

Extractive Industries Licence Application and Environmental Management Plan

LOT 4579, 9104 ALBANY HIGHWAY, CROSSMAN



REPORT PREPARED BY
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Lot 4579 on Deposited Plan 224816
9104 Albany Highway, Crossman

Shire of Boddington

Extractive Industries Licence Application and Environmental Management Plan

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Front cover image: *Near Map Image of the extraction area, November 2014*

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1 INTRODUCTION

The purpose of this report is to provide all the necessary information required in support of an Extractive Industries Licence (EIL) application and a Development Approval (DA) application (Appendix 1) for Lot 4579, 9104 Albany Highway, Crossman, Shire of Boddington. The location of the property is shown on Figure 1.

The property and surrounding land consist of cleared agricultural land and pockets of remnant vegetation.

This report sets out the details of the proposed future lateritic gravel extraction on the property together with maps. It also provides an environmental assessment of the proposal and environmental management plans. The Proponent is committed to ensuring compliance with *Extractive Industry Local Law 2023* Shire of Boddington throughout the course of the proposed operations.

1.1 PUBLIC LIABILITY INSURANCE POLICY

The Shire's *Extractive Industry Local Law 2023* states any application submitted for an extractive industry licence must be accompanied by the following information:

(1) "A licensee shall have at all times a current public liability insurance policy naming the local government and indemnifying the licensee and the local government for a sum of not less than \$20,000,000 in respect of any one claim relating to any of the excavation operations".

(2) "The licensee shall provide to the local government a copy of the policy taken out under subclause (1), within 14 days after the issue of that policy and shall provide to the local government evidence of policy renewal within 14 days of each policy renewal date".

2 PROPERTY DESCRIPTION, OWNERSHIP AND LOCALITY

The property is situated within a farm in the Vegetation Complexes - South West forest region of Western Australia, approximately 132 kilometres south-east of Perth and approximately 5 kilometres western of the rural township of Crossman. The property and surrounding land consist of cleared agricultural land and pockets of remnant vegetation. A locality plan is included as Figure 1 and the site and surrounds are shown on Figure 2. The property description and ownership are summarised in Table 1.

Table 1. Property description

Property Description:	Lot 4579 on Deposited Plan 224816
	9104 Albany Highway
	Crossman, Shire of Boddington
Volume	1717
Folio	654
Area:	405.4986 ha
Ownership	Russell Ernest Reynolds

3 DESCRIPTION OF THE SITE AND ITS SURROUNDS

3.1 PRESENT LAND USE

The property consists primarily of cleared agricultural land and some remnant native vegetation.

3.2 TOPOGRAPHY

The extraction area is located on land with slopes for Pit 1 which range from 1:28 (3.5%) to 1:18 (5.5%) for Pit 2 from 1:5 (20%) to 1:15 (6.6%). The elevation range for Pit 1 is 315 to 290 m AHD and for Pit 2, 245 to 275 m AHD (Figures 3 A, B).

3.3 SURFACE WATER, DRAINAGE AND WETLANDS

Drainage from the extraction area is to the south-east (Pit 1) and south-west (Pit 2). The surrounding area has multiple creeks and drainage lines which drain towards the Hotham River in the south. There are also multiple agricultural dams located along these drainage lines which provide water for agricultural activities (Figure 2).

The property is located in the Hotham River Catchment within the Murray River and Tributaries Basin (Water Register, 2025).

The Hotham River is located approximately 590 m to the south of the extraction area (Pit 2).

No known lakes or wetlands exist within 1 000 metres of the proposed extraction area (Landgate 2025).

The property does 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 5.5.2 of this report.

3.4 GEOLOGY AND SOILS

The bedrock geology of the area is granitic basement rock which is overlain by a ferruginous duricrust known as “the laterite profile” to a depth of approximately 5-10m. The lateritic caprock has weathered to silty, nodular gravel which varies in thickness between 1 and 4m. Below the gravel is a sandy clay material.

Topsoil above the gravelly layer is a red sandy loam.

3.5 ACID SULFATE SOILS

A search of the CSIRO’s Australian Soil Resource Information System (ASRIS) database determined there were no acid sulphate soil (ASS) sites identified in the vicinity of the proposed EIL area (CSIRO 2025). No potential ASS sites have been identified in the vicinity of the proposed EIL area. (Locate 5, 2025).

3.6 GROUNDWATER HYDROLOGY

The occurrence of groundwater under the site is likely to be very limited due to the impervious nature of the underlying granitic material. Small quantities of groundwater may be found within rock fractures.

The DWER water register indicates that there are no licenced water bores within the property or within a 12km radius (DWER, 2025).

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

3.7 VEGETATION

A desktop vegetation survey and site walkover has been completed. The area is cleared agricultural land and the proposed extraction area has been planned to avoid remnant vegetation on the property. The property is largely cleared for pastures. Remnant vegetation on the site comprises the following vegetation types:

Mapped vegetation types within the EIL area and immediate surrounds in in the Vegetation Complexes - South West forest region of Western Australia (DBCA-047) (Mattiske and Havel, 1998) include:

- Y6 (Yalanbee): Woodland of *Eucalyptus wandoo* (wandoo) – *E. accedens* (powderbark wandoo), less consistently open forest of *E. marginata subsp. thalassica* - *Corymbia calophylla* (blue-leaved jarrah-marri) on lateritic uplands and breakaway landscapes in arid and peri-arid zones
- Mi (Michibin): Open woodland of wandoo over *Acacia acuminata* (jam wattle) with some *E. loxophleba* (York gum) on valley slopes, with low woodland of *Allocasuarina huegeliana* (rock sheoak) on or near shallow granite outcrops in arid and peri-arid zones, and
- Wi (Williams): Mixture of woodland of *Eucalyptus rudis* – *Melaleuca raphiophylla*, low forest of *Casuarina obesa* and tall shrubland of *Melaleuca* spp. on major valley systems in arid and peri-arid zones.

Several trees are shown on the aerial imagery dated November 2014. Remaining trees on the site are shown on Figure 3 A, B. As noted above and shown on Figure 2, no extraction will occur within a 15m buffer of remaining native vegetation on the site. No clearing will be required.

No Department of Biodiversity Conservation and Attractions (DBCA) listed Threatened Ecological Communities (TECs) are mapped within a 5km radius of the proposed EIL boundary (Landgate 2025).

3.8 FAUNA

The property is within a 'Confirmed' breeding area for Baudin's Cockatoo (*Calyptorhynchus baudinii*) and Carnaby's black cockatoo (*Calyptorhynchus latorostris*) and Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*).

Some of the remnant vegetation on the property may also be black cockatoo feeding habitat (Landgate 2025).

It is likely that these are habitat trees for the Carnaby's black cockatoo.

No habitat will be disturbed since no clearing will occur.

3.9 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, 2025) within or adjacent to the proposed EIL area. The closest ESA is approximately 30 kilometres south-east of the proposed extraction area.

3.10 CURRENT ZONING

The area is zoned as “Rural” in terms of the Shire of Boddington Plains Planning Scheme (LPS) No. 3.

It is noted that the use class ‘Extractive Industry’ is listed in the zoning table of LPS No. 3 as being a use that is not permitted on any land classified ‘Rural’ zone unless the Shire has exercised its discretion and grants development approval following completion of public advertising (i.e. it is listed as a discretionary use in the Zoning Table).

3.11 BUSHFIRE PRONE AREAS

A portion of the property and the outer edges of the extraction area falls within a bushfire prone area 2 (Figure 2) as designated by the Fire and Emergency Services (FES) Commissioner on 24 September 2024 (LGATE-260, <https://maps.slip.wa.gov.au/landgate/bushfireprone/>). 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 structures. None are planned to be developed.

3.12 CLOSEST RESIDENCES

The closest structures to the outer boundaries of the extraction area are identified in Table 2 and mapped on Figure 2.

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. As this operation would be considered a “low scale” operation, the minimum generic buffer would be likely to apply.

The nearest currently unknown structures are located approximately 930 m and further to the south-west and south-east of the proposed extraction area (Pit 1&2) as illustrated on Table 2 and Figure 2. It is unlikely that any dust or visual impacts will be incurred from the extraction activities. Dust and visual impacts of the operation and mitigation measures are discussed further in Section 5.

Table 2. Nearest Structures to the Extraction Area

Reference No. on Figure 2	Lot No. & Location	Occupants Name	Distance to closest area of pit (metres)
Structure 1	Lot 55	Unknown Owner	930 SW from Pit 1
Structure 2	Lot 55	Unknown Owner	950 SW from Pit 1
Structure 3	Lot 55	Unknown Owner	1000 SW from Pit 1
Structure 4	Lot 54	Unknown Owner	1100 SW from Pit 1
Structure 5	Lot 1	Unknown Owner	1140 SW from Pit 1
Structure 6	Lot 57	Unknown Owner	935 S from Pit 1
Structure 7	Lot 27	Unknown Owner	1400 SE from Pit 2
Structure 8	Lot 27	Unknown Owner	1415 SE from Pit 2
Structure 9	Lot 27	Unknown Owner	1435 SE from Pit 2

4 THE DEVELOPMENT PROPOSAL

4.1 PREVIOUS GRAVEL EXTRACTION

There is no current gravel mining on the site.

4.2 PROPOSED GRAVEL EXTRACTION

TRFT proposes to extract lateritic gravel from two areas (Pit 1&2), as shown in Figure 2. Pit 1 is 18.7 ha, which will be divided into three stages (Stage 1 – 6.6 ha, Stage 2 – 6.2 ha and Stage 3 – 5.9 ha) as shown on Figure 3A. These would be mined consecutively. Pit 2 is 6.8 ha with 0.25 ha being left unmined to avoid clearing of native vegetation as shown on Figure 3B.

The total area to be mined is therefore 25.25 ha.

The total volume of gravel to be removed over a period of approximately 5 years is estimated at 252,500 cubic metres (m³). This equates to an annual gravel extraction volume of approximately 50,500m³, but this will be dependent on demand. This corresponds to a total of approximately 404,000 tonnes and an annual extraction of 80,800 tonnes. However, the lifespan of the pits could be up to 18 years.

Extraction activity will result in the lowering of the ground level by approximately 1-2m.

The land's existing contours are shown on Figure 2, Figure 3 A, B.

A summary of the proposed extraction activities is given below:

- The proposed extraction area is already cleared of native vegetation. Mechanical means will be used for extraction with the gravel stockpiled on the boundary of the area.
- There will be no blasting activity associated with the proposed extraction operations.
- Topsoil and overburden will be removed from the extraction area in three stages (Pit 1) and one stage (Pit 2) with only the areas targeted for immediate extraction being opened. Topsoil and over-burden will be stockpiled separately, with topsoil stockpiles being no higher than two metres.
- No crushing and screening plant will be used.
- Measures to limit dust from this part of the operations are discussed separately in Sections 5.6 and 5.7.
- Topsoil will be re-spread and the area will be returned to agriculture use.

An indicative timing of the proposed extraction activities over the next five years is provided in Table 3.

Table 3. Proposed Stages of Extraction 2025 to 2031

Areas	Action	2025		2026		2027		2028		2029		2030		2031	
Pit 1	Strip and stockpile														
Pit 1	Load and truck out														
Pit 1	Progressive rehabilitation of 18.7ha														
Pit 2	Strip and stockpile														
Pit 2	Load and truck out														
Pit 2	Progressive rehabilitation of 6.55ha														
Pit 1-2	Monitoring and Maintenance of 25.25 ha														

4.3 SITE ACCESS AND EGRESS ROADS

Site access was via Albany Highway and English Road using an existing internal access road shown on Figure 2.

4.4 ESTIMATED TRAFFIC TO BE GENERATED

The following estimates are made:

- Estimated annual gravel removal: 80,800 tonnes
- Number of working days per month: 22 days
- Truck Type, Capacity and RAV rating:
 - 20% single semi-trailer (can operate up to RAV N2.3) (26 tonnes)
 - 80% RAV N4.1 pocket roadtrains (55 tonnes)

The above factors suggest a maximum of 8 truck movements per day, but this will be dependent on demand. Operating times will be Monday to Friday 0630 to 1800 and Saturday 0600 to 1200.

5 POTENTIAL NEGATIVE ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

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.

5.1 FLORA AND FAUNA

Most of the area has already been cleared, and the proposed extraction area has been planned to avoid remnant vegetation on the property. The area will be returned to agricultural use once extraction is completed. It is therefore unlikely there will be significant impact to indigenous flora and fauna.

5.2 WEEDS

TRFT will implement a weed management plan as is described in Appendix 2 of this report.

5.3 ALTERATION OF THE LAND SURFACE

After extraction, the land surface will be approximately 1-2 metres lower than the original, with the batters being at a maximum gradient of 1:6.

5.4 VISUAL IMPACT

The proposed extraction will occur in an existing agricultural region. It is highly unlikely to create a visual impact due to remnant vegetation surrounding the proposed extraction area, and the natural undulation of the landscape.

As detailed in Section 3.12, all the nearest possible residences are located more than 900m from the extraction area.

Since the proposed extraction area will be well screened by the vegetation described above, no visual impact will occur. Once rehabilitation has been completed and the site has been returned to agricultural use, there will be little evidence that extraction has taken place.

5.5 WATER

5.5.1 Potential Impacts

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.

5.5.2 Water Management

5.5.2.1 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).

Three surface water management areas (sub-catchments 1-3) have been defined around the extraction areas for Pit 1 (Figure 2 A, Appendix 3). One surface water management area has been defined around the extraction areas for Pit 2 (Figure 2 B, Appendix 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 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 3).

5.5.2.2 Groundwater Management

The project does not involve dewatering. The average depth of the extraction will be approximately 2 metres. Groundwater will not be exposed by the excavations.

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 3).

5.6 NOISE

The proposed extraction activities will not produce much operational noise, as no crushing and screening is to occur.

There are no noise sensitive premises within 900m of the proposed operations. The nearest structure is located approximately 930 metres from the proposed extraction area of Pit 1 (Figure 2 and Table 2). No noise impact is anticipated due to the remoteness of the operation.

5.7 DUST

5.7.1 Dust Management

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 on unsealed portions of access roads, however the point of entry on to Albany HWY is bituminised for approximately 100m before reaching Albany HWY. This will limit the amount of dust generated at the entry point (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” lists the generic buffer distances from extractive industries as noted in Section 3.12.

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.

Table 4. Summary of Dust Control Actions

Activity	Action	Control Measure	Result
Daily			
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 property.
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 property.
Product transport	All loads covered before leaving the property.	Cover loads.	Reduced dust generation from product transport.
As Required			
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 property.
Rehabilitation /stabilisation of completed areas	Undertake rehabilitation on completed areas.	As per Section 6 of this report.	Reduced dust generation from the property.

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

5.8 DIEBACK

5.8.1 Potential Impacts

The remnant vegetation within the site is mapped as having a susceptibility to *Phytophthora cinnamomi* (South Coast NRM 2013). No obvious signs of dieback infestation were observed in the uncleared vegetation in the proposed extraction area. Since most of the area within which the extraction is to be undertaken has little or sparse vegetation, 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 (Dieback Working Group 2010).

5.8.2 Dieback Management

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

- The property will be fenced at all times.
- Access to the property 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.

5.9 HERITAGE SITES

5.9.1 Aboriginal Heritage Sites

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 property (DPLH 2025). The Aboriginal Cultural Heritage (ACH) Lodged Place 20222 Janak (Mooliaman) Hill registered site is located more than 5 km from the extraction boundary. If during the works, an Aboriginal cultural heritage site is discovered, the Proponent will immediately advise the Department of Aboriginal Affairs and abide by the Aboriginal Heritage Act 1972.

5.9.2 Other Heritage Sites

There are no Heritage sites listed (inHerit 2025).

6 REHABILITATION

6.1 PROPOSED REHABILITATION MEASURES

Rehabilitation of the completed areas will be progressive, and the following steps will be implemented:

- Topsoil and overburden will be retained on the site to be used during rehabilitation.
- The final rehabilitated surface will be at approximately 1-2m below the current.
- The area will revert to agriculture use after extraction has ceased.

The restoration goals proposed for the EIL 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.

Rehabilitation of each stage will occur once mining is complete as shown on the timeline presented on Table 3.

6.2 MONITORING AND MAINTENANCE

Monitoring of rehabilitated areas will ensure that any areas requiring remedial work are identified. Monitoring will be carried out on an annual basis to assess:

- The physical stability of the landform in the rehabilitated areas.
- The success of 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.

Monitoring and maintenance of rehabilitated areas will occur in the 12 months following the expiry of the approval period.

6.3 COMPLETION CRITERIA

The completion criteria proposed for extractive operations on the property are presented in Table 5.

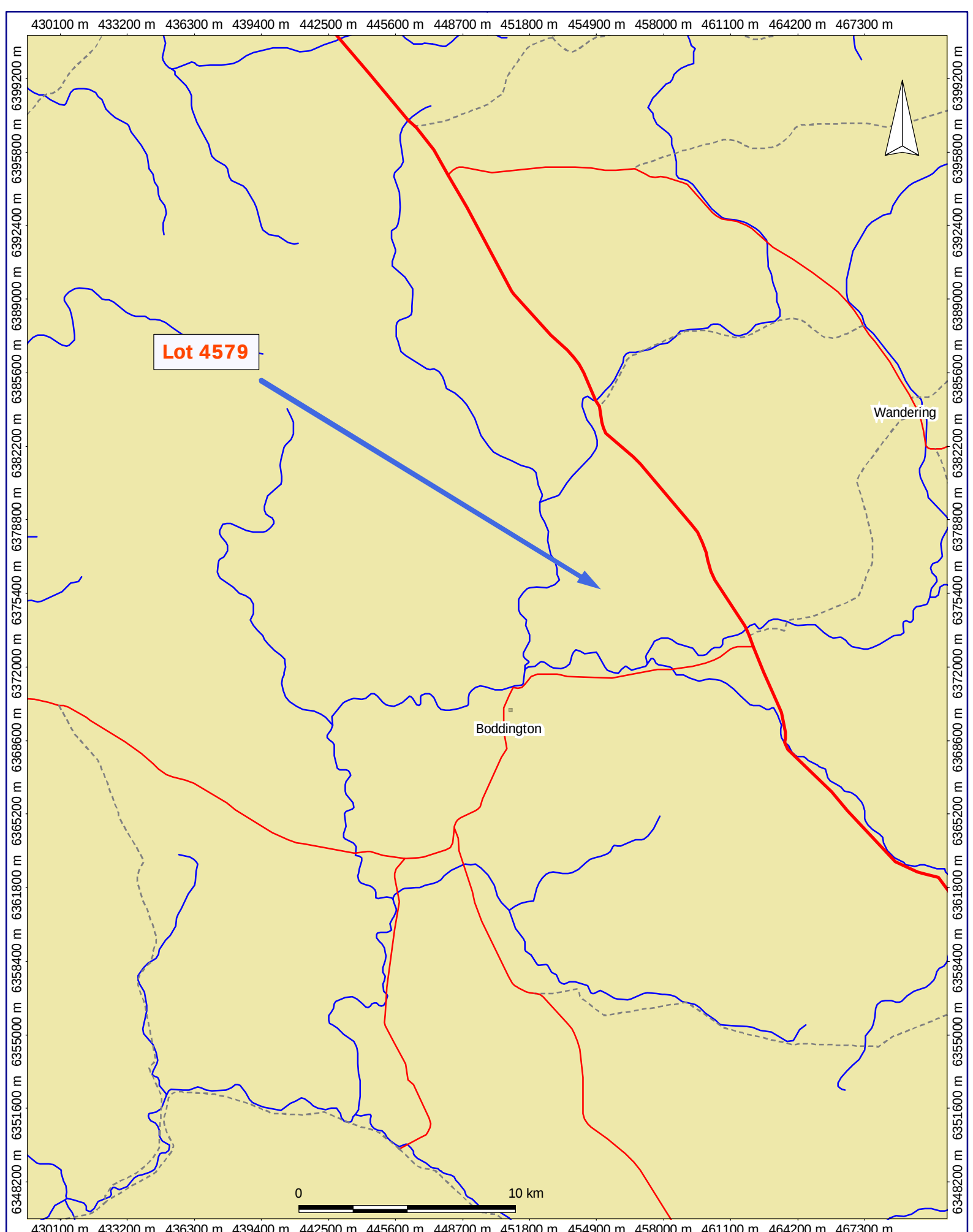
Table 5. Closure Criteria, Objectives and Interim Targets

Criteria	Objective	Interim Targets
a) Safety	The site is safe to humans and animals.	Site is safe to humans and animals during operations.
b) Sustainability	The site is sustainable in the long term without additional management inputs.	On-going Management of short-term impacts
c) Suitability	The site is suitable for the agreed land uses.	On-going Management of short-term impacts
d) Visual amenity and heritage	The rehabilitated extraction area blends into the surrounding environment.	On-going Management of short-term impacts
e) Off-site impacts	Significant adverse off-site impacts are prevented.	Significant adverse off-site impacts are prevented.
f) Hydrology	a. Site hydrology does not prevent the establishment of desired vegetation. b. Site hydrology does not reduce the stability of the landform. c. Stormwater is contained within the site.	- Stormwater is contained within the site during operations. - Identification and mitigation of any hydrology related issues during operations.
g) Soils and stability	a. Soil profiles and structures are sufficient to ensure the desired agricultural use can be established. b. The landform is stable.	- Topsoil is respread in all rehabilitation areas. - Identification and mitigation of potential erosion scars and scours during operations.
h) Vegetation	a. The site is returned to its former land use of agriculture.	Agricultural production returns to its former levels
i) Weeds	a. Declared pest weeds are absent. b. The level of weed species should not be detrimental to the planted seedlings.	Declared weed species removed systematically during operations.

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FIGURES



**Lundstrom Environmental
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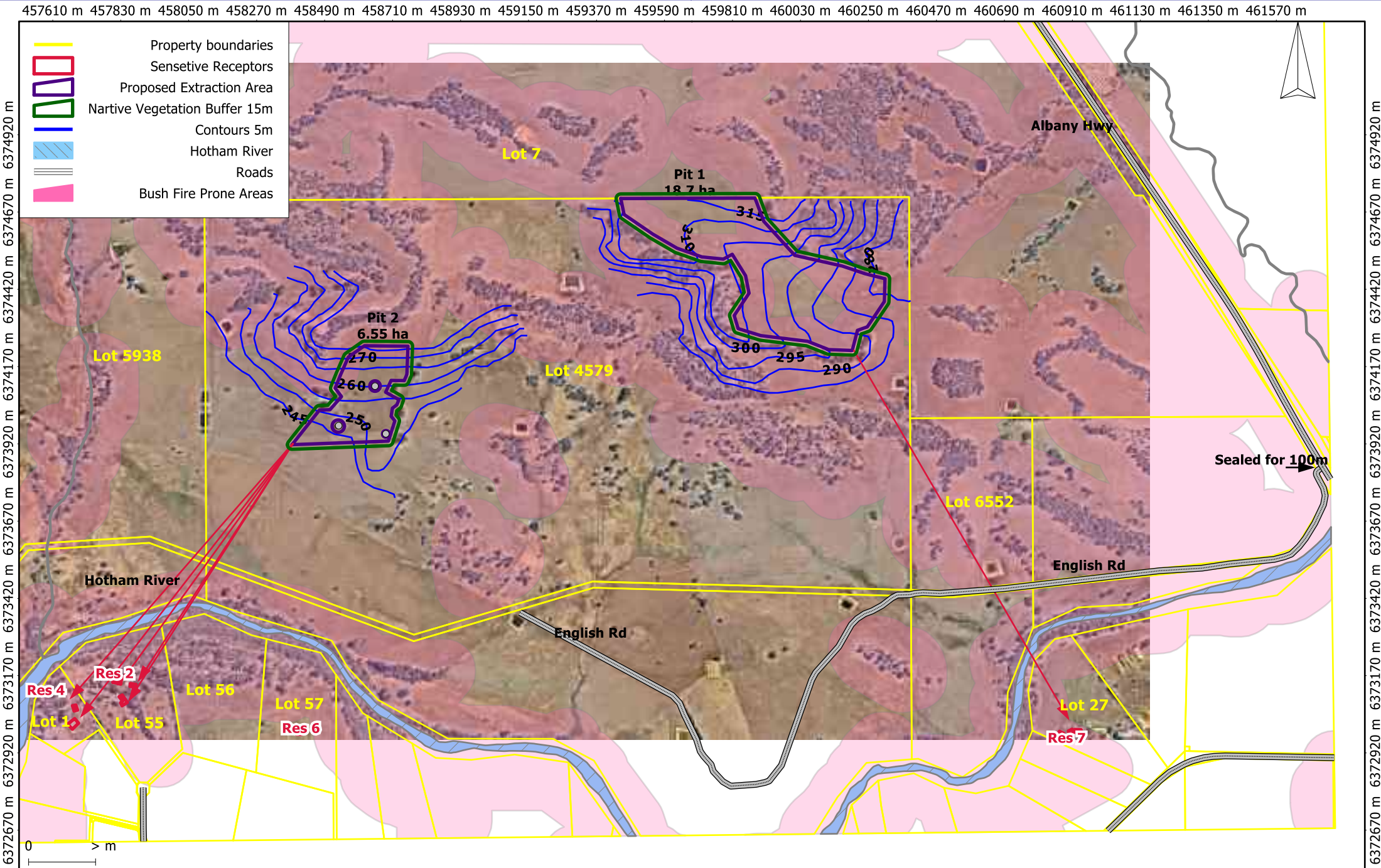
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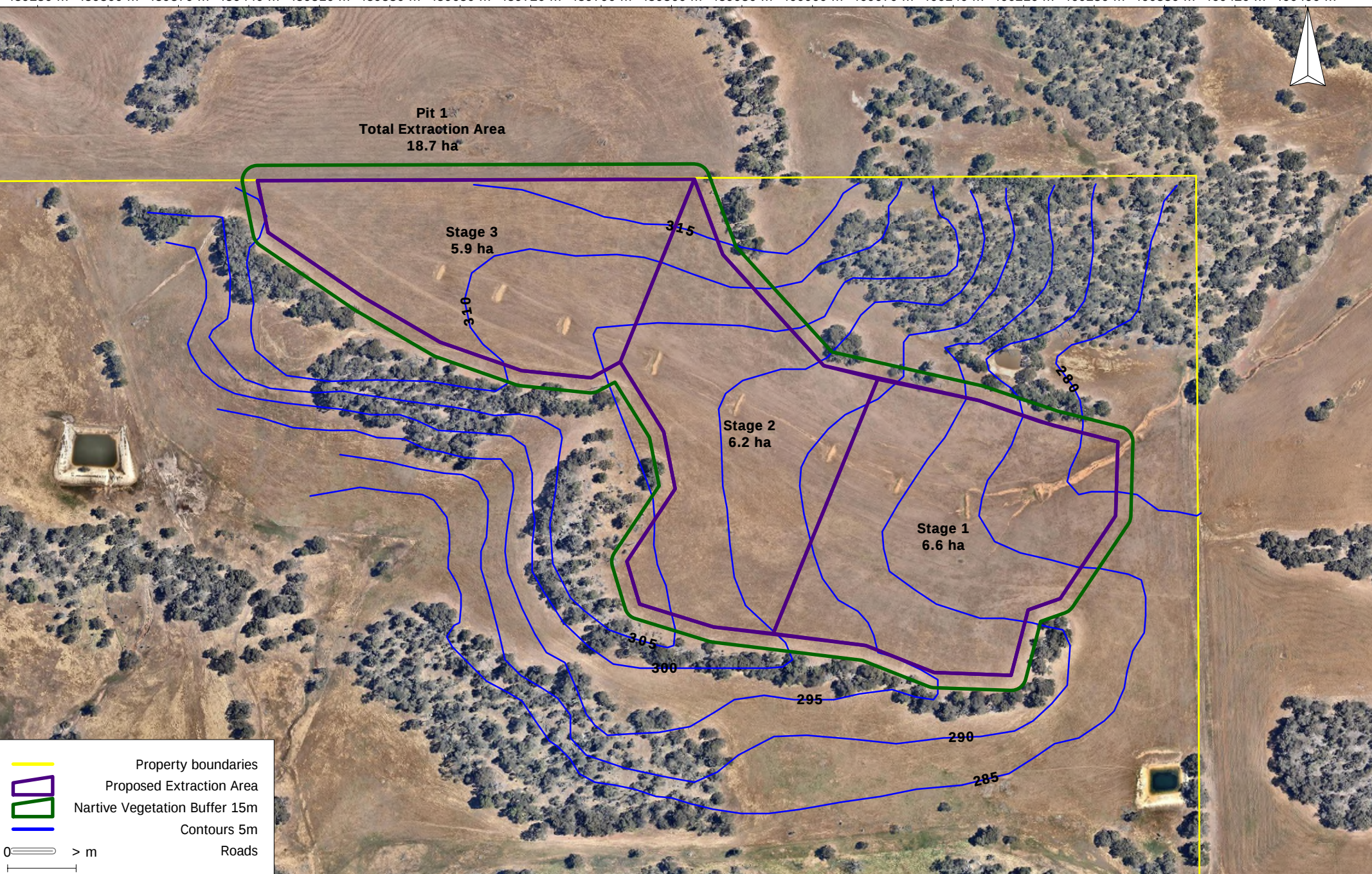
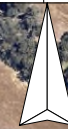
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Air Photo Source: Nearmap Dec 2017
Datum: GDA94
Projection: Australia MGA94 (50)

Client: The Reynolds Family Trust
Project: Gravel Extraction
Location: LOT 4579,
9104 ALBANY HIGHWAY,
CROSSMAN

**Figure 1:
Locality Plan**



459230 m 459300 m 459370 m 459440 m 459510 m 459580 m 459650 m 459720 m 459790 m 459860 m 459930 m 460000 m 460070 m 460140 m 460210 m 460280 m 460350 m 460420 m 460490 m



459230 m 459300 m 459370 m 459440 m 459510 m 459580 m 459650 m 459720 m 459790 m 459860 m 459930 m 460000 m 460070 m 460140 m 460210 m 460280 m 460350 m 460420 m 460490 m

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Scale: 1:4800
Original Size: A4
Air Photo Source: Nearmap Nov 2014
Datum: GDA94
Projection: Australia MGA94 (50)

Client: The Reynolds Family Trust
Project: Gravel Extraction
Location: LOT 4579, 9104 ALBANY HIGHWAY, CROSSMAN

Figure 3A:
Extraction Area Pit 1

