b), which yields the 2hr 10% Annual Exceedance Probability (AEP) (31.3mm/hr). The DWER recommends that surface water runoff produced within the mined area from this rainfall event should be contained within the pit (DWER 2019). This aspect is discussed later in this document.

## 4. WATER MANAGEMENT

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

### 4.1 Surface Water Management

Four surface water management areas have been defined within the extraction areas (Figure 2) that follow the extraction stage boundaries. Sub-catchment 1 has been divided into two catchments (A and B) in order to follow the natural sub-catchment boundaries.

Runoff generated within each sub-catchment for the 2hr 10% Annual Exceedance Probability (AEP) rainfall event has been calculated using the Rational Method as detailed in Table 3. Storm-water management infrastructure (detention ponds and contour bunds) will be designed to manage at minimum this runoff.

Runoff from areas outside the defined sub-catchments will be diverted away using diversion (cut-off) bunds. Diversion bunds will also be used in addition to contour bunds to help direct surface water flow towards detention ponds and prevent uncontrolled flow of surface water from mined areas to nearby streams.

**Table 3: Surface Water Management Areas (Sub-catchments), Runoff Volumes and Detention Pond Dimensions**

Sub-catchment	Stages incorporated	Total Area (ha)	Extraction Area (ha)	Undisturbed Area (ha)	Design Storm Runoff* (m <sup>3</sup> x 10 <sup>3</sup> )	Detention Pond Storage (m <sup>3</sup> x 10 <sup>3</sup> )	Detention Pond Area (m <sup>2</sup> )
1A	1	1.94	1.94	0.00	0.48	0.500	200
1B	1	1.82	1.82	0.00	0.45	0.500	200
2	2	4.03	4.03	0.00	1.01	1.100	440
3	3	3.99	3.99	0.00	1.00	1.100	440
4	4	3.45	3.45	0.00	0.86	0.900	360
<b>TOTAL</b>		<b>15.23</b>	<b>15.23</b>	<b>0.00</b>	<b>3.80</b>	<b>4.10</b>	<b>1640</b>

\*Calculated by Rational Method with a 2hr 10% AEP of 15.6mm/hour obtained from the Bureau of Meteorology (BoM) website (BOM 2022b). Runoff coefficients used for Rational Method calculations were 0.8 for disturbed areas and 0.3 for undisturbed areas.

Based on the calculated storm design runoff shown in Table 3, the following measures illustrated on Figure 2<sup>1</sup> will be used to achieve comprehensive onsite management of surface water runoff from the proposed extraction area:

- Stormwater detention ponds with the capacity to hold at least the 2hr 10% AEP storm event as detailed in Section 4.2.

<sup>1</sup> Contour bund locations shown on Figure 2 are indicative only and detailed layout should be implemented by an experienced surveyor.

- As each extraction area is completed, narrow-based contour bunds will be constructed to a grade of between 0.1 and 0.4%. Contour bund design methodology is discussed further in Section 4.2.1 below.
- Diversion (cut-off) bunds will be formed along parts of the northern and southern boundaries of each stage to prevent runoff entering into mined areas as shown on Figure 2. Diversion bunds will also be formed along the east edges of all stages to help direct surface water flow towards detention ponds and prevent uncontrolled flow of surface water from mined areas to nearby streams.
- As part of the rehabilitation process, the ground will be ripped along the contour prior to fertilisation and seeding. This leaves a depression and low bund which will attenuate surface water flows and prevent rill erosion during the period that pasture grasses are becoming established. Surface water detention ponds and contour bunds will be retained until vegetation ground cover is sufficient to stabilise the ground surface and prevent erosion.
- Regular monitoring of the erosion control measures will be undertaken, and repairs implemented where necessary throughout the extraction period.

## **4.2 Storm Water Management**

As each extraction stage is opened, stormwater detention pond(s) will be excavated below the workings (but within the extraction area) with the capacity to hold at least the a 2hr 10% AEP storm event. Each sub-catchment will have one pond each. The positions of these detention ponds are shown on Figure 2 and the storage capacities listed in Table 3.

### **4.2.1 Contour Bank/Bund Design**

Basic design parameters for the contour bunds that will be used for stormwater management on this property have been taken from the Queensland Department of Environment and Resource Management guideline.

Contour bank design is dependent on the following factors:

- Land-use after rehabilitation
- Slope
- Soil erodibility

In this case, the site will be returned to its former agricultural land use post-extraction. The proposed contour bank type in this situation is "narrow-based" i.e. approximately 4m across.

Slopes range from approximately 2 to 10% and it is recommended that contour banks are spaced approximately 60 to 30m apart in this situation, and with a fall within a range of 0.1 and 0.4%.



### **4.3 Groundwater Management**

The average depth of the extraction will be approximately 1 metre. Groundwater will not be exposed by the excavations. No dewatering activities will be undertaken.

When water is required for dust management, it will be abstracted from the existing farm dams on the property or off-site from the nearest available commercial (scheme) source.

Due to the low scale nature of the operations and limited groundwater, no groundwater contamination is anticipated and there is no risk to any private groundwater supply. No fuel or lubricant storage will occur on the site. Refuelling will take place using a mobile refuelling vehicle which is equipped with a “snap-on snap-off, fast-fill and auto shut-off” facility. Plant will be refuelled each morning, leaving the vehicles almost empty overnight. No major servicing, which could lead to fuel and oil spills, will take place on the site. Minor spills which may occur occasionally will be neutralised by soil processes. B&J Catalano have a Safety Practice document for Hydrocarbon Spill Response outlining their procedures for controlling, recovering, treating and reporting hydrocarbon spills (Annexure 1).

## **5. ACID SULFATE SOILS**

A search of the CSIRO’s Australian Soil Resource Information System (ASRIS) database (CSIRO 2011) identified the area as having an extremely low probability of occurrence for acid sulfate soils. If ASS is present it will be in small localised areas, generally within upper 1 m in wet / riparian areas with Calcarosols (soils dominated by carbonate sediments, often windblown). Although confidence in the mapping at this location is low, it indicates that it is highly unlikely that acid sulfate soils will be present in the laterite that will be the target of the mining.

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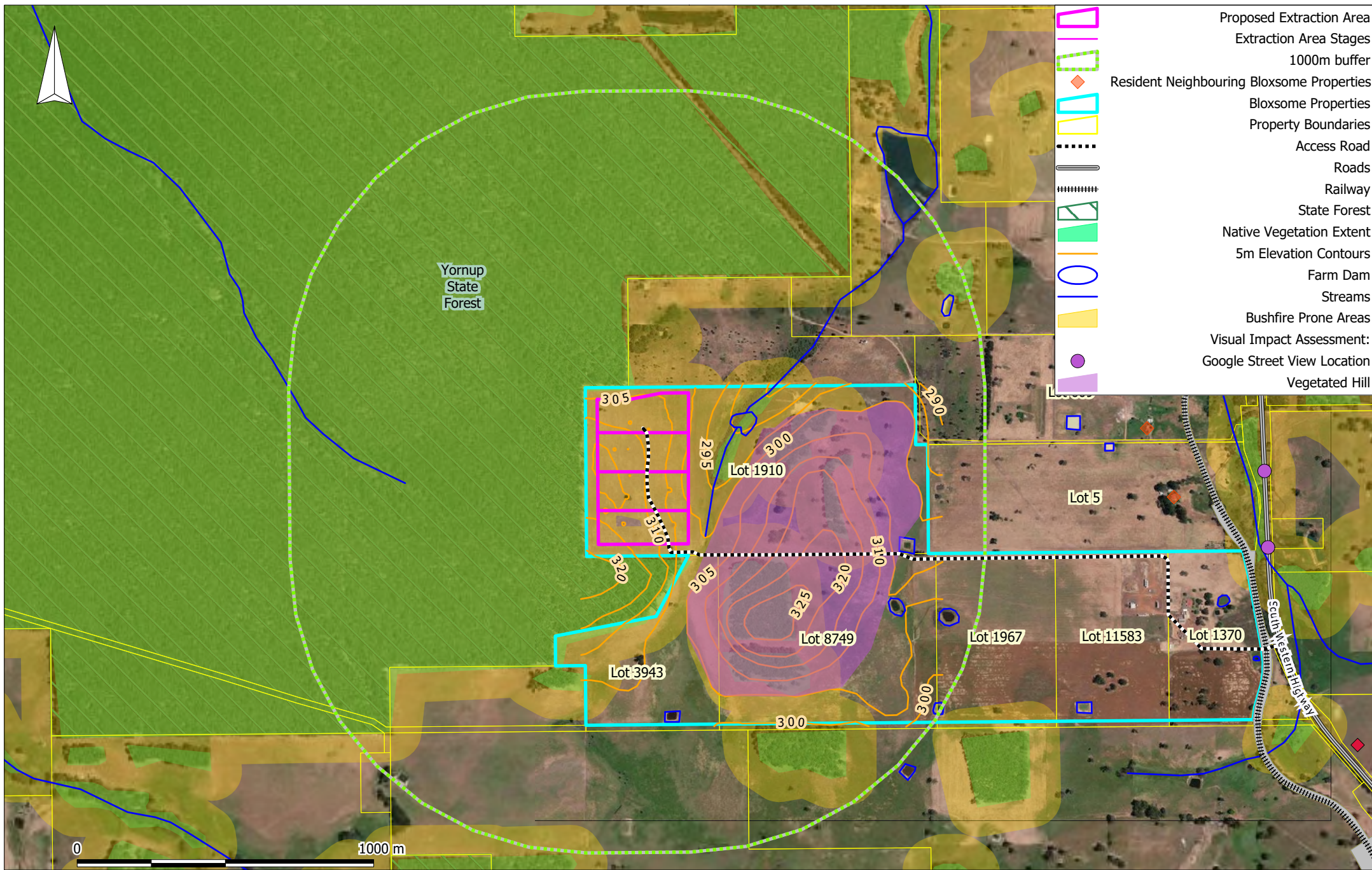
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## FIGURES



- Proposed Extraction Area
- Extraction Area Stages
- 1000m buffer
- Resident Neighbouring Bloxsome Properties
- Bloxsome Properties
- Property Boundaries
- Access Road
- Roads
- Railway
- State Forest
- Native Vegetation Extent
- 5m Elevation Contours
- Farm Dam
- Bushfire Prone Areas
- Visual Impact Assessment: Google Street View Location
- Vegetated Hill

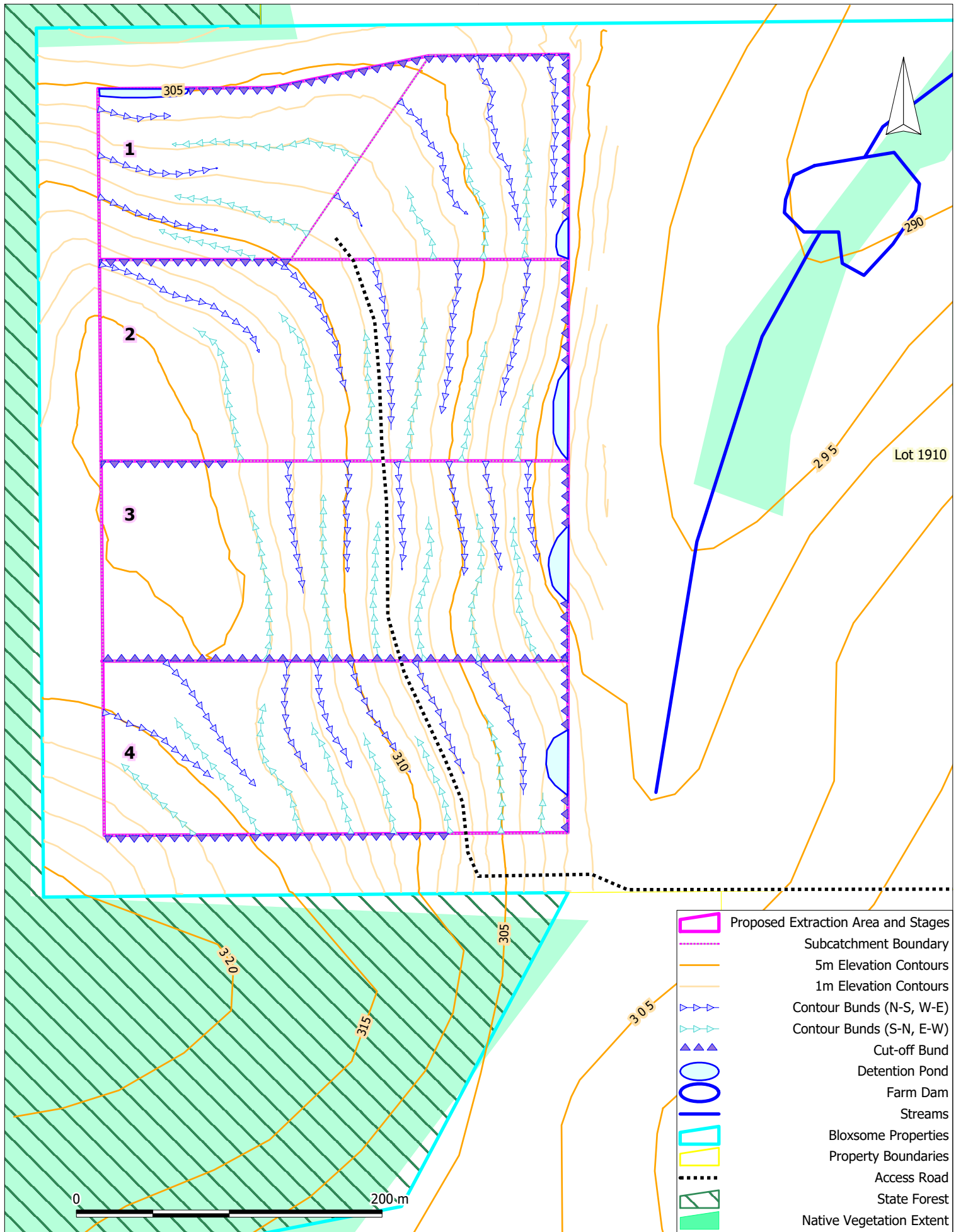


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 Datum: GDA94  
 Projection: Australia MGA94 (50)

Client: B & J Catalano  
 Project: Gravel Extraction  
 Location: Southwestern Highway Yornup

**Figure 1**  
**Site and Surrounds**



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Scale: 1:3100  
 Original Size: A4  
 Datum: GDA94  
 Projection: Australia MGA94 (50)

Client: B & J Catalano  
 Project: Gravel Extraction  
 Location: South Western Hwy Yornup

**Figure 2:  
 Stormwater  
 Management**

**ANNEXURE 1**

**Hydrocarbon Spill Management Plan**

## Safety Practice

### SAF-SP-029 HYDROCARBON SPILL RESPONSE

#### PURPOSE

This procedure summarises the safety practice of B & J Catalano to control the personal and environmental hazard posed by hydrocarbon spills. It outlines the correct procedure for controlling, recovering and reporting hydrocarbon spills to ensure compliance with West Australian legislative requirements.

#### SCOPE

This safety practice will apply to all B & J Catalano areas and employees.

#### DEFINITIONS

**MSDS:** Material Safety Data Sheet - A document which describes the properties and use of a substance, i.e., its identity, chemical and physical properties, health hazard information, precautions for use and safe handling information.

**Hydrocarbon:** An organic compound containing only carbon and hydrogen including diesel, oil, petrol, grease, solvent-based degreasers, hydraulic fluids and transformer oils.

**Hydrocarbon Spill:** Any uncontrolled release of hydrocarbon products.

**Bund:** An embankment or wall that may form part or the entire perimeter of a compound. Usually made of concrete, bunds are placed around storage tanks to contain spills.

#### INFORMATION

Under the general and specific provision of duty of care an employer shall, so far as is practicable, provide and maintain a working environment in which his employees are not exposed to hazards existing in the workplace. This requirement includes the hazards associated with hydrocarbons spills.

It is the responsibility of ALL employees and contractors to manage hydrocarbon spills as they occur. Supervisors are accountable if their immediate areas are found to have poor hydrocarbon management practices (this includes the clean-up of minor spills).

Spills involving hydrocarbons have the potential to produce adverse consequences to human health and/or the environment. Environmental spills can lead to contamination of water (both surface and aquifers), soil and habitats. The effect is higher closure costs, loss of a potable resource, death of flora and fauna, requirement for remediation, classification into Western Australia's Contaminated Sites database and prosecution by the Department of Environment and Conservation (DEC).

Document No.	Doc Type	Approved	Rev. No.	Rev. Date	Page
SAF-SP-29	SAF	May 2011	1.0	May 2012	1 of 4

This safety practise outlines:

- Action required when a spill is identified
- Techniques to restrict the extent of the contamination
- Techniques to collect spilled material
- Techniques to collect and dispose of contaminated material
- Techniques to treat soils contaminated by hydrocarbon
- Reporting requirements in regard to hydrocarbon spills

## REQUIREMENTS

### 1 Action required when a spill is identified

- 1.1 Isolate the spill area
- 1.2 Identify the spilt substance
- 1.3 Identify hazards and PPE requirements – consult the appropriate MSDS.
- 1.4 If safe to do so, the source of the spill should be restricted or stopped (i.e. shutdown machinery, switch off pumps, close valves).
- 1.5 If suitable equipment is readily available and can be operated in a safe manner, the extent of the spill is to be contained.
- 1.6 Contact immediate Supervisor as soon as possible and advise of spill.

### 2 Techniques to restrict the extent of the contamination

- 2.1 If possible restrict the source of the spill to ensure the flow of hydrocarbon is stopped.
- 2.2 If the spill is occurring outside a containment bund, use earthmoving equipment to construct additional earthen bunds to contain the extent of the flow.
- 2.3 Isolate drains.
- 2.4 On advice of Environmental Department, pump source material from either or both of the source container or the bunded containment into a safe container.

### 3 Techniques to collect spilled hydrocarbon

- 3.1 On advice of Environmental Department, pump source material from either or both of the source container or the bunded containment into a safe container.
- 3.2 Use absorbent materials to soak up residual hydrocarbon.
- 3.3 If the spill occurs in an area where a water body has become contaminated, use mini air booms to contain the spread of hydrocarbon on the surface of the water.
- 3.4 Use a skimmer to collect contained hydrocarbon in a triple oil separator or retain on the surface of the water body and pump to a waste oil tank or other safe container.
- 3.5 Hydrocarbon absorbents are to be collected and disposed of as decided by the Environmental Department and according to site requirements.

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#### 4 Techniques to treat soils contaminated by hydrocarbon

- 4.1 Dependent on site requirements and on advice from the Environmental Department, contaminated soils may be treated in the following ways:
- Collected and disposed of
  - Encapsulated in the waste dump
  - Collected or remain in situ and treated by bioremediation to breakdown the hydrocarbon.
- 4.2 On completion of the rehabilitation program the Environmental Department must inspect and verify that the spill has been successfully remediated.

#### 5 Reporting requirements in regard to hydrocarbon spills

- 5.1 All incidents of hydrocarbon spills are to be reported to the immediate Supervisor as soon as possible and followed up with the completion of the B&J Catalano Incident Report Form which requires an incident investigation to determine root cause and assists in the prevention of a reoccurrence.
- 5.2.1 The immediate Supervisor must then report the incident to the Environmental Department to determine what reporting to external departments is required i.e. Department of Conservation.

**Table 1: Suggested Spill Equipment**

Type of Spill	Recommended Spill Equipment
Spill on rocks / dirt	<ul style="list-style-type: none"> <li>• Use earthen bunds or booms to contain spill</li> <li>• Polypropylene pads to mop up excess oil at the outset</li> <li>• Global Peat or Enretec to treat contaminated soil in-situ</li> </ul>
Spill on concrete / hardstand area e.g. workshop	<ul style="list-style-type: none"> <li>• Polypropylene pads (easiest and quickest)</li> <li>• Floorsorb / kitty litter if pads not available (this must be swept up and disposed of in hydrocarbon bins immediately, as these products are not hydrophobic and will not contain the spill if they become wet)</li> </ul>
Spill in containment bund	<ul style="list-style-type: none"> <li>• Polypropylene pads or pillows</li> <li>• Bund can be drained or sucked out to waste oil receptacle if the spill is large</li> </ul>
Spill occurs when raining or on a water body	<ul style="list-style-type: none"> <li>• Polypropylene pads</li> </ul>

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## RELATED DOCUMENTS

- a. B&J Catalano Incident Report Form

## REFERENCES

- a. Occupational Safety and Health Act (WA) 1984
- b. Occupational Safety and Health Regulations (WA) 1996
- c. Mines Safety and Inspections Act (WA) 1994
- d. Mines Safety and Inspections Regulations (WA) 1995
- e. Environmental Protection Act 1986
- f. Environmental Protection (Unauthorised Discharges) Regulations 2004
- g. AS 1940 : 2004 Storage and handling of flammable and combustible liquids

## DOCUMENT CONTROL

Approval			
Role	Name	Date	
General Manager	Nunzio Giunta	Sept 2011	
HSE/HR Manager	Doriann Walls	Sept 2011	
Revision Events			
Rev.	Author	Changes	Date
1.0	Nic Henley		May 2011
2.0	Ian Prosser	Definitions / Table 1	March 2012

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## **APPENDIX 8**

### **WEED MANAGEMENT PLAN**



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## WEED MANAGEMENT PLAN

Prepared for B & J Catalano Pty Ltd

**Lots 1910. 3943, 8749, 1967, 11583 and 1370 South Western Hwy, Yornup  
Shire of Bridgetown-Greenbushes**

### 1. INTRODUCTION

This Weed Management Plan (WMP) has been prepared in accordance with guidelines published by the Department of Agriculture and Food<sup>1</sup> (DAF) (DAF 2014). This WMP should be read in conjunction with the report entitled *“Development Approval Application and Environmental Management Plan Lots 1910. 3943, 8749, 1967, 11583 and 1370 South Western Hwy, Yornup, Shire of Bridgetown-Greenbushes”*, prepared for B&J Catalano Pty Ltd by Lundstrom Environmental Consultants Pty Ltd in March 2023.

#### 1.1 Locality and Ownership

The properties are situated within a farm approximately 10km by road south of Bridgetown. The site and surrounds are shown on Figure 1. All properties are owned by Peter Raymond Bloxsome.

Figure 1 shows the site and its surrounds and indicates the proposed extraction area covered by this application.

#### 1.2 Development Proposal

B & J Catalano Pty Ltd intend to extract approximately 68,400 tonnes/year of gravel from the area indicated on Figure 1 in four approximately equal stages of approximately 3.8 ha. The total area to be disturbed is 15.2ha and the final land surface will be approximately 1m below ground level. The DA application is for 5 years and all extraction should be completed within this time.

### 2. RESPONSIBILITIES

B & J Catalano Pty Ltd accepts responsibility for weed management within Zones A and B (as identified in Section 4.1 of this report).

### 3. CURRENT WEED STATUS OF THE PROPERTY

At present there are no known weed problems on the property.

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<sup>1</sup> Now the Department of Primary Industries and Regional Development (DPIRD)

#### **4. PROPOSED WEED MANAGEMENT ACTIONS**

The following is a general description of the actions that will be implemented by B & J Catalano Pty Ltd for weed management:

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

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

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

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

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

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

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

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

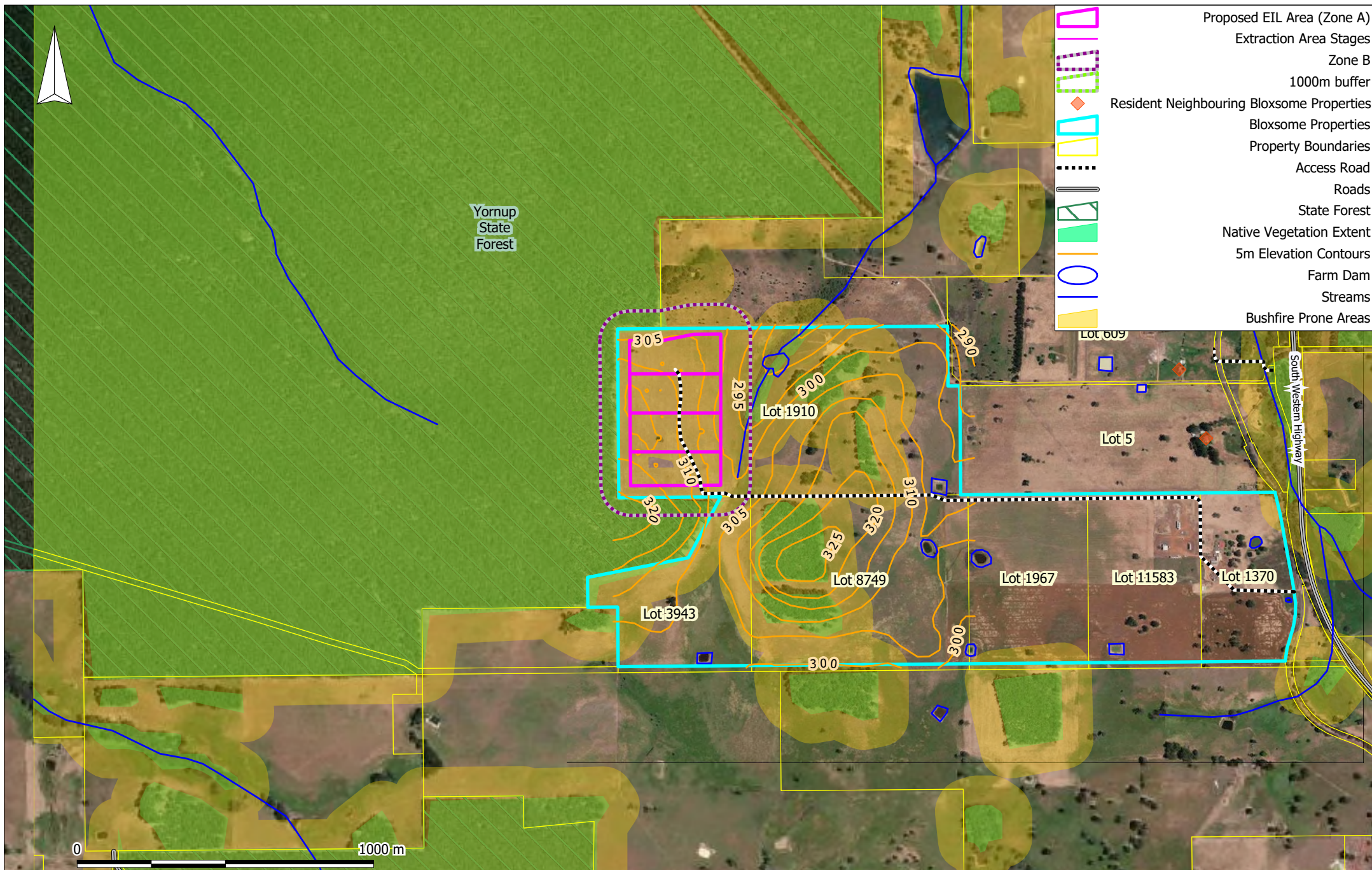
##### **4.4 Weed Control Program**

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

#### **5. REFERENCES**

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

## FIGURES



**Lundstrom Environmental  
Consultants Pty Ltd**

Leeming WA 6149  
Mob: 0417934863, mikelund1@bigpond.com

Scale: 1:16000  
Original Size: A4  
Air Photo Source: ArcGIS World Imagery (Maxar) Nov 2020  
Datum: GDA94  
Projection: Australia MGA94 (50)

Client: B & J Catalano  
Project: Gravel Extraction  
Location: Southwestern Highway Yornup

**Figure 1  
Weed MP**