GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7388/1
Permit Holder:	Shire of Perenjori
Duration of Permit:	9 May 2019 – 9 May 2024

ADVICE NOTE

In regards to condition 10 of this permit, the Permit Holder has allocated 21 hectares at Lot 11902 on Deposited Plan 134847 (being Crown Reserve 12305) as an offset to this project. The nominated 21 hectares contains similar environmental values to the application area, being a representation of Beard vegetation association 352 in a good to very good condition. The vesting purpose of Crown Reserve 12305 has been changed via a Management Order from 'gravel' to 'conservation'.

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. **Purpose for which clearing may be done**
   Clearing for the purpose of undertaking road repairs and reconstruction.

2. **Land on which clearing is to be done**
   Waterhouse Road reserve (PIN 11664539), Maya
   Waterhouse Road reserve (PIN 11664266), Latham
   Rowe Road reserve (PIN 11664538), Latham
   Martin Road reserve (PIN 11664254), Maya
   Lot 6617 on Deposited Plan 226684, Maya

3. **Area of Clearing**
   The Permit Holder must not clear more than 4.54 hectares of native vegetation within the combined areas cross-hatched yellow on attached Plan 7388/1(a), Plan 7388/1(b) and Plan 7388/1(c).

4. **Application**
   This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. **Type of clearing authorised**
   This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

PART II – MANAGEMENT CONDITIONS

6. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

(a) avoid the clearing of native vegetation;
(b) minimise the amount of native vegetation to be cleared; and
(c) reduce the impact of clearing on any environmental value.

7. Flora Management

When undertaking any clearing authorised under this Permit, the Permit Holder must not clear within 10 metres of *priority flora* species *Westringia ophioglossa* (P1) identified within the eastern section of Rowe Road, Global Positioning System Zone 50J Easting 462066; Northing 6707028.

8. Wind erosion management

The Permit Holder shall not clear native vegetation unless the works approved under condition 1 of this Permit commence within three months of the authorised clearing being undertaken.

9. Dieback and weed control

When undertaking any clearing authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

10. Offset – Management Order

Prior to undertaking any clearing authorised under this Permit, the Permit Holder shall provide to the *CEO* a copy of the amended Management Order for the area cross-hatched red on attached Plan 7388/1(d) within Lot 11902 on Deposited Plan 134847 (being Crown Reserve 12305).

PART III – RECORD KEEPING AND REPORTING

11. Record keeping

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

(a) In relation to the clearing of native vegetation authorised under this Permit:
    (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
    (ii) the date(s) that the area was cleared;
    (iii) the size of the area cleared (in hectares);
    (iv) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 6 of this Permit; and
    (v) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 9 of this Permit.

12. Reporting

(a) On or before 30 June of each year following the commencement of clearing authorised under this Permit, the Permit Holder must provide to the *CEO* a written report of records required under condition 11 of this Permit.

(b) The Permit Holder must produce the records required under condition 11 of this Permit when required by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

priority flora means those plant taxa described as priority flora classes 1, 2, 3, 4 or 5 in the *Department of Biodiversity Conservation and Attractions Threatened and Priority Flora List for Western Australia* (as amended);

weed/s means any plant -

(a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
(c) not indigenous to the area concerned.

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Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under section 20
of the *Environmental Protection Act 1986*

12 April 2019

Plan 7388/1a

29.806274°S 29.806274°S

116.524267°E 116.593225°E

116.524267°E 116.593225°E

29.84239°S 29.84239°S

Legend

- Imagery
- Clearing Instruments Activities
- Roads
- Localities
- Local Government Authority
- Clearing Instruments Offets

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(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

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Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Plan 7388/1b

29.76314°S 29.76314°S

116.591244°E 116.622981°E

116.591244°E 116.622981°E

29.779762°S 29.779762°S

Legend

- Imagery
- Clearing Instruments Activities
- Roads
- Localities
- Local Government Authority
- Clearing Instruments Offets

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Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Plan 7388/1c

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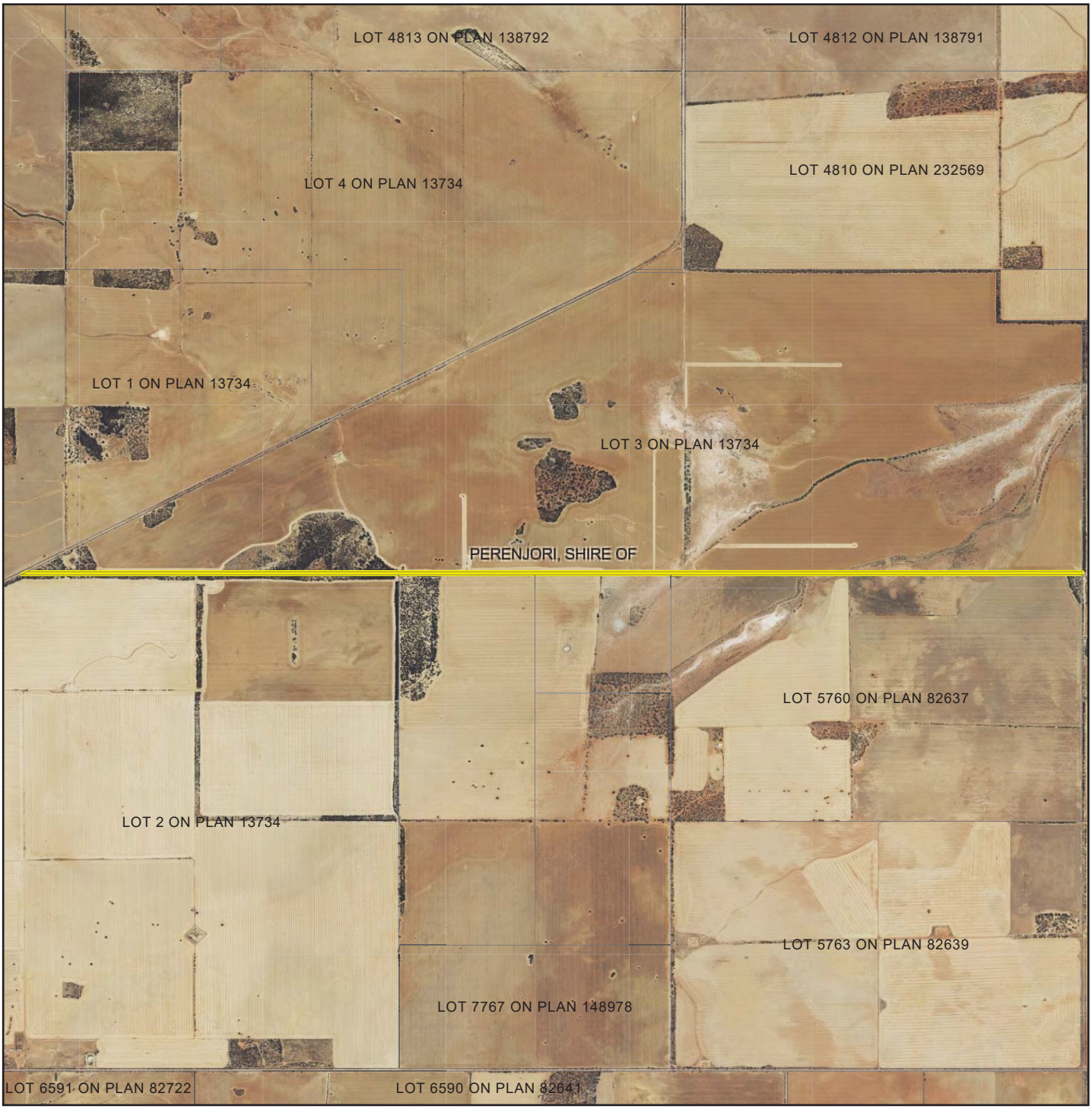
116.632539°E 116.699016°E



116.632539°E 116.699016°E

29.861074°S 29.861074°S

Legend

- Imagery
- Clearing Instruments Activities
- Roads
- Localities
- Local Government Authority
- Clearing Instruments Offets

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GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

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Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Plan 7388/1d

Legend

- Clearing Instruments Conditions
- Imagery
- Clearing Instruments Activities
- Roads
- Local Government Authority

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0 200m

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(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

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Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7388/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Perenjori

1.3. Property details

Property: Waterhouse Road Reserve – PIN 11664266, Latham
Waterhouse Road Reserve - PIN 11664539, Maya
Rowe Road Reserve - PIN 11664538, Latham
Martin Road Reserve – PIN 11664254, Maya
Lot 6617 on Deposited Plan 226684, Maya
Local Government Authority: PERENJORI, SHIRE OF
DWER Region: Greater Swan and Midwest
DBCA District: Central Wheatbelt and Geraldton
Localities: Maya and Latham

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4.54 (revised)		Mechanical Removal	Road maintenance

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 12 April 2019
Reasons for Decision: The clearing permit application was received on 1 December 2016 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is at variance to Principle (a), (e) and (f) may be at variance to Principles (b), (g) and (h) and is not likely to be at variance to the remaining clearing Principles.

Through assessment it has been determined that;

- The vegetation within the application area is a significant remnant within a highly cleared landscape;
- The proposed clearing will impact on an ecological linkage that may facilitate the movement of fauna across a fragmented landscape that is extensively cleared; and
- Mapped Beard vegetation associations 352 and 435 are underrepresented within the Avon Wheatbelt Interim Biogeographic Regionalisation of Australia.

The Delegated Officer has considered the applicant's measures to avoid and minimise impacts, including reducing the proposed clearing amount by 5.46 hectares and modifying the clearing footprint. Notwithstanding, the Delegated Officer is of the view that a significant residual environmental impact remains and in accordance with the Western Australian Environmental Offsets Policy (2011), these impacts should be offset.

The Delegated Officer considered the quantification of the offset required in accordance with the Department of the Environment and Energy's Offset Assessment Guide. As an offset, the applicant has agreed to relinquish a 21 hectare portion of Lot 11902 on Deposited Plan 134847 (being Crown Reserve 12305) in a similar of better condition as the application area. The vesting purpose of Crown Reserve 12305 has been changed via a Management Order from 'gravel' to 'conservation' and is considered an appropriate offset in the context of the proposed clearing. The Management Order is issued to the Shire of Perenjorii and has been registered on the Crown Land Title.

The Delegated Officer is satisfied that the environmental impacts associated with this project have been appropriately avoided and minimised, and the significant residual environmental impact has been offset. The Delegated Officer has decided to grant a clearing permit subject to weed and dieback management, flora management, wind erosion and offset conditions.

1. Site Information

Clearing Description: The revised application is for the clearing of up to 4.54 hectares within a 39.1 hectare footprint of native vegetation within Waterhouse Road reserve (PIN 11664266, PIN 11664539), Rowe Road reserve (PIN 11664538), Martin Road reserve (PIN 11664254) and Lot 6617 on Deposited Plan 226684, Maya and Latham, for the purpose of undertaking road repairs and reconstruction.

The required clearing within the road reserves is outlined in the table below.

Road Name	Road Reserve Width (Approximate)	The Extent of Clearing	Linear Length of Clearing (Approximate)
Rowe Road	23 Metres	Clearing to occur both sides of the road at a width of one and a half metres	1.32 km
Waterhouse Road	23 Metres	Clearing to occur both sides of the road at a width of one and a half metres	6.5 km
Martin Road	20 Metres	Clearing to occur both sides of the road at a width of one and a half metres	7.2 km
Lot 6617 on Deposited Plan 226684	Is within Maya Nature Reserve (Benton Road)	As prescribed in the permission authorised by DBCA, clearing is restricted to two metres in width within the nature reserve.	0.8 km

Vegetation Description: The application area is mapped as the following Beard vegetation associations:

- 352: Medium woodland; York gum; and
- 435: Shrublands; *Acacia neurophylla*, *A. beauverdiana* and *A. resinomarginea* thicket; (Shepherd et al., 2001).

The Vegetation Communities identified with the application area are (One Tree Botanical, 2017):

A1: Open Mallee/Tree Forest to Open Woodland/Mallee Woodland dominated by *Eucalyptus loxophleba* (York Gum) but also typically *E. salmonophloia* (Salmon Gum), *E. salubris* (Gimlet*), E. moderata, E. subangusta* subsp. *subangusta* and/or *E. celastroides* subsp. *virella* over Open Chenopod Shrubland *Maireana brevifolia*, *Sclerolaena* spp., *Rhagodia drummondii, Enchylaena tomentosa* and Sparse Grassland to Grassland *Austrostipa elegantissima* on loamy flats.

A2: *Acacia acuminata* (Jam) over Open Chenopod Shrubland *Maireana brevifolia*, *Sclerolaena* spp., *Rhagodia drummondii, Enchylaena tomentosa* and Sparse Grassland to Grassland *Austrostipa elegantissima* on lower slopes and loamy flats (Transition community adjacent to *Eucalyptus* Woodlands).

B1: Sparse Heathland to Heathland dominated by *Melaleuca stereophloia* (Broombush) and *Melaleuca* spp. over Open Chenopod Shrubland dominated by *Maireana brevifolia*, *Rhagodia semibaccata* and *Enchylaena tomentosa* and Sparse Grassland to Grassland including *Monachather paradoxa* and *Austrostipa elegantissima* on clayey sands adjacent to saline valley floors.

B2: Closed Samphire Shrubland of *Tecticornia* spp. and/or *Sarcocornia* sp. (identifications pending) in saline valley floors.

C1: Tall Open to Closed Heathland typically of *Acacia resinomarginea, Acacia neurophylla* subsp. *erugata, Acacia stereophylla* var. *stereophylla* (Wattles), *Santalum acuminatum* (Quandong), Hakea spp. and/or *Allocasuarina acutivalvis*. Isolated Trees emergent *Eucalyptus* species typically *E. leptopoda* subsp. *arctata, E. subangusta subsp. pusilla, E. kochii* subsp. *kochii*. Sparse Heathland (1-2m) typically of *Grevillea paradoxa, Hibbertia arcuata, Gastrolobium laytonii, Melaleuca conothamnoides* and/or *Melaleuca cordata* over Isolated Grasses to Grassland of *Austrostipa elegantissima* and/or *Monachather paradoxa*. Structure modified from this in many instances, with various stages of regrowth or localised disturbance.

D1: Historically cleared areas. Mix of scattered native shrubs and trees over introduced and native grasses and herbs.

Rowe Road - Comprises predominately vegetation type C1 and a small section of vegetation type A1 towards the northern end. There are also areas of vegetation type D1 recorded within Rowe Road (One Tree Botanical, 2017). Approximately 1.5 kilometres at the northern end of Rowe Road application area has not been included within the survey.

Waterhouse Road – Comprises predominately vegetation type C1 with small areas of vegetation types A1, B1 and B2. The western section of Waterhouse Road was predominately vegetation type D1 (One Tree Botanical, 2017).

Martin Road - All vegetation types have been identified within Martin Road with the most dominant being vegetation type C1 (One Tree Botanical, 2017).

Lot 6617 on Deposited Plan 226684 being Maya Nature Reserve – The One Tree Botanical survey did not include this section, however a site inspection considers the vegetation to be a representation of vegetation types A1 and A2.

Vegetation Condition:

Very Good; Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
To
Completely Degraded; No longer intact, completely/almost completely without native species (Keighery, 1994).

Soil and Landform Type:

The application area is mapped within the following land subsystems:

- Upsan Downs 1 Subsystem Map Unit 258UD_1, described as gently undulating rises and minor drainages; Yellow and brown deep sand and sandy earths, usually acid, some gravel, duplexes and loams and minor clay;
- Upsan Downs 6 Subsystem Map Unit 258UD_6 described as minor valleys, commonly with secondary salinity; sandy and loamy duplexes, commonly saline;
- Granada 4a Phase Map Unit 271Gn_4a described as Level to gently inclined alluvial flats and open depressions adjacent to the main drainage. Red sandy earth and red shallow loamy duplex. Salmon gum, Acacia, Salt bush, Caesia; and
- Pindar 1 Subsystem Map Unit 271Pi_1 described as gently undulating sandplain and long gentle slopes; acidic yellow and brown deep sands and sandy earths.

Comment:

The local area referred to in the assessment is defined as the area within a ten kilometre radius of the application areas.

Figure 1: Map of application area

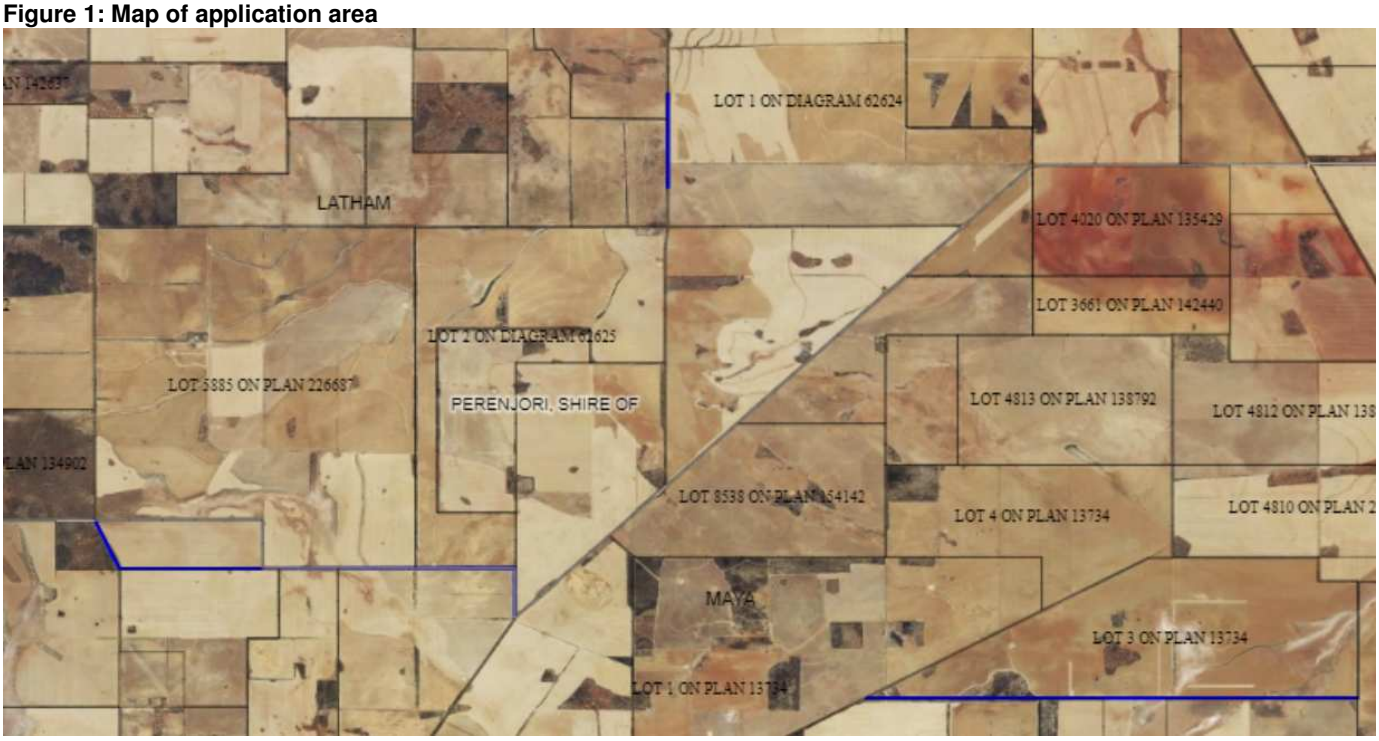

Figure 2: Photographs of vegetation within the application area

Figure 2a: Rowe road

Figure 2b: Waterhouse Road – Photo taken towards the eastern end of Waterhouse road.

Figure 2c: Martin Road - Photo taken towards the western end of Martin Road.

Figure 2d: Lot 6617 - Photo taken towards the northern end of Lot 6617.

2. Minimisation and mitigation measures

On 20 June 2017, the former Department of Environment Regulation wrote to the applicant to advise that the proposed clearing had the potential to result in several environmental impacts, which included:

- The clearing of native vegetation that is consistent with the Critically Endangered Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed Threatened Ecological Community (TEC); '*Eucalypt* Woodlands of the Western Australian Wheatbelt';
- The clearing of suitable habitat and potential occurrences of threatened flora;
- The clearing of priority flora species and suitable habitat for a number of other priority species;
- The clearing of a vegetation linkage which may decrease the value of the linkage, contributing towards landscape fragmentation and limitations in fauna dispersal; and
- The clearing of a significant remnant of vegetation within a highly cleared landscape, including under-represented vegetation associations.

The applicant subsequently amended the clearing footprint area and reduced the clearing size from 10 hectares to 4.54 hectares, thereby, minimising some of environmental impacts listed above, namely:

- The avoidance of suitable habitat and potential occurrences of threatened flora; and
- Minimising the extent of clearing linkage habitat; and
- Avoidance of the recorded *Eucalypt* Woodlands of the Western Australian Wheatbelt TEC.

3.Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Proposed clearing is at variance to this Principle

According to available databases, 14 priority flora species and three threatened flora species have been recorded within the local area. A Reconnaissance Flora and Vegetation Survey and Targeted Flora Survey (Limited) identified seven priority flora species within the survey area, of which five species were identified as being within the application area (One Tree Botanical, 2017). These species were: *Acacia isoneura* subsp*. nimia* (P3) (Waterhouse Road), *Acacia nigripilosa* subsp*. latifolia* (P1) (Martin and Rowe Road), *Acacia scalene* (P3) *(*Rowe Road), *Grevillea granulosa* (P3) (Martin Road), and *Westringia ophioglossa* (P1) (Rowe road) (One Tree Botanical, 2017). There were no threatened flora recorded within the areas under application.

The priority flora species *Acacia isoneura subsp. nimia (P3), Acacia scalene (P3)* and *Grevillea granulosa (P3),* recorded in the application area are likely to be impacted upon at a local area level from the proposed clearing, however, the overall impacts to the species are unlikely to be significant (Parks and Wildlife, 2017b). Parks and Wildlife advised that whilst impacts to the species are unlikely to be significant, attempts should be made to avoid and minimise the impact to these species by refining the clearing footprint (Parks and Wildlife, 2017b).

Based upon the survey, a total of 18 individuals of *Acacia nigripilosa* subsp*. latifolia* (P1) will be impacted upon by the proposed clearing, with the majority of the impacts occurring within Rowe Road. *Acacia nigripilosa* subsp*. latifolia* is known from approximately eight populations from two disjunct locations approximately 240 kilometres apart (Parks and Wildlife, 2017b). The survey undertaken recorded approximately 110 individuals of this species from five populations, one of which had previously been recorded and another 4, increasing the known number of populations to 12. The Parks and Wildlife Geraldton region conservation officer recently observed a population of this subspecies located on Benton Road (removed from the application area), which was also located during the flora survey. This population was found to extend from approximately 1.5 kilometres north of Maya Nature Reserve to Latham Nature Reserve and for several hundred metres inside Latham Nature Reserve. Approximately 200 plants were observed within Latham Nature Reserve, although this was not a comprehensive survey due to time constraints and there are likely to be additional plants within this location. Given the size of the population located nearby in Latham Nature Reserve, and that the entire application area is not going to be cleared, the impacts on this species are unlikely to be significant. Attempts should be made to avoid and minimise the impact to this species when deciding where the clearing will occur (Parks and Wildlife, 2017b).

Based upon the survey, individual plants of the species of *Westringia ophioglossa* (P1) were identified within Rowe Road and Taylor Road. *Westringia ophioglossa* (P1) is only known from a single roadside population consisting of five plants when recorded in 2012. A search of the surrounding road verges and bushland in the immediate vicinity failed to locate additional populations (Parks and Wildlife, 2017b). The flora survey undertaken in April 2017 located an additional two populations of this species approximately 20 kilometres north-west of the known population. These two new populations both consisted of only one plant and are located on narrow road reserves. Given that this species is only known from one other small roadside population, both populations of this species located during the survey are considered highly significant and should not be impacted. The individual within Taylor Road will not be impacted as it is not within the revised application area, however, the individual within Rowe Road falls within the proposed clearing area. A condition on the permit to place a 10 metre buffer area around the population within Rowe Road will ensure that the population and supporting habitat for this species is not impacted.

As discussed in Principle (b), based on habitat present within the application area, three threatened fauna species are likely to utilise the application area, however, a fauna survey did not record any presence of the listed species (Bamford Consulting Ecologists, 2017).

Three Beard vegetation associations have been mapped within the application area, with the extent remaining of each vegetation association below the recommended 30 per cent threshold as outlined in the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia, 2001). As discussed in Principle (e), the application area occurs within an extensively cleared landscape with less than 20 per cent vegetation extent remaining at the Avon Wheatbelt Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, local government and local area levels.

The proposed clearing may impact on fauna movement as the vegetation within the road reserves may act as a fauna corridor and facilitate the movement of fauna between conservation areas and other areas of remnant vegetation. The local and regional area is highly cleared so the retention of fauna corridors is important (Parks and Wildlife, 2017b).

According to available datasets, a priority ecological community (PEC) referred to as '*Eucalypt* Woodlands of the Western Australian Wheatbelt' has been mapped as occurring within the local area, including adjacent to Waterhouse Road. The PEC is listed as Priority 3 PEC according to Department of Biodiversity Conservation and Attractions and recognised as a Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed threatened ecological community (TEC). TECs are discussed in more detail under Principle (d). A Reconnaissance Flora and Vegetation Survey and Targeted Flora Survey (Limited) identified that a small section within Waterhouse Road is potentially representative of this community. Although the PEC has been mapped within the local area, the vegetation characteristics do not meet the criteria for the vegetation to be considered representative of this TEC, hence, the vegetation is also considered to not be representative of a PEC.

Given the vegetation within the application area contains priority flora and may be important for fauna movement between conservation areas and other areas of remnant vegetation in a highly cleared landscape, it is considered that the application area comprises a high level of biological diversity and the proposed clearing is at variance to this Principle.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Proposed clearing may be at variance to this Principle

According to available datasets, three threatened fauna have been recorded within the local area (10 kilometre radius) (DBCA, 2007-). The threatened fauna species are Western spiny-tailed skink (*Egernia stokesii* subsp*. badia*), shield-backed trapdoor spider (*Idiosoma nigrum*) and malleefowl (*Leipoa ocellata*).

The malleefowl occurs in shrublands and low woodlands that are dominated by mallee vegetation (Department of the Environment and Energy [DotEE], 2015a). There has been a significant decline in malleefowl numbers, attributed to loss of vegetation due to clearing for agricultural purposes, fox predation and the degradation of habitat by fire (DotEE, 2015a). There are larger areas of intact native vegetation throughout the application area which appear likely to support habitat for malleefowl, however, a fauna assessment survey searched an area up to 10 metres from the edge of the road with no evidence of malleefowl found (Bamford Consulting Ecologists, 2017).

The Western spiny-tailed skink occurs in open eucalypt woodlands and *Acacia*-dominated shrublands in semi-arid to arid areas of south-western Western Australia (Department of Environment and Conservation [DEC], 2012). It tends to shelter in logs, in cavities in the trunks and branches of shrubs, as well as in houses and ruins, especially in accumulations of old corrugated iron (DEC, 2012). The known threats to the species is loss of vegetation due to clearing for mining and agricultural purposes, degradation of existing habitat due to rising water tables and salinisation, grazing by rabbits, feral goats and domestic stock and degradation of habitat by fire (DEC, 2012). Of the roads within the application area, none would be suitable for the Western spiny-tailed skink, and the species was not recorded during the fauna survey (Bamford Consulting Ecologists, 2017).

The shield-backed trapdoor spider typically inhabits clay soils of eucalypt woodlands and *Acacia* vegetation, and relies heavily on leaf-litter and twigs to build its burrow (DotEE, 2015a). The main threats to the shield-backed trapdoor spider are land clearance and habitat fragmentation, salinity and grazing of habitat by stock and feral animals (DoE, 2013). With the exception of low gravelly rises at the beginning of Martin's Road, the soils along the investigated roads ranged from yellow sand through yellow-brown sandy loam to red-brown clay loam and are not suitable for shield-backed trapdoor spiders (Bamford Consulting Ecologists, 2017). Considering this, suitable habitat for the shield-backed trapdoor spider was limited and no burrows were found during the fauna survey (Bamford Consulting Ecologists, 2017).

The local area is highly cleared and the vegetation within the road reserves within the application area may act as a corridor and facilitate the movement of fauna between conservation areas and other areas of remnant vegetation. Whilst not all the remnant vegetation will be cleared within the road reserves, it will be heavily impacted upon, thereby reducing the linkage values and potentially impacting upon fauna movement.

Noting the highly cleared landscape and the value of the vegetation as part of an ecological linkage, the application area may comprise significant habitat for indigenous fauna to move across the landscape and the proposed clearing may be at variance to this Principle.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Proposed clearing is not likely to be at variance to this Principle

According to available databases, three threatened flora species have been recorded within the local area. Of these, *Darwinia polychroma* has been mapped occurring within the same vegetation association and soil type as the application area. Of the other threatened flora species, one of the species has been recorded within a similar vegetation association as the application area but a different soil type, with the third species recorded within a different vegetation and soil type to the application area.

A Reconnaissance Flora and Vegetation Survey and Targeted Flora Survey (Limited) did not identify any threatened flora within the application area (One Tree Botanical, 2017). Noting this, the application area is unlikely to include, or be necessary for the continued existence of rare flora. The proposed clearing is not likely to be at variance to this Principle.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposed clearing is not likely to be at variance to this Principle

According to available databases, several occurrences of the ecological community '*Eucalypt* woodlands of the Western Australian Wheatbelt' occur within the local area. This ecological community is listed as Priority 3 by DBCA and as a threatened ecological community (TEC) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Western Australian Wheatbelt Woodlands ecological community is a woodland community in which the trees are typically spaced apart and the canopy is relatively open. The understorey is highly variable in structure and composition (DotEE, 2015b). The Western Australian Wheatbelt Woodlands ecological community occurs in one of the most intensively cleared regions of Australia. Those woodland patches that remain are typically small, highly fragmented and have been disturbed to some extent (DotEE, 2015b). The Approved Conservation Advice for this TEC specifies a number of criteria for vegetation to be considered representative of this TEC (Department of the Environment, 2015). Patches may be excluded such as roadside and other woodland remnants that are too small and narrow, or where the tree canopy has become too patchy and discontinuous or the understorey

has lost considerable elements of its native structure and diversity (DotEE, 2015b). Other criteria elements are that remnants are to be at least five metres wide with a minimum patch size of five hectares (DotEE, 2015b).

A Reconnaissance Flora and Vegetation Survey and Targeted Flora Survey (Limited) identified that a small section within Waterhouse Road that is potentially a resemblance of this community. The vegetation within this section of Waterhouse Road is in a good to degraded (Keighery, 1994) condition (One Tree Botanical, 2017). Based on the criteria listed above, as well as the condition of the vegetation, the application area is not likely to comprise the whole or part of, or be necessary for the maintenance of a TEC.

The proposed clearing is not likely to be at variance to this Principle.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is at variance to this Principle

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

As indicated in the table below, the remaining extents of native vegetation within the IBRA bioregion and mapped vegetation associations are below the 30 per cent threshold. Aerial imagery indicates that the local area (10 kilometre radius) retains approximately 15 per cent native vegetation cover.

Noting that the application area is in an extensively cleared landscape, contains priority flora and under-represented vegetation associations and may be used as an ecological linkage for fauna, the application area is significant as a remnant in an extensively cleared landscape. Therefore, the proposed clearing is at variance to this Principle.

Table 1: Vegetation extents

	Pre-European	Current Extent	Remaining	Current Extent in DCBA Managed Lands	
	(ha)	(ha)	(%)	(ha)	(%)
IBRA Bioregion*					
Avon Wheatbelt	9,517,109	1,763,063	18.5	229,143	2.4
Local government authority*					
Shire of Perenjori	830,111	467,567	56	231,235	28
Beard vegetation association**					
352	630,581	109,440	17	10,154	1.6
435	255,983	29,580	11.5	5,255	2

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is at variance to this Principle

According to available datasets, several wetlands and minor non-perennial watercourses are mapped within the local area.

Of the known wetlands and watercourses, none are mapped within the application area. However, during the fauna survey within the central section of Waterhouse Road, a broad, poorly defined, saline wetland dominated by *Melaleuca uncinata* with other shrubs on red-brown sandy loam was identified (Bamford Consulting Ecologist, 2017).

As the application area will impact vegetation growing in association with a wetland, the proposed clearing is at variance to this Principle.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing may be at variance to this Principle

Three soil types are mapped within the application area and can be described as (Northcote et al., 1960-68):

- Mx10: chief soils are alkaline red earths;
- Ms9: soils are generally yellow earthy sands; and
- My42: Flat to gently undulating terrain with small samphire flats and areas of exposed calcrete with soils seemingly to be neutral and alkaline red earths.

During the site inspection, soil erosion caused by water runoff was observed within the majority of the application area (DER, 2017). These impacts are likely a result of the previous road construction design. Further clearing without appropriate road

drainage design is likely to result in additional water run off resulting in further soil erosion. However, this is only likely to be a short term impact and mitigated once the road works and repairs have been finalised. To mitigate potential impacts to soil erosion, the applicant is advised to clear during the drier months and ensure the road works and repairs have been conducted within three months of clearing.

As advised under Principle (e), the application area is in an extensively cleared landscape, resulting in large areas exposed to wind. In addition, chief soils within the application area are red earths and sandy soils that are susceptible to wind erosion. The proposed clearing on both sides of the road reserves may further expose the already cleared areas, by clearing vegetation belts along the road reserve that may act as wind breaks. The proposed clearing may increase the likelihood of soils subject to wind erosion in the local area.

Given the above, the proposed clearing may be at variance to this Principle.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing may be at variance to this Principle

According to available databases, the local area (10 kilometre radius) contains a number of conservation areas; including:
- Maya Nature Reserve within and adjacent to the application area;
- Latham Nature Reserve located at the northern end of Benton Road (Lot 6617) application area; and
- East Latham Nature Reserve located approximately 2.3 kilometres west of Rowe Road reserve application area;

It should be noted that the application area referred to as Lot 6617 is used as a road, however it is located within Maya Nature Reserve.

The proposed clearing may impact on fauna movement as the vegetation within the road reserves may act as a fauna corridor and facilitate the movement of fauna between conservation areas and other areas of remnant vegetation. The local and regional area is highly cleared so the retention of fauna corridors is important (Parks and Wildlife, 2017b).

Noting that the proposed clearing is in close proximity to conservation areas, will impact on linkages between conservation areas, cause fragmentation potentially impacting on fauna movement across the landscape, and may cause the introduction or spread of weeds and dieback into nearby conservation areas, the proposed clearing may be at variance to this Principle.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing is not likely to be at variance to this Principle

Groundwater salinity mapped within the application area is between 14,000-35,000 milligrams per litre total dissolved solids (saline). Noting the already saline groundwater and the width of the clearing being between 1 to 1.5 metres each side of the applied roads, the proposed clearing is unlikely to increase groundwater salinity and cause deterioration in the quality of the underground water.

As advised under Principle (f), the application area intersects a saline wetland. The proposed clearing may impact on surface water by water erosion causing sedimentation into the wetland. This impact is likely to be short term during clearing activities and is unlikely to cause an appreciable deterioration in the quality of surface water.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance to this Principle

The application area experiences an annual rainfall of 400 millilitres and evapotranspiration is 400 millilitres per annum.

Noting this, the porous nature of the mapped soil types, the relatively flat topography of the application area, and the linear shape of the application area, the proposed clearing is not likely to cause, or exacerbate the incidence or intensity of flooding. Therefore, the proposed clearing is not likely to be at variance to this Principle.

4. Planning instruments and other relevant matters.

The Department of Water (DoW) advised that the proposed clearing in the road reserves intersects two minor non-perennial watercourses, but is not located within any proclaimed Surface Water Areas. Therefore, there is no requirement for permits under section 11, 17 or 21A of the *Rights in Water and Irrigation Act 1914* (DoW, 2017).

The application was advertised in *The West Australian* newspaper on 2 January 2017 for a 21 day submission period. No public submissions were received in relation to the proposed clearing.

No Aboriginal sites of significance are mapped within the application area.

5. Assessment of suitability of proposed offset

Comments

After taking into account the applicant's avoidance and mitigation measures, the significant residual environmental impact to native vegetation identified through this assessment is:

- The vegetation within the application area is a significant remnant within a highly cleared landscape (10 kilometre radius retains approximately 15 per cent native vegetation) which provides ecological linkage values that facilitates indigenous fauna movement across the landscape. The removal of this vegetation may decrease the value of the linkage, contributing towards landscape fragmentation and limitations in fauna dispersal. In addition to the above, the mapped Beard vegetation associations 352 and 435 retain approximately 17 per cent and 11.5 per cent pre-European vegetation extents respectively.

- To counterbalance the significant residual environmental impact of the proposed clearing, the applicant has agreed to relinquish a 21 hectare portion of Lot 11902 on Deposited Plan 134847 (being Crown Reserve 12305) in a similar of better condition as the application area. The vesting purpose of the Crown Reserve has been changed via a management order from 'gravel' to 'conservation'. The vegetation within Crown Reserve 12305 is a representation of Beard vegetation association 352.

- Assessment of the suitability of the applicant's proposed offset was undertaken using the DotEE's Offset Assessment Guide. This calculation indicated that the minimum spatial offset to be achieved through a land vesting purpose being transferred from gravel into conservation is approximately 21 hectares based on a 4.54 hectare loss of ecological linkage vegetation within an extensively cleared landscape comprising of under-represented vegetation associations.

6. References

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- CAWS Act
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- Hydrography, linear
- Hydrography, Hierarchy
- NLWRA, Current Extent of Native Vegetation
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- SAC bio datasets, accessed February 2019
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