

Attachment 11.3.1

19-5-2022

Extractive Industry Application.

To Whom it may concern,

Please read the attached development application for continuation and expansion of our current permit and be assured it is ONLY FOR SAND.

We are not pursuing the gravel currently.

We have withdrawn the first application because of neighbourly concern, which we are fully understanding of.

We look forward to answering any of your questions regarding this application.

You can contact us on any of the below:

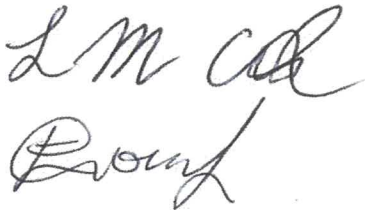
Email: chookinup@gmail.com

Home: 97562048

Or we can meet with you personally.

Sincerely,

Lyndon and Beth Crouch

The image shows two handwritten signatures in black ink. The first signature is 'L M Crouch' and the second is 'Beth Crouch'. Both are written in a cursive, flowing style.

**Extractive Industry Application
and
Management Plans
Lot 121, Carlotta, Shire of Nannup**



Prepared for
L.M. and E.A. Crouch

By

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CONSULTING

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May 2022

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Drainage Management Plan
APPENDIX C
Site Rehabilitation Plan

1. Introduction

Abrus Consulting Pty Ltd (Abrus) has been engaged by L.M. and E.A. Crouch to prepare a Development Application for an extractive industry on their “Brookvale” property, Lot 121, in the Shire of Nannup, which the proponent will lodge. The Shire of Nannup Local Planning Strategy supports the sustainable extraction of minerals and basic raw materials provided the proposal suitably addresses environmental, land use compatibility, access, landscape and other relevant planning considerations. The aim of this document is to address these components and provide the Shire of Nannup with relevant information to approve this proposal.

The proposed extractive industry consists of expansion of an existing sand pit. It is estimated that the remaining sand resource is approximately 300.000 tonnes (T). For the proposed 10 year lifespan extraction will depend on the market demand for the resource. As such a permit time of 10 years is proposed for the operation permit. Operation of the sand pit will be contracted.

Extraction will be to supply sand, which is primarily used for building (ie house pads) and to be sold from site as needed. The proposed site is located on areas currently under extraction or pasture.

There will be no clearing of native vegetation. Road access is well established and maintained.

Supporting documentation with this Report include:

- Drainage Management Plan
- Site Rehabilitation Plan

1.1 Proponent

The Proponent is L.M and E.A. Crouch.

Postal Address:
PO Box 52, NANNUP WA. 6275

Primary Contact
Beth Crouch
Owner
Phone: 0488 562 948
Email: chookinup@gmail.com

Lyndon Crouch
Owner
Phone: 9756 2048

1.2 Consultant

Abrus Consulting Pty Ltd is an Environmental Management Consultancy, specialising in environmental approvals, project management, environmental management plans associated environmental documentation and Aboriginal liaison.

Postal Address:
PO Box 186
Nannup WA 6275

Primary Contact
Rachael Wedd
Director
Phone: 0429137757
Email: rachael@abrus.com.au

2. Property Description and Locality

2.1 Background

Brookvale was acquired by the proponent in 2002 and has been previously been used for beef grazing, dairy production and hay production. The property is currently used for general farming and sand extraction. Previous Shire approval for raw materials extraction was granted in July 2007 for a period of 15 years (See Appendix A). All conditions set in this approvals letter have been met by the proponent.

Approval to use Red Gully Road for raw materials extraction (commercial basis) was granted by the then Department of Environment and Conservation, now the Department of Biodiversity, Conservation and Attractions (DBCA) in February 2007 with guidelines agreed by both parties. The proponent has complied with all recommended guidelines. Approval was also sought (and granted) from Main Roads WA for use of the intersection of Red Gully Road and Vasse Highway. The Shire had given approval for sand extraction to the previous owners in 2002. The pit area is currently under pasture.

2.2 Site Location

The farm is 7km south of Nannup township, off Roberts Road via Vasse Highway. This property is comprised of 103.4 hectares (ha) and is primarily used for general farming. The current sand extractive area is approximately 4.74 ha with a proposed extension area of 13.78 ha.

At the sand extraction area, there is a small section of native vegetation (redgum and jarrah, located roughly at the bottom of the pasture area), the rest of the proposed area is under pasture and is being grazed by cattle. There is a managers residence located on the property. Access to the property is directly off Roberts Road, but truck and contractor access to the pit will access the site via a track which passes through DBCA managed land that connects with Red Gully Road. Red Gully Road then connects with the Vasse Highway. Access to this track is at the southern end of the property. See locality Figure 1.

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Legend

- Local Roads
- Highway
- Property boundary

Guthridge Rd

McKelle Rd

Roberts Rd

Vasse

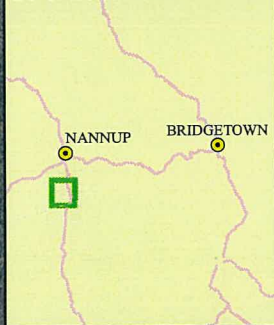
Chalwell Rd



0 250 500 1,000
m

1 centimeter = 200 meters

LOCATION MAP:



Base map:
Worldwide Imagery -
Sourced from
Landgate SLIP.



Crouch Property 'Brookvale'
Lot 121 Roberts Road, Carlotta WA
Location Plan

Figure: 1
Project:

Drawn: CNH
Date: 17/05/2022

Coordinate System:
GDA 1994 MGA Zone 50

A4

2.3 Zoning

The site and surrounding areas are zoned as “Priority Agriculture”. The operation of an Industry Extractive means cannot be permitted in this zoning unless Council has granted the planning approval in accordance with Section 4.6 in the Shire of Nannup Local Planning Strategy.

2.4 Surrounding Land Uses

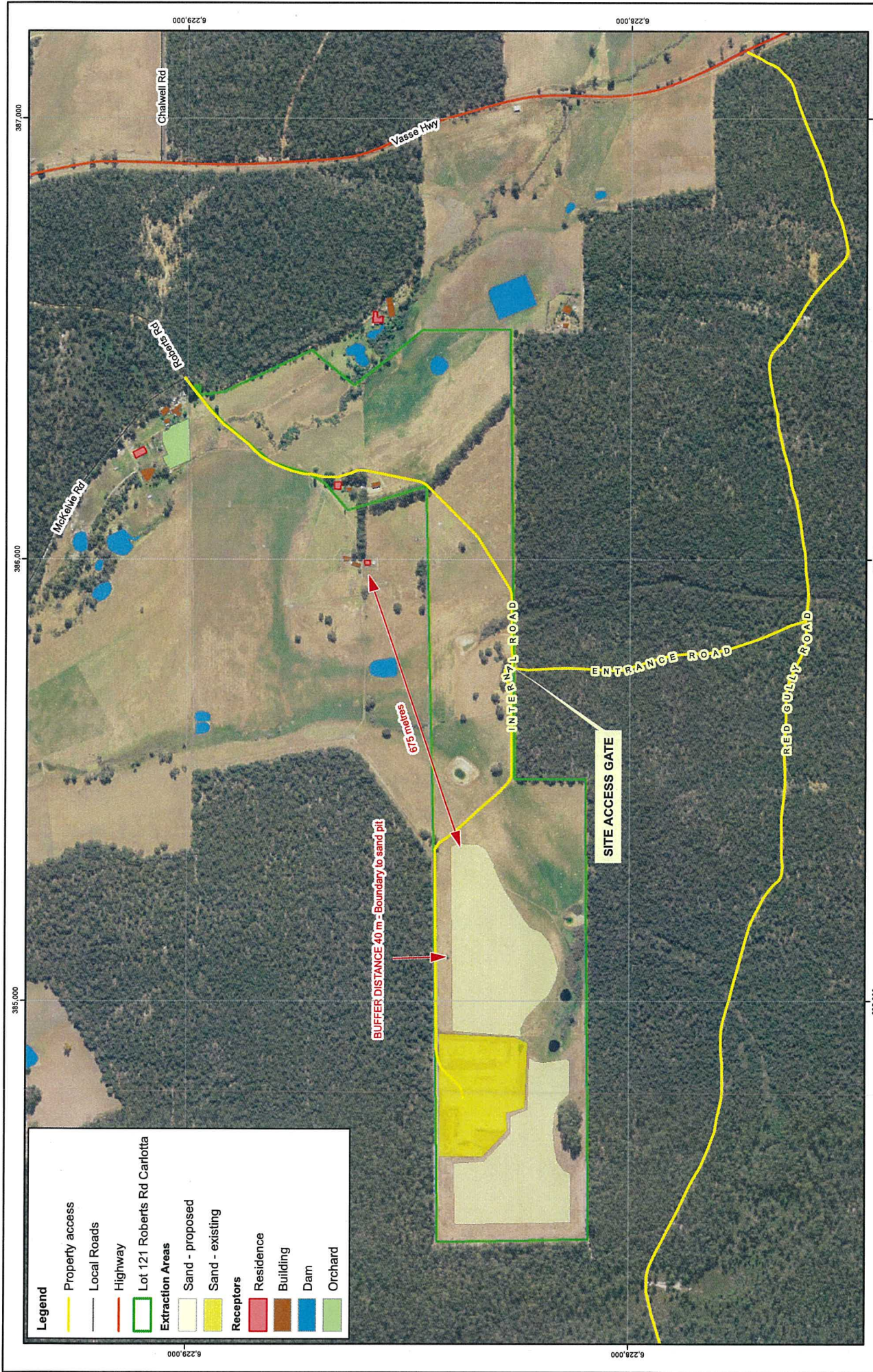
The proposed extraction areas are surrounded by agricultural land (mixed), rural lifestyle and State Forest (DBCA) managed land.

2.5 Nearest Residences

The EPA Guideline Separation Distances between Industrial and Sensitive Land Uses (No. 3, June 2005) requires a minimum separation of 1000m between sensitive land use and extraction/screening works.

The nearest residence (owned by Darren Ganzer) is located approximately 675m from the eastern edge of the new sand pit extractive area. Other potential receptors include the Manager’s Residence at Brookvale, the residence of Bruce Blackburn and Mossbrook. All receptors apart from the Ganzer residence are outside of the EPA 1000m separation distances for the sand extractive operation.

Please refer to Figure 2.



Legend

	Property access
	Local Roads
	Highway
	Lot 121 Roberts Rd Carlotta
Extraction Areas	
	Sand - proposed
	Sand - existing
Receptors	
	Residence
	Building
	Dam
	Orchard



Crouch Property, 'Brookvale'
Sand Extraction
Development Application
 Site Plan Showing Pits & Receptors

DRAWN	CNH	DATE
CHECKED	RW	DATE
SCALE	1:8,000	FIGURE No.
PROJECT No.	2	A3

Notes:
 1. Coordinate System: GDA 94 MGA Zone 50
 2. NOT FOR CONSTRUCTION. Illustration purposes only.
 3. Background Imagery courtesy of Landgate SLIP service.

2.6 Services and Infrastructure

The property has services connected. Dams are onsite to provide water for dust suppression, fire suppression and associated works requirements.

The property is fully fenced externally comprising standard timber/steel post and pig wire with a top rung of single wire. The main internal road on the property runs from the farm entrance, westwards through the centre of the property and is maintained to a good standard.

No new or additional services will be required during the operation or rehabilitation of the site and there will be no impact or disruption of existing neighbouring services from extraction or transportation of material from the pit areas or property.

2.7 Mobile Plant and Vehicles

Plant and vehicles which will be used for the excavation operations and access construction/maintenance (if required) may include:

- 950 wheel loader (or equivalent)
- 30 T excavator (maximum
- Water truck
- Trailer mounted fire unit (s)
- Semi-trailers (24T)
- Road Trains (48-50T)
- 4wd (operator transport)

3. Environmental Background

3.1 Climate

The property is located approximately 7km South of Nannup township (from the intersection of the Brockman Highway and Vasse Highway). The climate of Nannup is classed as warm and temperate, with warm dry summers and cool wet winters. The average annual temperature is 15.8°C, with most rain in the winter and drier summers. The average annual rainfall of Nannup is 923mm with most rainfall occurring between May and September. The warmest months are January and February, with the coldest months being July and August.

3.2 Vegetation









The area under application is predominately pasture for grazing. Surrounding land use is Agricultural and DBCA managed land (State Forest). There is some mixed open forest (primarily redgum and jarrah) where the current sand pit is located. A 40m buffer zone will be maintained between the State Forest and the sand extraction area. A buffer zone will also be maintained between the sand extractive area and the vegetation around the dams and the drainage area to the dams from the paddock. Trees which are present will be retained, no clearing will take place.

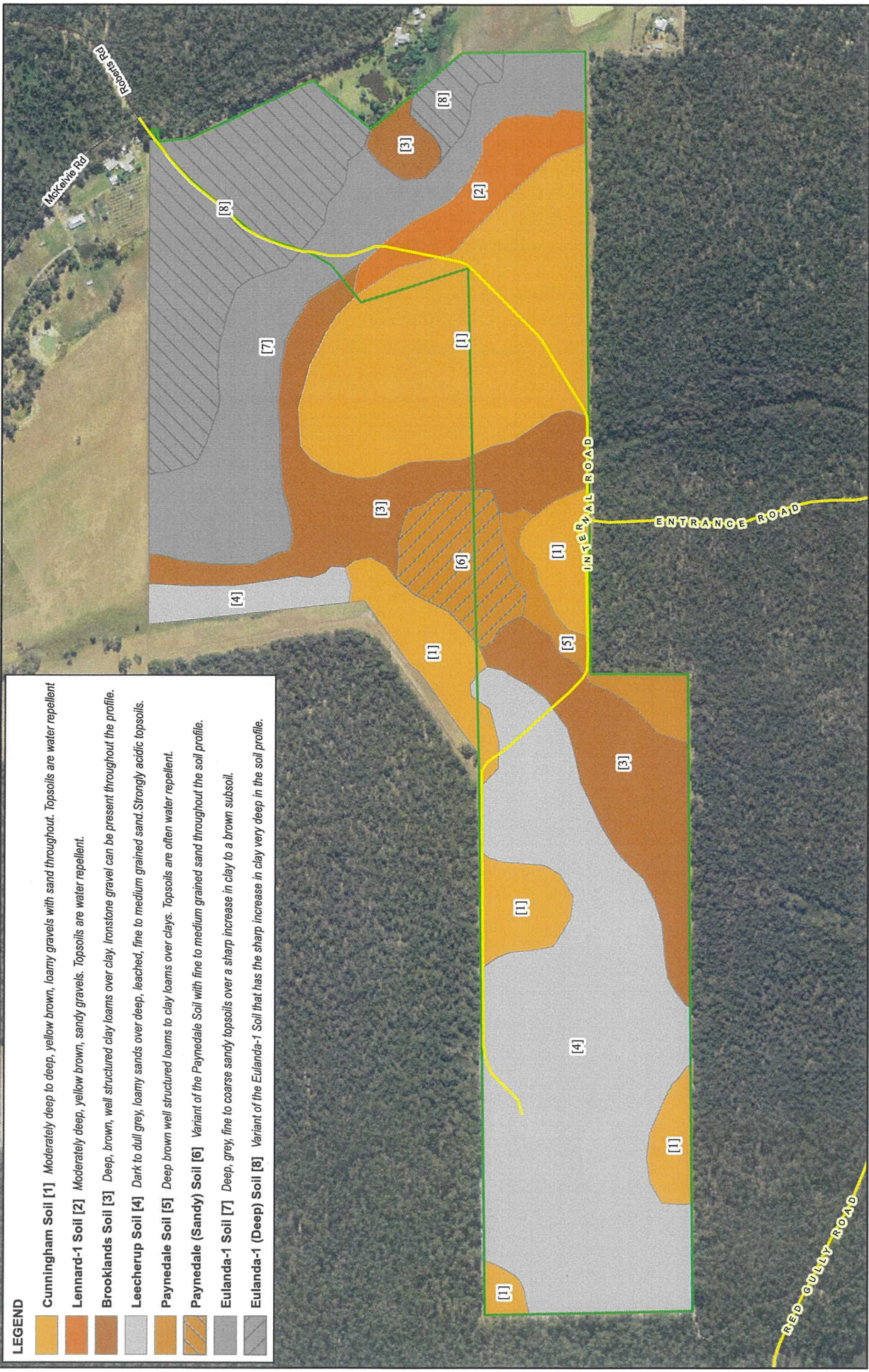
3.3 Geology and Soils

Soil surveys were undertaken by Topoclimate Services Pty Ltd (TSPL) in 2005. These surveys included a radiometric survey to map the salinity and allows most soil units to be identified. Preliminary soil landscape units were assessed at a sub-paddock scale and a variety of soils types were identified (see Figure 3). Soil testing was also included in the surveys, which considered pH, cation exchange capacity (CEC), sodicity and nutrients. These parameters are important when assessing landscape condition and in this instance, to plan for suitable rehabilitation of the site. A salinity survey was also conducted as part of the farm plan to ascertain if there were any salinity issues present. TPSL (2005) identified that *“The slight salinity levels in the soils, mainly in the topsoils, do not appear to have affected the water in the dams...All of the water samples, at the time of testing had salinity measurements well within the non-saline range for irrigation water (ie less than 100mS/m).”*

The area for sand excavation is classified as Leecherup Soil (area 4 in Figure 3).

LEGEND

-  **Cunningham Soil [1]** Moderately deep to deep, yellow brown, loamy gravels with sand throughout. Topsoils are water repellent
-  **Lennard-1 Soil [2]** Moderately deep, yellow brown, sandy gravels. Topsoils are water repellent.
-  **Brooklands Soil [3]** Deep, brown, well structured clay loams over clay. Ironstone gravel can be present throughout the profile.
-  **Leecherup Soil [4]** Dark to dull grey, loamy sands over deep, leached, fine to medium grained sand. Strongly acidic topsoils.
-  **Paynedale Soil [5]** Deep brown well structured loams to clay/loams over clays. Topsoils are often water repellent.
-  **Paynedale (Sandy) Soil [6]** Variant of the Paynedale Soil with fine to medium grained sand throughout the soil profile.
-  **Eulanda-1 Soil [7]** Deep, grey, fine to coarse sandy topsoils over a sharp increase in clay to a brown subsoil.
-  **Eulanda-1 (Deep) Soil [8]** Variant of the Eulanda-1 Soil that has the sharp increase in clay very deep in the soil profile.



0 100 200 300 400 m

<UND>Notes: </UND>
 1. Coordinate System: GDA 94 MGA Zone 50.
 2. Background imagery courtesy of Landgate SLIP service.
 3. Soils layer digitised from historic hard-copy maps & is indicative only.



**Crouch Property, 'Brookvale'
 Sand Extraction
 Development Application
 Soils Mapping**

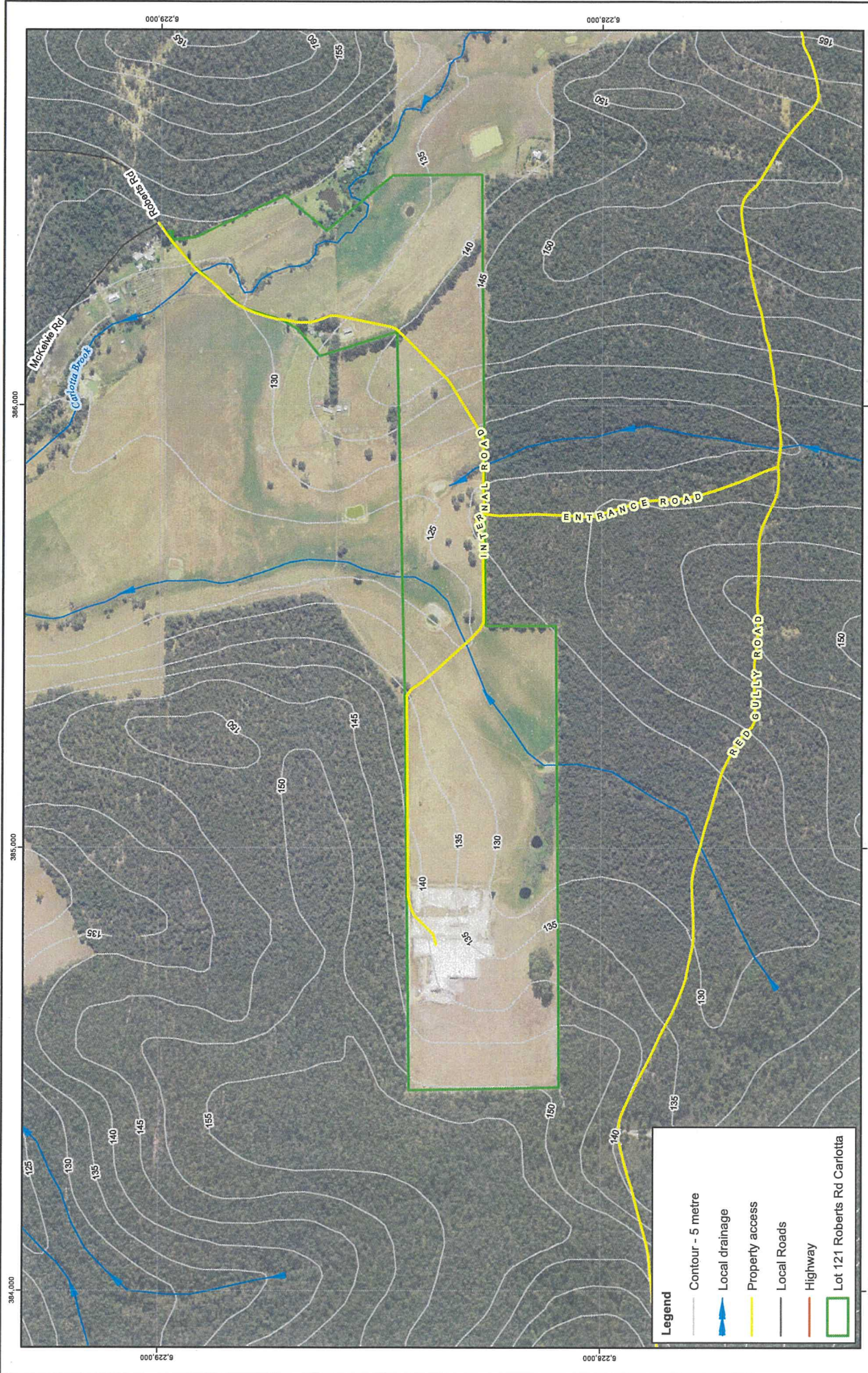
DRAWN	CNH	DATE	17/05/2022
CHECKED	RW	DATE	17/05/2022
SCALE	1:6,000	FIGURE No.	3
PROJECT No.		A3	

3.4 Topography and Surface Water

The proposed sand extraction site is located in an area that ranges from 125m above sea level to approximately 140m (see Figure 4) and the contours are quite widely spaced, meaning there is no excessive or extreme slopes in that area. Storm water from the sand pit drains to the creek-line located to the east (refer Figure 4). Any overflow passes across into State Forest.

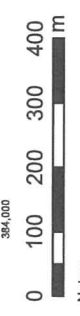
Storm water drains naturally into the creek, soil or evaporates. Sediment traps may be created prior to the creek area, and any sediment trapped that remains in the traps, will be infilled at rehabilitation. Proposed sediment trap locations are shown in Figure 6.

Given the topography of the area and the nature of the ground material, it is unlikely that there will be any impacts from expression of surface water within the current or proposed extraction areas.



Legend

- Contour - 5 metre
- Local drainage
- Property access
- Local Roads
- Highway
- Lot 121 Roberts Rd Carlotta



Notes:
 1. Coordinate System: GDA 94 MGA Zone 50.
 2. Background imagery & contours courtesy of Landgate SLIP service.
 3. Drainage digitised from open-source data.



Crouch Property, 'Brookvale'
Sand Extraction
Development Application
Contour & Drainage Plan

DRAWN	CNH	DATE	17/05/2022
CHECKED	RW	DATE	17/05/2022
SCALE	1:8,000	FIGURE No.	4
PROJECT No.		A3	

3.5 Hydrogeology

Brookvale is located entirely within the Donnybrook hydrological zone which are used to report on dryland salinity (as can be seen on the interactive groundwater and salinity map for the south-west agricultural region (www.agric.wa.gov.au)). This area is classed as a very low salinity risk with a short term time (ie less than 20 years) to equilibrium for the groundwater trend. There are no trend bores located near the property. Soils are formed in lateritic colluvium, weathered in-situ sedimentary rocks & alluvium (poorly drained sandy alluvial plain in the south)

https://services.slip.wa.gov.au/public/services/SLIP_Public_Services/Water/MapServer/WMServer

Due to the elevation of the proposed pit area, the potential for any contamination from surrounding land uses is considered negligible. No groundwater exposure or contamination from the proposed extractive activities is anticipated. There is a very low risk of impacts to the regional salinity from the proposed operations (see Figure 5). Please also refer to Section 3.3.



Legend

- Property access
- Local Roads
- Highway
- Local drainage
- Lot 121 Roberts Rd Carlotta

Salinity Classification

- Fresh to Slight
- Moderate

Extraction Areas

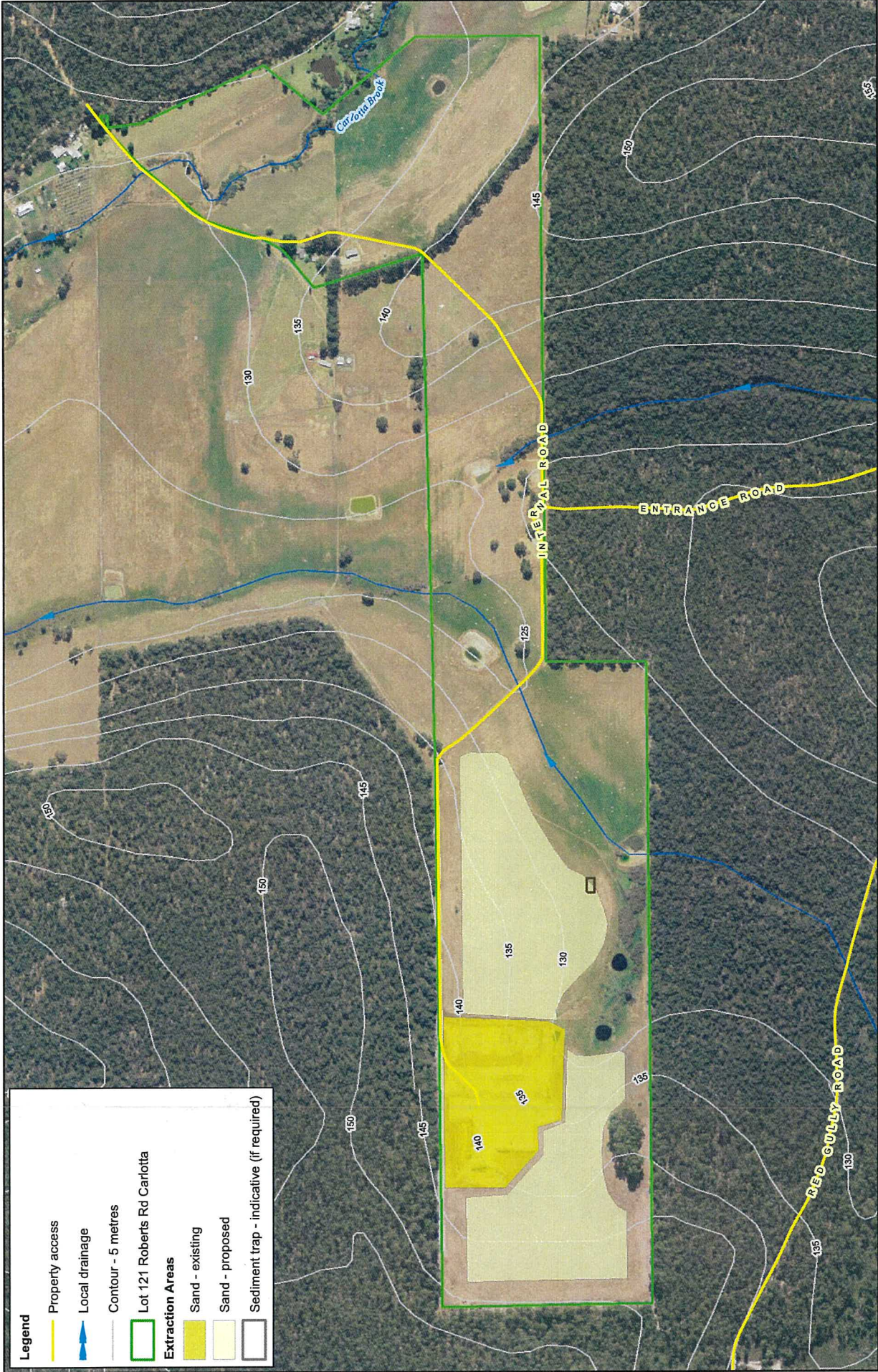
- Sand - existing
- Sand - proposed



Crouch Property, 'Brookvale'
Sand Extraction
Development Application
 Map of Near Surface Salinity

DRAWN	CNH	DATE	17/05/2022
CHECKED	RW	DATE	17/05/2022
SCALE	1:6,500	FIGURE No.	5
PROJECT No.	A3		

<JND>-Notes:</JND>
 1. Coordinate System: GDA 94 MGA Zone 50.
 2. Background imagery courtesy of Landgate SLIP service.
 3. Soils layer digitised from historic hard-copy maps & is indicative only.



Legend	
	Property access
	Local drainage
	Contour - 5 metres
	Lot 121 Roberts Rd Carlotta
Extraction Areas	
	Sand - existing
	Sand - proposed
	Sediment trap - indicative (if required)



**Crouch Property, 'Brookvale'
Sand Extraction
Development Application**
Site Plan Showing Pit Development

DRAWN	CNH	DATE	17/05/2022
CHECKED	RW	DATE	17/05/2022
SCALE	1:6,000	FIGURE No.	6
PROJECT No.		A3	

Notes:
1. Coordinate System: GDA 94 MGA Zone 50.
2. Background imagery & contours courtesy of Landgate SLIP service.

3.6 Aboriginal Heritage

A search of the Aboriginal Heritage Enquiry system (February 2022) indicated that the enquiry area does not intersect with the boundary of any known Aboriginal Sites or Aboriginal Heritage Places. The heritage enquiry is on land within or adjacent to the following Indigenous Land Use Agreement(s): South West Boojarah #2 Indigenous Land Use Agreement.

3.7 Other Heritage

A search of the inHerit database (a portal for information about heritage places and listings in Western Australia for the Government of Western Australia – Heritage Council) in February 2022 showed no search results for this location. The nearest registered State Heritage Place is the Carlotta Fire Tower.

3.8 Dust

Dust may be generated from a range of activities, including:

- Topsoil removal;
- Sand excavation;
- Loading of haulage trucks; and
- Machinery use/vehicles on the unsealed surfaces/access tracks.

To mitigate any potential impacts on the nearest neighbour (as mentioned in Section 2.5), to reduce dust during normal operations, water may be sprayed from the water cart on access roads as required. To reduce potential dust and therefore also topsoil loss, no extractive operations will occur on high wind days.

There is a wide and variable range of wind directions throughout the year. Given a nine year average (the range of data available from the nearest data monitoring point and taken at 3m), the highest winds (between 60-70km/hr) generally come from a WNW and NNW direction, although there are a few records of wind speeds in this range from WSW and SW directions. Dust generated under these conditions may be noticed but is not anticipated to have any significant impact on any of the nearest receptors/residences in the area due to the distance between sites and vegetation acting as a buffer zone. High wind days (number) ranges from as low as 2 to 17 over the nine year period listed. Conditions for maximum dust levels occur in the summer months when the ground conditions are dry. The nearest data monitoring point for this area is the Nannup 2 (Carlotta) (NU002) weather station.

There have been no complaints from the nearest sensitive receptor (D. Ganzer) in relation to dust or noise from existing operations to date, and communications between the Proponents and this person indicate that there are no anticipated issues in the future. However, if required, sound/visual/dust barriers (earthen bunds) can be created to meet industry best practice requirements to minimise sound or dust emissions.

3.9 Visual Amenity

Being located on a rural property, with the property front gate 0.7km from the Vasse Highway, the extractive area is not considered to be in a visually sensitive area. The area between the property

and the highway contains mixed forest and other well-treed residences and DBCA managed State Forest. It is not possible to see the highway from the proposed extractive area. Once rehabilitation has taken place and/or alternative land use is implemented there will be little evidence that extractive activities have occurred.

3.10 Noise

The majority of noise generating activities on site will be from:

- Excavation of material;
- Loading of haulage trucks; and
- Movement of haulage trucks.

The site is located on a large rural property and is surrounded by other rural properties. Due to the separation distances provided by the EPA guidelines, the nearest residence (Darren Ganzer) is located approximately 675m from the eastern edge of the proposed sand extractive area and is classed as potentially impacted as a sensitive receptor.

Vehicle access and the haulage route are to the south of all properties and there is no traffic noise issues are anticipated. No noise management issues are anticipated for the proposed operations, however industry standards for managing noise levels will continue to be implemented. Such measures include:

- All plant/machinery to be kept well maintained;
- Sound attenuation bunds will be constructed if required; and
- Complaints register to be maintained. Details for lodging complaints will be advertised on signage at the entrance to the property.

3.11 Dieback

Dieback (*Phytophthora cinnamomi* and other species) occurs throughout the South West. No presence of dieback has been observed in the area where material is to be extracted or transported through on site. The proposed expansion of the sand pit does not require any removal/clearing of native vegetation.

All equipment used onsite is cleaned down prior to entry onsite, for general weed and dieback hygiene.

4. Operational Activities

4.1 Proposed Extraction

It is proposed to extract sand from the excavation area in a staged manner, dependent on contractor requirements and materials demand. Excavation activities at this scale are considered to be low scale for the sand. Contractors will be appointed to undertake extraction and transport of material. Active extraction areas will be a minimum 20m from the property boundaries (see Figure 6). Figure 6 also provides an indicative site plan for sediment traps. There will be no lay-down areas; if any plant is temporarily left on site it will be located in the pit area.

The resource shallows out towards the tree buffer areas (on and off property) and it is anticipated that there will be approximately a 40m buffer zone around these tree zones. Deep excavation is not required due to the sand being in the upper levels of the soil profile. Previous sand extraction indicate that depths of extraction for both areas will be no greater than 3m. Each active area will be stripped of topsoil and this will be stockpiled for use as a noise attenuating structure (if required), then used for rehabilitation. These soil stockpiles will be no greater than 2m in height. The soil will be excavated with a front-end loader.

Sand is then stockpiled and then loaded into haulage trucks and transported off-site as required.

4.1.1 Depths and Extent of Excavation

The depths of extraction will vary very little across the proposed pit location, dependent on the profile of the sand. To date, sand excavation has not exceeded a maximum of 3m depth. The average depth of excavation is 2m and this is expected to continue throughout the lifespan of the pit. Resources are anticipated to be shallower as the pit progresses towards the riparian zones and tree buffer areas.

4.2 Operating Times

Market demand for sand will have an influence on the operation of the pit. It is proposed that the quarry will operate Monday to Saturday from 7am – 5pm for extraction and processing. There will be no extractive activities or haulage on Sundays or public holidays. Haulage of material will be dependent on demand for the material from potential buyers.

4.3 Public Access and Safety

The site is located on a rural property and is surrounded by rural land and DBCA reserve land. Public access is restricted. Direct access to the property outside of these hours will be controlled by locked steel double gates and no access to the public is authorised. Contractors (to be confirmed) and owners have keys. There is a sign on the front gate with contact details for any visitors to site. Signage is also clearly visible at the intersection of Vasse Highway and Red Gully Road cautioning users that trucks use the road.

In case of fire starting from localised events near the pits or by operational activity, the contractor will have trailer mounted fire units on-site as well as a water truck for dust suppression. Plant will be kept within the pit areas to reduce any potential impact in the event of any fire occurring from equipment. As the extractive activities on the property is under contract to contractors, they are required to have a strategic Fire Management Plan in place. This can be provided if required.



Property Entrance



Safety Information



Road Intersection Signage

4.4 Surrounding Road Network and Transport Movements

The site will be accessed directly off Red Gully Road and an internal DBCA track, which are both unsealed gravel roads.

The main farm entry is at the front of the property and the other (for extraction vehicles) approximately 1km from the main gate, at the southern end of the property. Both entries are well compacted gravel roads. The internal road network provides all weather access to all operational vehicles. Truck movements will be dependent on demand, however, it is reasonable to expect 1-5 trucks up to 5 visits (semi-trailers or road trains dependent on material demand) per day during peak usage. Dependent on market demand, there may be extended periods of no activity. It is anticipated that whomever purchases and removes the sand will be accredited with Mainroads Western Australia under WA Heavy Vehicle Accreditation (WAHVA).



Vasse Highway Intersection

Traffic statistics along the Vasse Highway are available from slightly north of Graphite Road (data provided by Main Roads of WA Traffic Map). Traffic rates are slowly increasing in this area. Traffic Map shows 761 traffic movements (2021/2022 average) of which 77% are cars and 23% are trucks and there are very similar numbers of north and south traffic movements. As a relatively remote rural area, it is assumed that numbers will not represent high vehicle movement so the potential associated with collision of general vehicles with operational vehicles would be considered low. There are no other main users of the road or track besides DBCA. Again, any risk in relation to truck movements is considered low.

The proposed haulage route from site will be along the Vasse highway to Nannup and into the region as required.

4.5 Hydrocarbon Management

No fuel or hydrocarbons will be stored onsite. These will be brought to site as required. Vehicles may be taken from the pit for fuelling as required. Appropriate measures will be undertaken to ensure no potential contamination of the soil can occur. Such measures (for refuelling or vehicle breakdown) will include hydrocarbon management kits such as drip trays, plastic liners/sheets, which are kept in the operator's site vehicle. In the event of a spill, any contaminated soil will be contained and removed to an appropriate disposal site and any old oils will be collected and recycled offsite at the nearest licensed facility.

4.6 Benefits of the Proposal

The extraction of material from this site is necessary for providing material needed within the Shire of Nannup for ongoing building and construction, which then provides for local and regional employment.

5. Rehabilitation

5.1 Proposed Rehabilitation

Partial rehabilitation of the existing sand pit has already been completed, with the extracted area re-contoured to suit the topography and rehabilitated back to pasture, with a mix of clover and rye. Rehabilitation of the completed areas will be progressive, with the areas returned to pasture (primarily clover and rye). Due to the size of the extractive area and that the intent is to return the area to pasture, a detailed Site Rehabilitation Plan is not considered feasible at this stage, however, an indicative one is provided with this document as Appendix C.

A general methodology, undertaking a staged approach is proposed, with rehabilitation beginning once an area has been extracted. The selected contractor will redistribute the topsoil and re-contour the landscape, with the owner reseeding the areas and doing any other maintenance and management (ie weeds). Areas will be rehabilitated once no longer required.

As a general rule, the following steps will be implemented:

- Stockpiled topsoil will be retained during extraction and spread back over the completed areas;
- The pit floor will be ripped along the contour;
- Area will be prepared for planting, which may require weed management.
- Seeding of pasture species.

The restoration/rehabilitation goal for this site is to return the area post-extraction to a stable and erosion resistant landform, all returned to pasture for future farming. It will blend with the surrounding landscape.

6. References

Topoclimate Services Pty Ltd. 2005. Topoclimate Farm Plan. L.M. & E.A. Crouch 'Belvedere' & 'Brookvale', Nannup, Western Australia.

APPENDIX B

Drainage Management Plan

Drainage Management Plan

**“Brookvale”
Lot 121, Shire of Nannup**



Prepared for
L.M. and E.A. Crouch

By

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Date: May 2022
Report Version: 1

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Drainage Management Plan
Lot 121, Shire of Nannup

1 Introduction

Drainage management is a primary issue for all extractive industry operators. Although it is accepted that some water movement is unavoidable during extractive activities, it cannot adversely affect health, have a negative impact on amenity of local residents or on the environment. This Drainage Management Plan (DMP) has been prepared in accordance with guidelines as provided by the Department of Environment and Conservation. This Plan should be read in conjunction with the Development Application “Extractive Industry Application and Management Plans, Lot 121, Shire of Nannup” prepared by Abrus Consulting Pty Ltd.

The objectives of this DMP include:

- To describe the nature of the proposed extraction activities;
- To identify potential storm water/drainage issues from operations;
- To identify any sensitive receptors and their proximity to operational areas; and
- To identify and describe measures to limit water movement and its impacts on receptors.

1.1 Land Use and Location

The property “Brookvale” is owned by L.M. and E.A. Crouch.

The proposed sand pit and gravel quarry is 7km south of Nannup township (via Vasse Highway, to Roberts Road, on Lot 121. This property is comprised of 103.4 hectares (ha) and is primarily used for general farming. The sand pit is a current extractive area (4.74 ha) which will be expanded to 13.78 ha. Access to the property is directly off Roberts Road, but truck and contractor access to the pit will access the site via a track which passes through DBCA managed land that connects with Red Gully Road. Red Gully Road then connects with the Vasse Highway. See locality Figure 1.

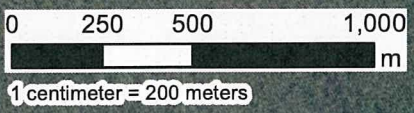
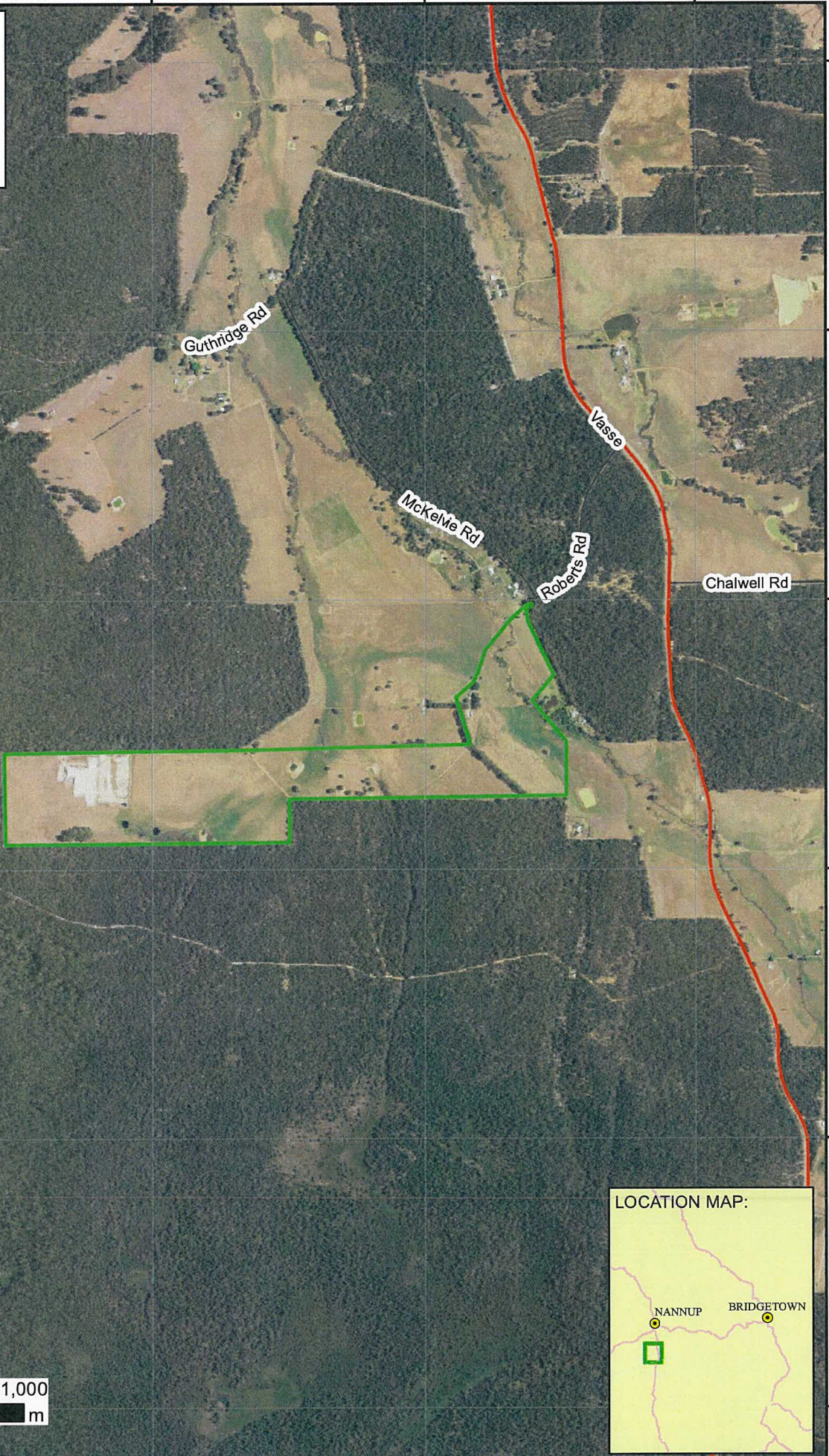
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Legend

- Local Roads
- Highway
- Property boundary



Base map:
Worldwide Imagery -
Sourced from
Landgate SLIP.



Crouch Property 'Brookvale'
Lot 121 Roberts Road, Carlotta WA
Location Plan

Figure: 1
Project:

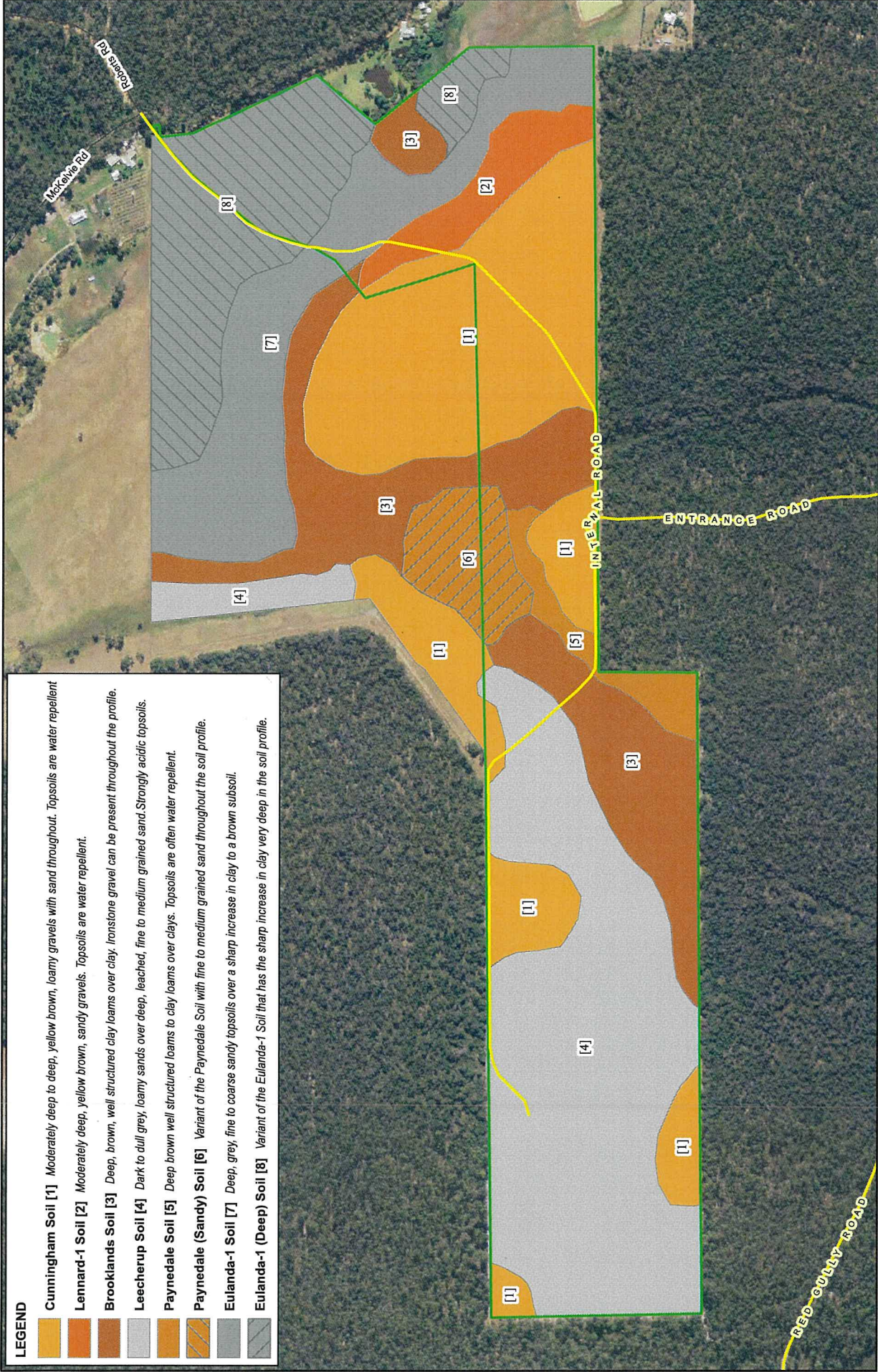
Drawn: CNH
Date: 17/05/2022

Coordinate System:
GDA 1994 MGA Zone 50

A4

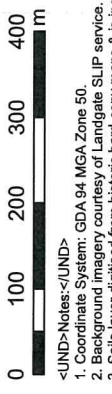
1.2 Geology and Soils

The area for sand excavation is classified as Leecherup Soil (area 4 in Figure 2). Soil surveys were undertaken by Topoclimate Services Pty Ltd (TSPL) in 2005 which considered a range of parameters, including a salinity survey. TPSL (2005) identified that *“The slight salinity levels in the soils, mainly in the topsoils, do not appear to have affected the water in the dams...All of the water samples, at the time of testing had salinity measurements well within the non-saline range for irrigation water (ie less than 100mS/m).”*



LEGEND

	Cunningham Soil [1] Moderately deep to deep, yellow brown, loamy gravels with sand throughout. Topsoils are water repellent.
	Lennard-1 Soil [2] Moderately deep, yellow brown, sandy gravels. Topsoils are water repellent.
	Brooklands Soil [3] Deep, brown, well structured clay loams over clay. Ironstone gravel can be present throughout the profile.
	Leecherup Soil [4] Dark to dull grey, loamy sands over deep, leached, fine to medium grained sand. Strongly acidic topsoils.
	Paynedale Soil [5] Deep brown well structured loams to clay loams over clays. Topsoils are often water repellent.
	Paynedale (Sandy) Soil [6] Variant of the Paynedale Soil with fine to medium grained sand throughout the soil profile.
	Eulanda-1 Soil [7] Deep, grey, fine to coarse sandy topsoils over a sharp increase in clay to a brown subsoil.
	Eulanda-1 (Deep) Soil [8] Variant of the Eulanda-1 Soil that has the sharp increase in clay very deep in the soil profile.



<UND>Notes:</UND>
 1. Coordinate System: GDA 94 MGA Zone 50.
 2. Background imagery courtesy of Landgate SLIP service.
 3. Soils layer digitised from historic hard-copy maps & is indicative only.



**Crouch Property, 'Brookvale'
 Sand Extraction DA
 Drainage Management Plan**
Soils Mapping

DRAWN	CNH	DATE	18/05/2022
CHECKED	RW	DATE	18/05/2022
SCALE	1:6,000	FIGURE No.	2
PROJECT No.		A3	

3 Operations and Potential Impacts

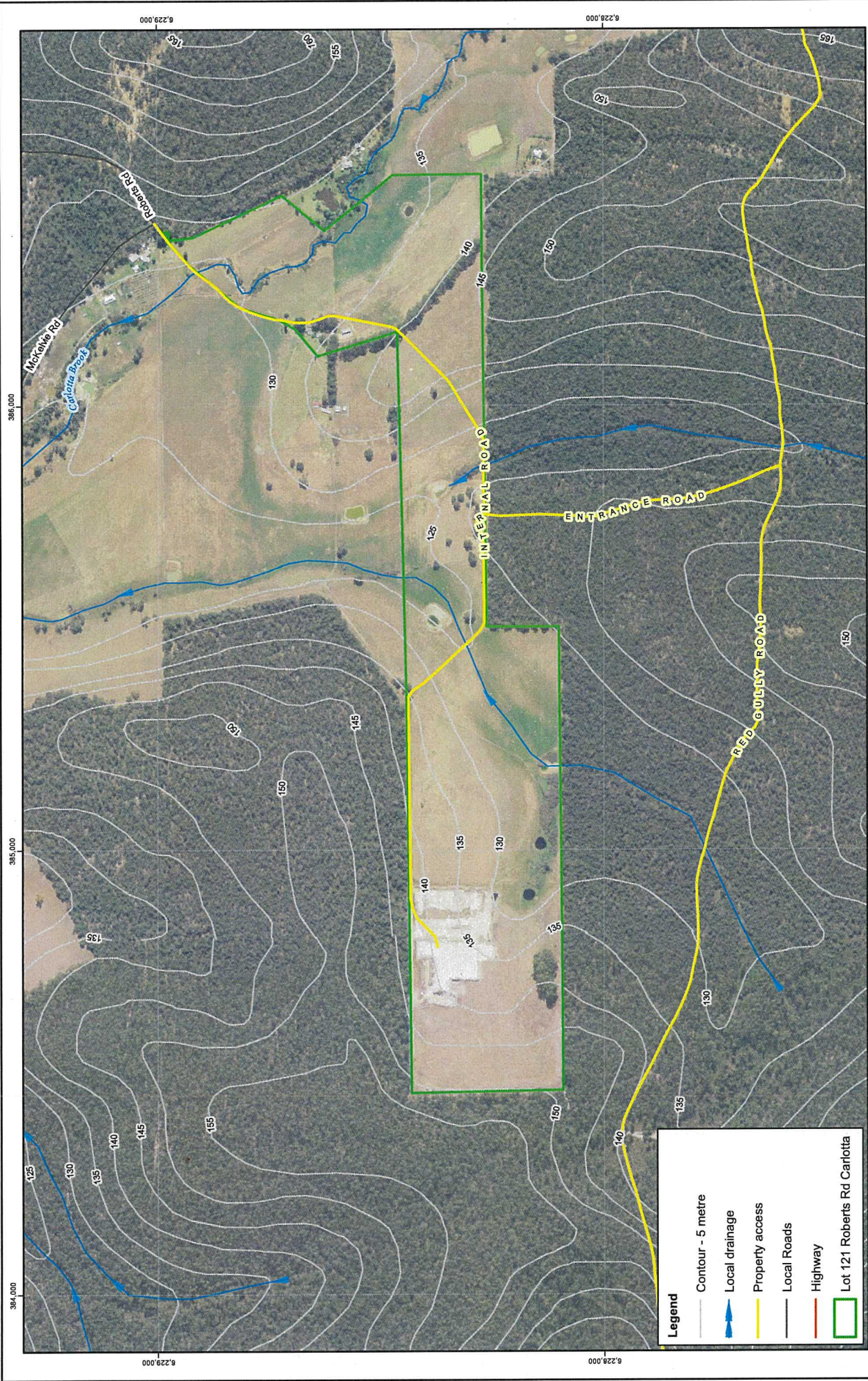
3.1 Dust Generating Activities

The following operations have the potential to generate dust, which can impact on sediment loads in surface water:

- Removal of topsoil;
- Excavation of sand;
- Material movement (loading of sand) into haul trucks; and
- Vehicle movement onsite (unsealed ground).

3.2 Stormwater and Drainage

Overland flow of stormwater can occur from stripping the topsoil and extractive operations and transport sediment downstream. Management of this potential impact is vital to maintain the active working area of the pit and to reduce scouring and potential sediment transport to waterways. The proposed excavation area is located on gently sloping contours higher than the proposed sediment traps which permits stormwater management to occur in advance of any potential discharge to the surrounding environment (ie runoff is directed to the low points towards the creek areas). Refer to Figure 3. Storm water from the sand pit will drain to the sediment traps and creek-line located to the east. Any storm water collected in the traps would dissipate back into the soil or evaporates. No pumping from the traps will be required.



Legend

- Contour - 5 metre
- Local drainage
- Property access
- Local Roads
- Highway
- Lot 121 Roberts Rd Carlotta

0 100 200 300 400 m

Notes:
 1. Coordinate System: GDA 94 MGA Zone 50.
 2. Background imagery & contours courtesy of Landgate SLIP service.
 3. Drainage digitised from open-source data.



**Crouch Property, 'Brookvale'
 Sand Extraction DA
 Drainage Management Plan**
Contour & Drainage

DRAWN	CNH	DATE	18/05/2022
CHECKED	RW	DATE	18/05/2022
SCALE	1:8,000	FIGURE No.	3
PROJECT No.		A3	

3.3 Receiving Environment

The proposed sand extraction site is located in an area that ranges from 125m above sea level to approximately 140m (see Figure 3) and the contours are quite widely spaced, meaning there is no excessive or extreme slopes in that area. Storm water from the sand pit drains to the sediment traps and creek-line located to the east (refer Figure 3). Any overflow passes across into State Forest. Storm water collected in the sediment traps drains naturally into the creek, soil or evaporates. Any sediment trapped remains in the traps, which will be infilled at rehabilitation.

Given the topography of the area and the nature of the ground material, it is unlikely that there will be any impacts from expression of surface water within the current or proposed extraction areas. If any potentially damaging overflow is observed moving towards other locations, additional traps/bunds will be created. Any sediment trapped that remains in the traps will be infilled during the rehabilitation phase.

Given the topography of the area and the nature of the ground material, it is unlikely that there will be any impacts from expression of surface water within the previous or proposed extraction areas. No groundwater exposure or contamination from the proposed extractive activity is anticipated. There is a very low risk of impacts to the regional salinity from the proposed operations.

4 Actions

Management actions for identified risks are provided in Table 1 below.

Monitoring	Risk	Action
Visual stormwater/sediment collection in sediment trap	Overflow of water/sediment from trap	<ul style="list-style-type: none"> • Silt will be trapped in the sediment trap and allowed to settle • The water collection point (trap) will prevent the outflow of sediment from the quarry • Additional traps/bunds to be created if required
Complaints register	Complaint	<ul style="list-style-type: none"> • Manager to assess stormwater levels/sediment burden and notify complainant of outcome of conditions and actions taken (if any)

Table 1. Drainage Management Actions

5 Drainage Post-Rehabilitation

Drainage of the rehabilitated quarry will consist of re-establishment of the contours to allow for water movement to freely drain over the surrounding environment and to the riparian zones. The area will not be compacted.

6 Document Review

The owners will review all site management documentation on an annual basis. Any alterations/improvements to reflect the operational activities at the site will be updated in future documents.

APPENDIX C

Site Rehabilitation Plan

Site Rehabilitation Plan

**“Brookvale”
Lot 121, Shire of Nannup**



Prepared for
L.M. and E.A. Crouch

By

Abrus
CONSULTING

rachael@abrus.com.au
MOBILE: 0429137757

Date: May 2022
Report Version: 1

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1.1	Land Use and Location.....	1
1.2	Soils and Previous Surveys.....	1
1.3	Surrounding Land Uses.....	3
2	Operations and Potential Impacts.....	5
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2.2	Rehabilitation Activities.....	5
2.3	Completion Criteria.....	6
3	Document Review.....	7

Site Rehabilitation Plan Lot 121, Shire of Nannup

1 Introduction

This Site Rehabilitation Plan (SRP) has been prepared in accordance with guidelines as provided by the Department of Environment and Conservation and the Western Australia Department of Mines, Industry Regulation and Safety. This Plan should be read in conjunction with the Development Application “Extractive Industry Application and Management Plans, Lot 121, Shire of Nannup” prepared by Abrus Consulting Pty Ltd.

The objectives of this SRP include:

- To identify potential impacts from the proposed extraction activities;
- To identify any sensitive receptors and their proximity to operational areas;
- To describe rehabilitation activities; and
- To identify rehabilitation completion criteria, targets and actions.

1.1 Land Use and Location

The property “Brookvale” is owned by L.M. and E.A. Crouch and is 7km south of Nannup township (via Vasse Highway, to Roberts Road, on Lot 121. This property is comprised of 103.4 hectares (ha) and is primarily used for general farming. The sand pit is a current extractive area (4.74 ha) which will be expanded to 13.78 ha. Access to the property is directly off Roberts Road, but truck and contractor access to the pit will access the site via a track which passes through DBCA managed land that connects with Red Gully Road. Red Gully Road then connects with the Vasse Highway. See locality Figure 1.

1.2 Soils and Previous Surveys

Soil surveys were undertaken by Topoclimate Services Pty Ltd (TSPL) in 2005. Soil testing was also included in the surveys, which considered pH, cation exchange capacity (CEC), sodicity and nutrients. These parameters are important when assessing landscape condition and in this instance, to plan for suitable rehabilitation of the site. A salinity survey was also conducted as part of the farm plan to ascertain if there were any salinity issues present. TPSL (2005) identified that *“The slight salinity levels in the soils, mainly in the topsoils, do not appear to have affected the water in the dams...All of the water samples, at the time of testing had salinity measurements well within the non-saline range for irrigation water (ie less than 100mS/m).”*

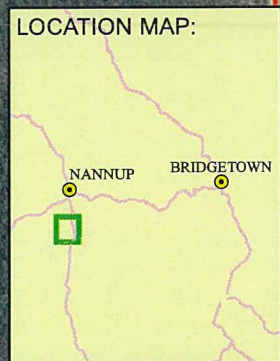
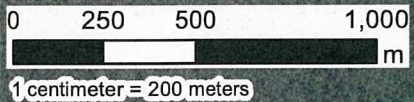
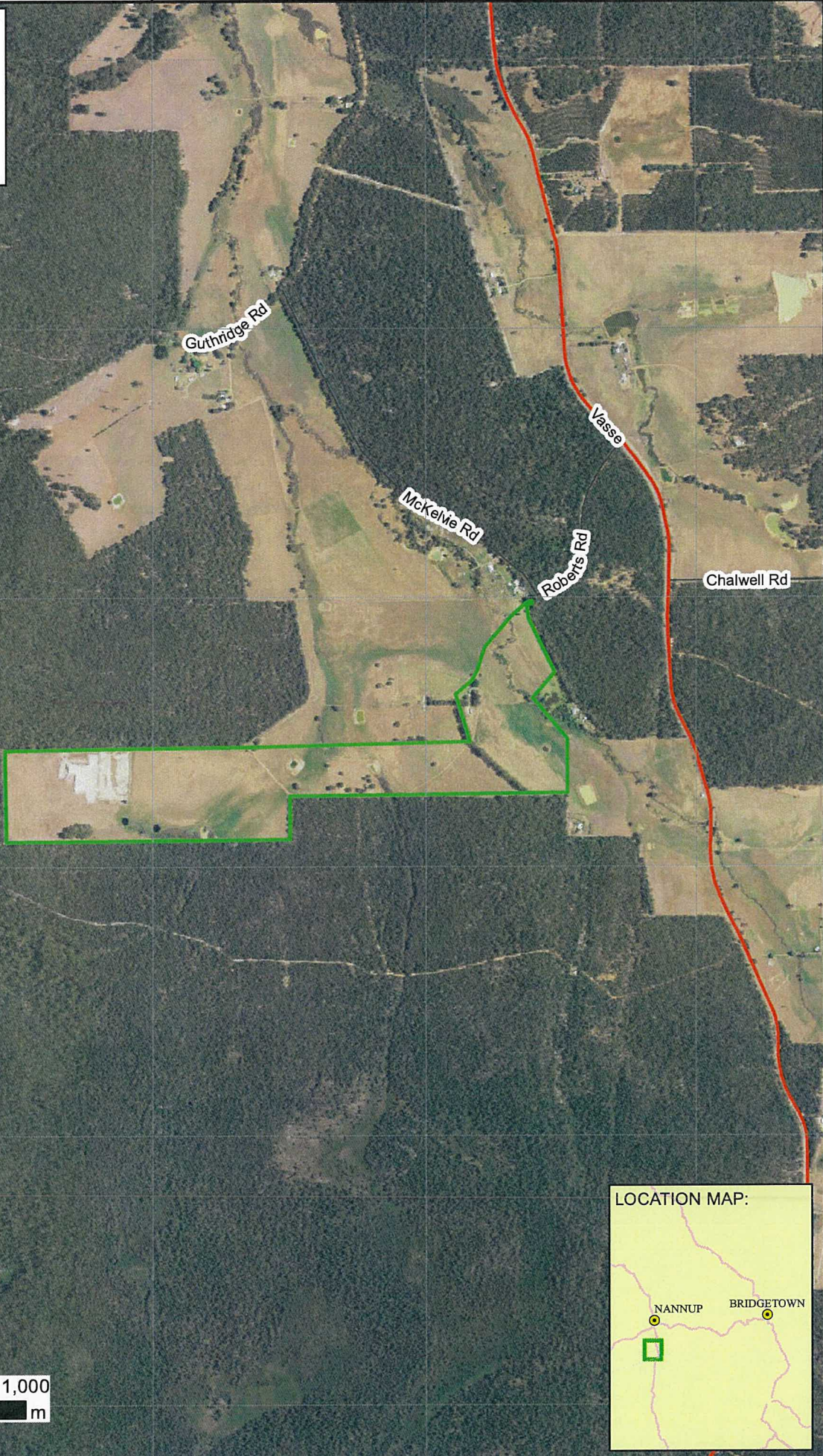
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Legend

- Local Roads
- Highway
- Property boundary



Base map:
Worldwide Imagery -
Sourced from
Landgate SLIP.



Crouch Property 'Brookvale'
Lot 121 Roberts Road, Carlotta WA
Location Plan

Figure: 1
Project:

Drawn: CNH
Date: 17/05/2022

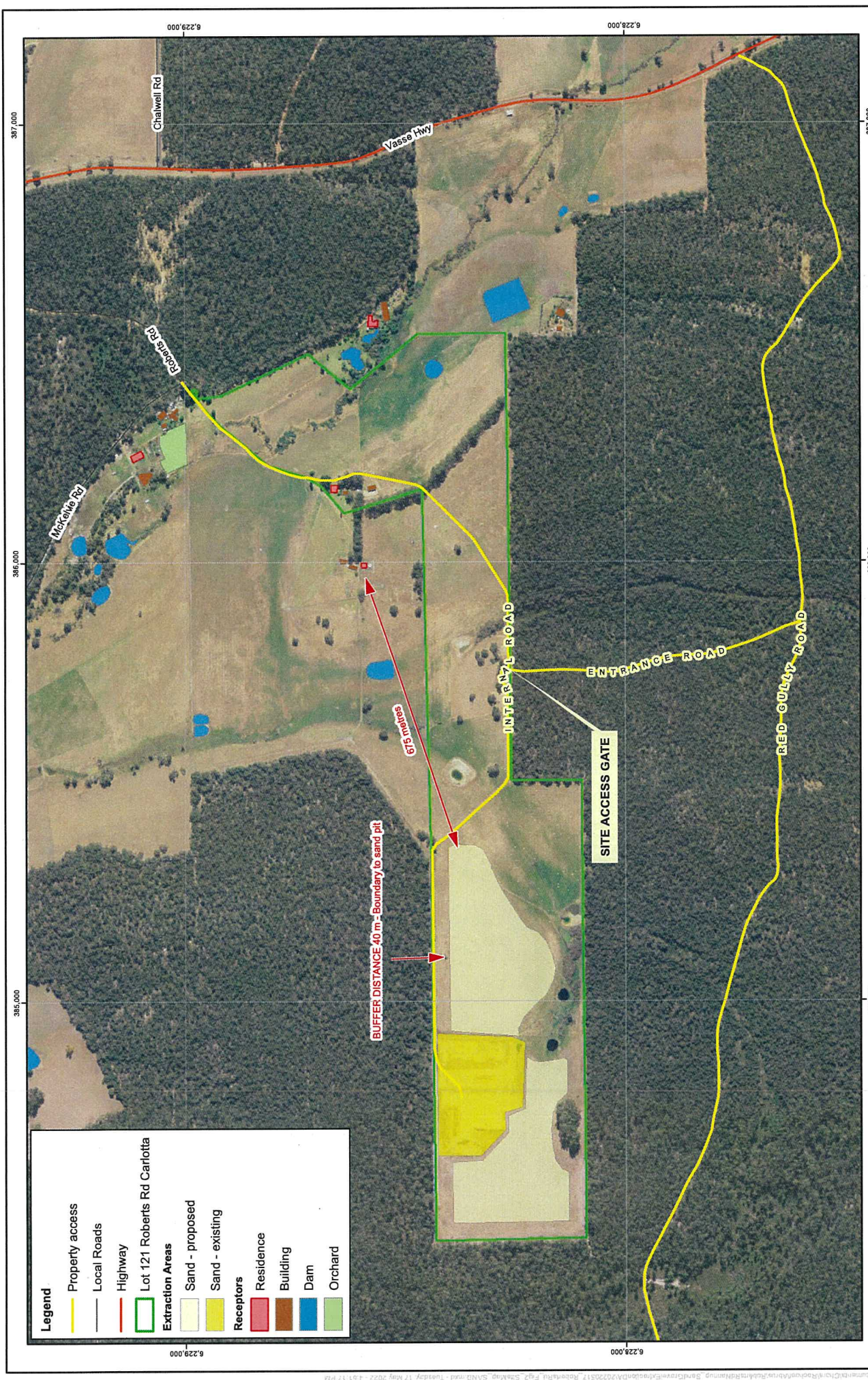
Coordinate System:
GDA 1994 MGA Zone 50

A4

1.3 Surrounding Land Uses

The proposed extraction area is surrounded by agricultural land (mixed), rural lifestyle and State Forest (DBCA) managed land.

The nearest residence (owned by Darren Ganzer) is located approximately 675m from the proposed extension of the sand pit extractive area (eastern edge). This is within the EPA separation distance requirement for the proposed extractive activities (see Figure 2). The Brookvale Manager's Residence and other receptors are outside of the EPA 1000m separation distances for this extractive operation.



Legend

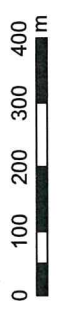
- Property access
- Local Roads
- Highway
- Lot 121 Roberts Rd Carlotta

Extraction Areas

- Sand - proposed
- Sand - existing

Receptors

- Residence
- Building
- Dam
- Orchard



Crouch Property, 'Brookvale'
Sand Extraction
Development Application
 Site Plan Showing Pits & Receptors

DRAWN	CNH	DATE	17/05/2022
CHECKED	RW	DATE	17/05/2022
SCALE	1:8,000	FIGURE No.	2
PROJECT No.	A3		

Notes:
 1. Coordinate System: GDA 94 MGA Zone 50.
 2. NOT FOR CONSTRUCTION. Illustration purposes only.
 3. Background imagery courtesy of Landgate SLIP service.

2 Operations and Potential Impacts

2.1 Potential Impacts

Potential impacts from extractive operations include:

1. Dust from operations (extraction and transportation) may affect nearby residents;
2. That erosion may occur creating an unstable landform;
3. Lack of vegetation regrowth/reduced health from disease;
4. That weeds may impact the area (growth or introduction of new species);
5. That the area may not blend visually with the surrounding environment;
6. That local fauna may be negatively impacted; and
7. Local hydrology may be impacted.

These are discussed in the completion criteria table (Table 1).

2.2 Rehabilitation Activities

Partial rehabilitation of the existing sand pit has already been completed, with the extracted area re-contoured to suit the topography and rehabilitated back to pasture, with a mix of clover and rye. Rehabilitation of the completed areas will be progressive, with the areas returned to pasture (primarily clover and rye). Due to the small scale of the extractive area and activities, and that the intent is to return the area to pasture, a detailed Site Rehabilitation Plan is not considered feasible at this stage.

A general methodology, undertaking a staged approach is proposed, with rehabilitation beginning once an area has been extracted. The selected contractor will redistribute the topsoil and re-contour the landscape, with the owner reseeding the areas. Areas will be rehabilitated once no longer required.

As a general rule, the following steps will be implemented:

- Stockpiled topsoil will be retained during extraction and spread back over the completed areas;
- The pit floor will be ripped along the contour;
- Erosion control implemented if required;
- Area will be prepared for planting, which may require weed management;
- Seeding of pasture species.

The restoration/rehabilitation goal for this site is to return the area post-extraction to a stable and erosion resistant landform. It will blend with the surrounding landscape.

2.3 Completion Criteria

Completion criteria are necessary to ensure that the objectives of rehabilitation have been met. Table 1 below provides a summary of the criteria, objectives and targets.

Criteria	Target	Actions
1. Off-site impacts	That off-site impacts (ie dust) that could affect nearby residents do not occur	<ul style="list-style-type: none"> • Successful re-establishment of pasture • Maintaining existing tree and vegetation belts
2. Landform stability	<ol style="list-style-type: none"> 1. That the final landform is stable 2. No erosion occurs 	<ul style="list-style-type: none"> • Identification of potential erosion areas are identified and managed during rehabilitation
3. Vegetation	<ol style="list-style-type: none"> 1. That the area will be returned to pasture 2. No dieback will be introduced 	<ul style="list-style-type: none"> • Successful re-establishment of pasture • Implementation of vehicle hygiene procedures
4. Weeds	<ol style="list-style-type: none"> 1. That declared weeds will not be present 2. That declared weeds will not be introduced 	<ul style="list-style-type: none"> • Declared weeds if present will be removed/managed • Implementation of vehicle hygiene procedures
5. Visual amenity	The rehabilitated area will be returned to pasture and blend with the surrounding environment	<ul style="list-style-type: none"> • Successful re-establishment of pasture
6. Fauna	Fauna will return to the site area	<ul style="list-style-type: none"> • Successful re-establishment of pasture • Maintaining existing tree and vegetation belts and riparian zones
7. Hydrology	<ol style="list-style-type: none"> 1. That the final landform will not be affected by site hydrology 2. Stormwater will not negatively impact the site 	<ul style="list-style-type: none"> • Stormwater will be managed during rehabilitation allowing water movement to freely drain over the surrounding environment and into the riparian zones • The area will not be compacted

Table 1: Completion Criteria

3 Document Review

The owners will review all site management documentation on an annual basis. Any alterations/improvements to reflect the operational activities at the site will be updated in future documents.





Shire of
NANNUP
The Garden Village

15 Adam Street,
P.O. Box 11, Nannup WA 6275
Telephone: (08) 9756 1018
Facsimile: (08) 9756 1275
Email: nannup@nannup.wa.gov.au
Web: www.nannup.wa.gov.au

email : leigh.guthridge@nannup.wa.gov.au

10 July 2007

Our Ref: A 1536

Lyndon Crouch
PO Box 52
Nannup WA 6275

Dear Lyndon,

LOT 121 ROBERTS ROAD CARLOTTA – AMENDED PLANNING APPROVAL FOR EXTRACTIVE INDUSTRY

I refer to your application for an amendment to the existing planning approval for the extractive industry at Lot 121 Roberts Road Nannup.

Council at its June 2007 meeting resolved the following:

That Council grant planning approval to Mr L Crouch to undertake an extractive industry from Lot 121 Roberts Road Carlotta subject to the following:

1. That written confirmation of compliance with all conditions of planning approval be provided to Council prior to any further extractive material being removed from the site.
2. That Red Gully Road (track through state forest) is the route to be used to transport extractive material from Lot 121 to Vasse Highway.
3. The approval is valid for a period of 15 years from the date of the approval.
4. The applicant formally applying to Main Roads WA for an assessment of the intersection of Red Gully Road and Vasse Highway. Any upgrading of the intersection including capital works and or signage to Main Roads WA satisfaction to be met by the applicant.
5. The proponent at all times to possess public liability insurance for a sum of not less than \$10,000,000 and provide evidence of current insurance to Council upon request.

6. If in the event that Red Gully Road becomes unavailable to the registered proprietor of Lot 121 Roberts Road, and that Roberts Road becomes the proposed route to transport material, the extractive industry conditional planning approval as resolved by Council at its March 2004 meeting applies.

Please contact the undersigned on 97561018 if you have any queries.

Yours faithfully



Leigh Guthridge
MANAGER DEVELOPMENT SERVICES

Leigh Guthridge

From: GICK Jason (RCPM) [jason.gick@mainroads.wa.gov.au]
Sent: Friday, 27 April 2007 2:20 PM
To: leigh.guthridge@nannup.wa.gov.au
Subject: FW: Assessment of Crossovers from roads in the Carlotta Locality

Leigh,

we have an inspection and it would seem that Red Gully Road offers a better sight distance. We would still require the road intersection to be upgraded, although if is little more than a rural access, we could lower our requirements to that of a rural crossover.

Regards

Jason Gick
Ph: 9725 5664

From: SKODA Jan (BMO)
Sent: Friday, 27 April 2007 1:05 PM
To: GICK Jason (RCPM)
Subject: RE: Assessment of Crossovers from roads in the Carlotta Locality

Jason,

Red Gully Rd has better sight distance 290m south 300m north. Roberts 195 north 300m south.

Red Gully rd would need upgrading. (both are similar).

Cheers.

From: GICK Jason (RCPM)
Sent: Tuesday, 24 April 2007 1:30 PM
To: SKODA Jan (BMO)
Subject: FW: Assessment of Crossovers from roads in the Carlotta Locality

Jan,

could you please inspect these locations and report on which one is preferred.

Thanks

Jason Gick
Ph: 9725 5664

From: Leigh Guthridge [mailto:leigh.guthridge@nannup.wa.gov.au]
Sent: Tuesday, 24 April 2007 1:03 PM
To: GICK Jason (RCPM)

30/04/2007

Subject: Assessment of Crossovers from roads in the Carlotta Locality

Jason,

Further to our conversation this morning, can you provide MRWA comments in relation to the following:

- Council approved a conditional Extractive Industry in March 2004 from Lot 121 (then Lot 4) Roberts Road Nannup. I have attached letters relating to this issue for your information.
- The proponent has advised that Red Gully Road might be utilised in favour of Roberts Road. Red Gully Road is a formation in state forest and Roberts Road is a Council road reserve.
- I have also attached a plan of the area illustrating the Roberts Road and Red Gully Road and the entry points of these roads onto Vasse Highway.

Can you please assess both options from the point of view of an appropriate crossover/connection to Vasse Highway.

Please call me if you have any queries

Regards

Leigh Guthridge
Manager Development Services
Shire of Nannup
08 97561018

30/04/2007



Department of
Environment and Conservation

Your ref:
Our ref: BWD2002F611
Enquiries: Brad Commins
Phone: 08 97 52 5555
Fax: 08 97 52 1432
Email: blackwood@dec.wa.gov.au

Mr Lindon Crouch
C/- Post Office
Nannup WA 6275

Dear Lindon

ACCESS TO LOT 4 AND LOCATION 12869 RED GULLY ROAD

Thank you for your letter requesting approval to use Red Gully road as access for commercial basic raw material extraction from your properties Lot 4 and Location 12869 that adjoin State Forest in the Shire of Nannup.

The recent inspection of the proposed access along Red Gully road west of Vasse highway has indicated that there will be minimal impact on conservation values in the vicinity of the road. During the inspection the following guidelines were agreed between yourself and Brad Commins.

1. Any eucalypt sapling less than 200 mm in diameter at the base that is growing in the road surface or immediately adjoining the clearing of the road alignment that may affect access safety can be pushed over. The stems requiring removal were identified at the time of inspection. Each stem is to be pushed over and speared into the forest onsite being the least site disturbing method of removal.
2. There have been six trees identified with yellow flagging tape that are approved to be removed to improve safety of the access route. The trees should be pushed over as discussed and the tapes left attached to the trees for the purpose of identification. Any merchantable product in the form of fencing material will be purchased through the Forest Products Commission (FPC) Minor Production Contract system. The Department will advise the FPC of the site and the potential for you to purchase material that may be produced by the road improvements.

3. Red Gully road may be graded on the current alignment and existing side drains opened up to improve drainage. This work must only be conducted in dry soil conditions.
4. Overtaking bays may be cleared in the natural forest gaps identified at the time of the site inspection.
5. The safety of other road users in this locality is the responsibility of yourself and the contractors operating from your property. Any issues that may arise will be addressed by you in the first instance.
6. All necessary signage required by the local authority and to ensure public knowledge of the road usage by trucks operating from your property is your responsibility.

Yours sincerely


Greg Mair
DISTRICT MANAGER

12 February 2007