GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8253/1
Permit Holder:	Shire of Kellerberrin
Duration of Permit:	2 February 2020 – 2 February 2030

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 road widening.

2. **Land on which clearing is to be done**
   Baandee North Road Reserve (PINs: 1294752, 1294750, 1294746, 1294742 and 11848160), North Baandee

3. **Area of Clearing**
   The Permit Holder must not clear more than 2.8393 hectares of native vegetation within the area hatched yellow on attached Plan 8253/1a, Plan 8253/1b, Plan 8253/1c, Plan 8253/1d, Plan 8253/1e, Plan 8253/1f, Plan 8253/1g and Plan 8253/1h.

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. **Clearing authorised**
   The Permit Holder shall not clear any native vegetation after 2 February 2025

6. **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

7. **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.

8. Weed control

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

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(b) ensure that no known *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.

9. Offset – Crown Reserve 33419

By 2 February 2021, the Permit Holder shall provide to the *CEO* a copy of the executed change in purpose of Crown Reserve 33419 within the area hatched red on attached Plan 8253/1i from 'gravel' to 'conservation'.

10. Offset – Lot 306 on Deposited Plan 409422

By 2 February 2021, the Permit Holder shall provide to the *CEO* a copy of the executed change in purpose of Lot 306 on Deposited Plan 409422 within the area hatched red on attached Plan 8253/1j to 'conservation'.

11. Offset – Revegetation

Within 12 months of the commencement of clearing and no later than 2 February 2021, the Permit Holder shall implement and adhere to the revegetation commitments in '*Revegetation Plan for Lot 306 on Deposited Plan 490422'*, including but not limited to the following actions;

(a) commence *revegetating* and *rehabilitating* 3.04 ha within the area hatched red on Plan 8253/1j by;
    (i) ripping the ground on the contour to remove soil compaction;
    (ii) deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to the *control sites*;
    (iii) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.
(b) establishing four 20 x 20 metre quadrat monitoring sites within the *rehabilitated* area;
(c) implementing hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the site;
(d) undertaking annual weed control activities to maintain a minimum 75 per cent *weed* free state by the end of the project maintenance period;
(e) achieve the following completion criteria after the ten year monitoring period for the area *revegetated* and *rehabilitated* under this Permit;

Criterion	Baseline floristic data	Completion targets	Completion Criteria	Monitoring
A(i)	Total site species richness is 28 (native sp. only).	Minimum of 60% of native species returned, based on reference sites.	The revegetation site needs to achieve a minimum species richness of 17 native species, as recorded at the reference sites.	Annually in Spring until completion criteria has been met and maintained for two years.
A(ii)	There are three dominant tree species.	Return dominant tree species present at reference sites.	The revegetation site needs to have the three dominant tree species (*Eucalyptus loxophleba* ssp. *loxophleba*, E. *salubris* and *E. salmonophloia*).	Annually in Spring until completion criteria has been met and maintained for two years.

Criterion	Baseline floristic data	Completion targets	Completion Criteria	Monitoring
A(iii)	Shrub species richness is 19.	Minimum of 60% of native species returned, based on reference sites.	The revegetation site needs a minimum of 12 shrub species, as recorded at the reference site.	Annually in Spring until completion criteria has been met and maintained for two years.
B(i)	100 stems/hectare.	Minimum of 60% of stems/ha for dominant tree species returned, based on reference sites.	The revegetation site needs a minimum of 60 stems/ha.	Annually in Spring until completion criteria has been met and maintained for two years.
B(ii)	900 stems/ hectare for large shrubs and 1400 stems/ hectare for small shrubs.	Minimum of 60% of stems/ha for dominant shrub species returned, based on reference sites.	The revegetation site needs a minimum of 540 stems/ha for large shrubs and 840 stems/ha for small shrubs.	Annually in Spring until completion criteria has been met and maintained for two years.
C(i)	Percentage weed cover of the 20m x 20m quadrats at the reference site were: Quadrat 1 0% Quadrat 2 0% Quadrat 3 25%	Weed cover is no greater than in the reference sites.	The revegetation site should have a maximum of 25% weed cover.	Annually in Spring until completion criteria has been met and maintained for two years.
C(ii)	No declared weeds are present.	Managed as required by the *Biosecurity and Agriculture Management Regulations 2013*.	No declared weeds detected within the revegetation site.	Annually in Spring until completion criteria has been met and maintained for two years.
D	Bare ground is 30% within reference sites	No more than 5% greater than in the reference sites.	No more than 35% of bare ground as an average for the revegetation site.	Annually in Spring until completion criteria has been met and maintained for two years.

(f) undertake remedial actions for areas *revegetated* and *rehabilitated* where monitoring indicates that *revegetation* has not met the completion criteria, outlined in 11(e), including;
  (i) *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in the minimum targets detailed in 11(e) and ensuring only *local provenance* seeds and propagating material are used;
  (ii) undertake further *weed* control activities; and
  (iii) annual monitoring of the *revegetated* and *rehabilitated* site, until the completion criteria, outlined in 11(e) are met.

PART III - RECORD KEEPING AND REPORTING

12. Records must be kept

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;
   (ii) the date that the area was cleared; and
   (iii) the size of the area cleared (in hectares).

(b) Actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 7 of the Permit;

(c) Actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 8 of the Permit;

(d) The date the management order was amended to include 'Conservation' in accordance with conditions 9 and 10 of the Permit; and

(e) In relation to the revegetation of areas pursuant to condition 11 of this Permit:
   (i) a description of the *revegetation* and *rehabilitation* activities undertaken;
   (ii) the size of the area *revegetated* and *rehabilitated* (in hectares);
   (iii) the date that the area was *revegetated* and *rehabilitated*;
   (iv) a description of the monitoring and remedial activities undertaken within the *revegetation* and *rehabilitation* area.

13. Reporting

The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
   (i) of records required under condition 12 of this Permit; and
   (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.

(b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar, a written report confirming that no clearing under this permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.

(c) Prior to 2 November 2029, the Permit Holder must provide to the *CEO* a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(a) of this Permit.

DEFINITIONS

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

CEO means the Chief Executive Officer of the Department responsible for administering the clearing provisions contained within the *Environmental Protection Act 1986;*

control sites means the three (3) 20m x 20m quadrat control sites that were identified within two kilometres of the *revegetation* and *rehabilitation* area within Lot 306 on Deposited Plan 409422 and Lot 40 on Deposited Plan 125024 to identify remnant native vegetation species composition and structure, condition, density and weed cover;

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

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

local provenance means native vegetation seeds and propagating material from natural sources within 100 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared;

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;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing *mulch*;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area; and

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 Regional Weed Rankings Summary, regardless of ranking; or
(c) not indigenous to the area concerned.

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

3 January 2020

Plan 8253/1a

Legend

- CPS areas approved to clear
- Local Government Authorities
- Roads

Image

- Cadastre - LGATE 218

N

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MGA 94
Geocentric Datum of Australia 1994

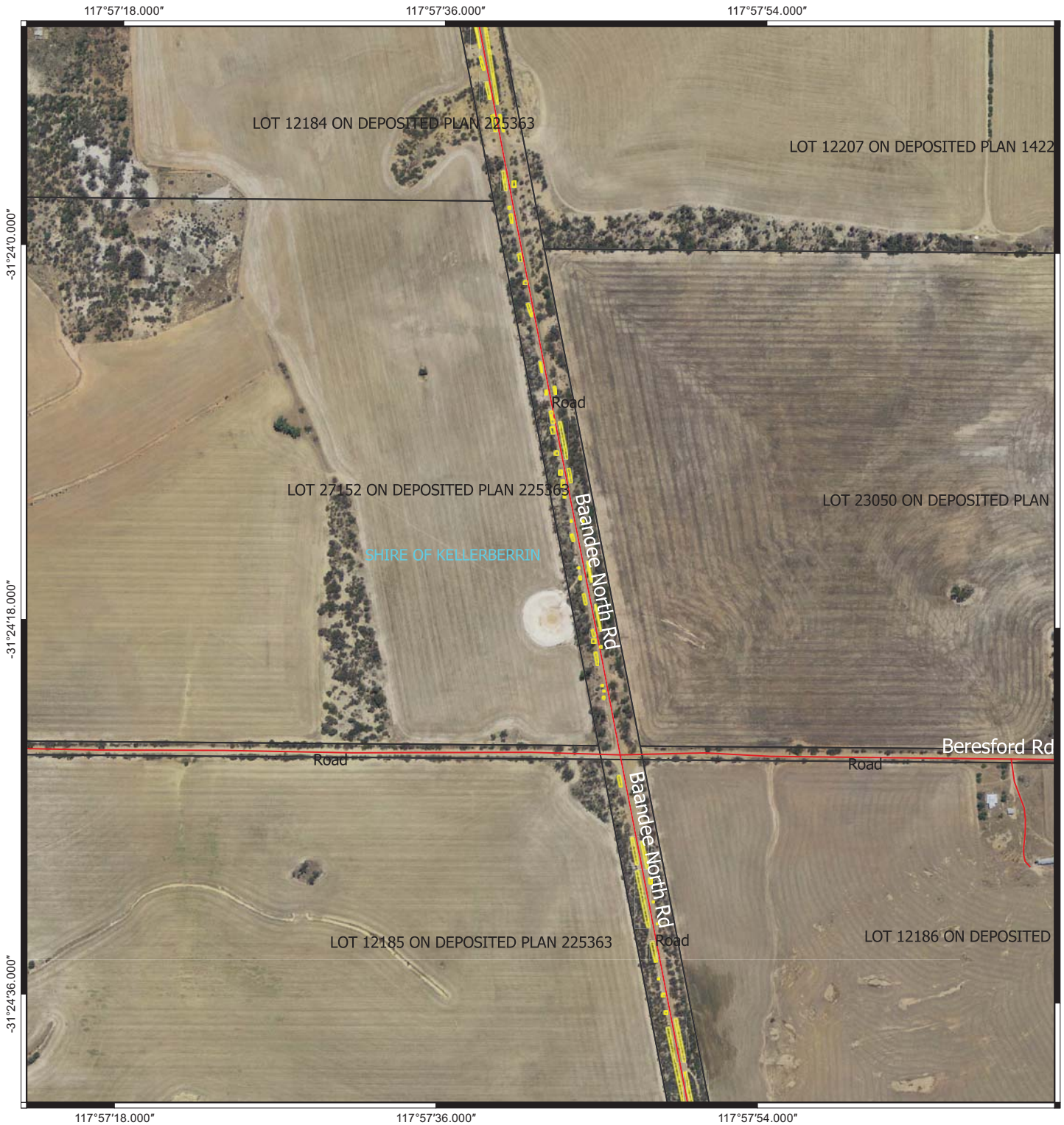
Mathew Gannaway
2020.01.03 09:27:42 +08'00'

Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

WA Crown Copyright 2018

Plan 8253/1b



Legend

- CPS areas approved to clear
- Local Government Authorities
- Roads

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GOVERNMENT OF WESTERN AUSTRALIA

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Plan 8253/1c

Legend

- CPS areas approved to clear
- Local Government Authorities
- Roads

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- Cadastre - LGATE 218

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GOVERNMENT OF WESTERN AUSTRALIA

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Plan 8253/1d

Legend

- CPS areas approved to clear
- Local Government Authorities
- Roads

Image

- Cadastre - LGATE 218

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Legend

- CPS areas approved to clear
- Local Government Authorities
- Roads

Image

- Cadastre - LGATE 218

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Plan 8253/1f

Legend

- CPS areas approved to clear
- Local Government Authorities
- Roads

Image

- Cadastre - LGATE 218

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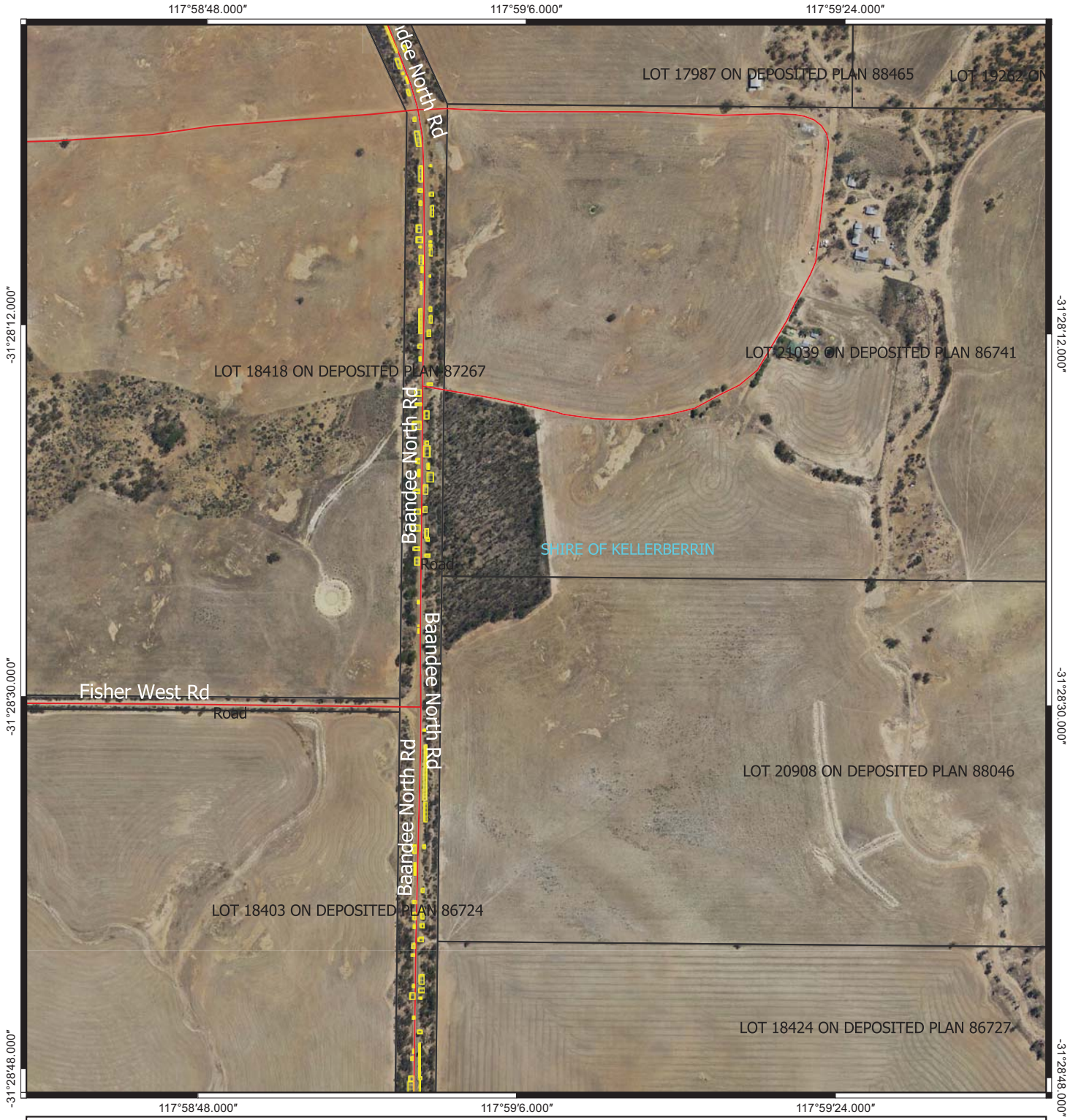
Plan 8253/1g



Legend

- CPS areas approved to clear
- Local Government Authorities
- Roads
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Legend

- CPS areas approved to clear
- Local Government Authorities
- Roads

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- Cadastre - LGATE 218

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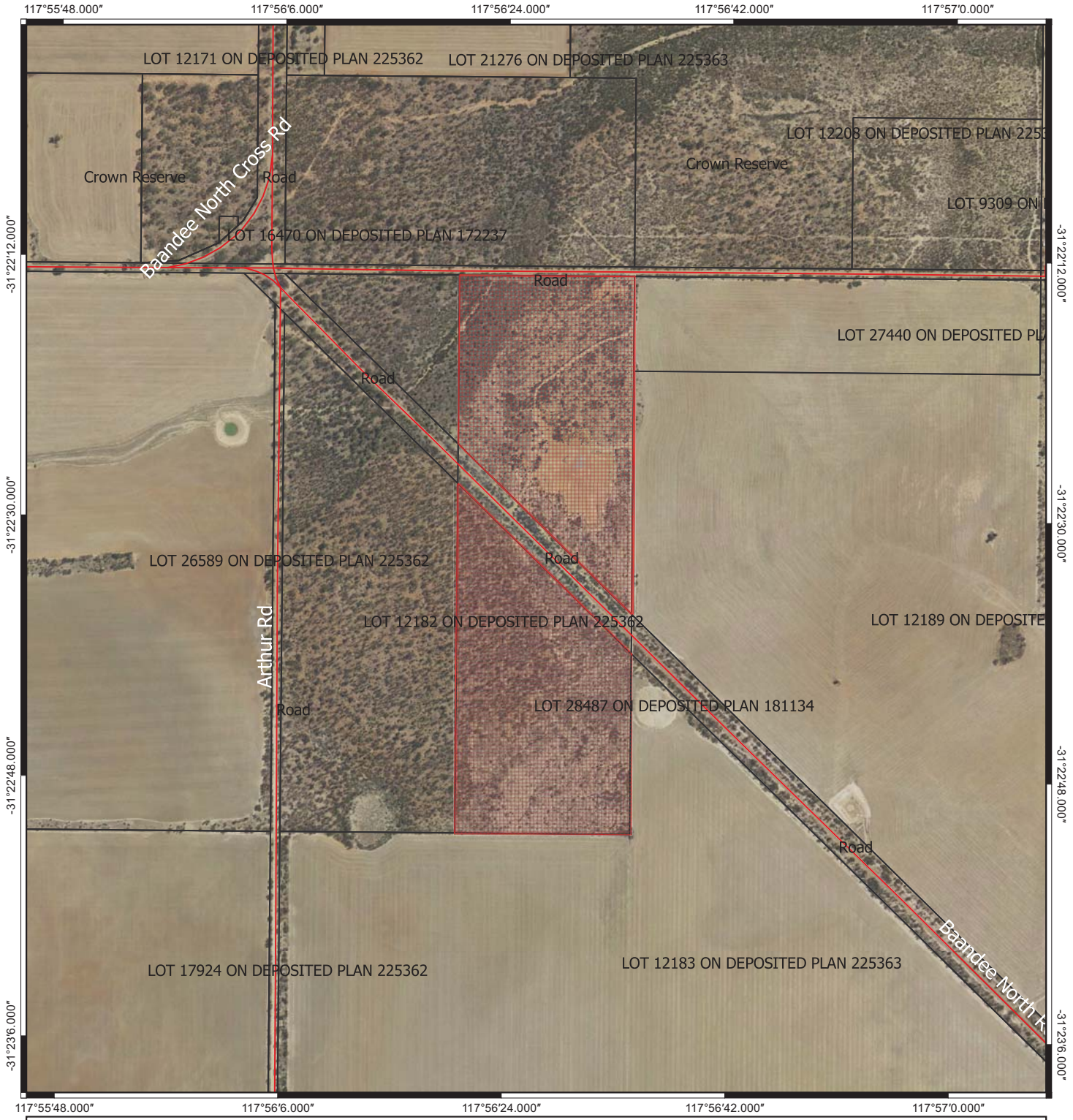
Plan 8253/1i



Legend

- CPS subject to conditions
- Local Government Authorities
- Roads

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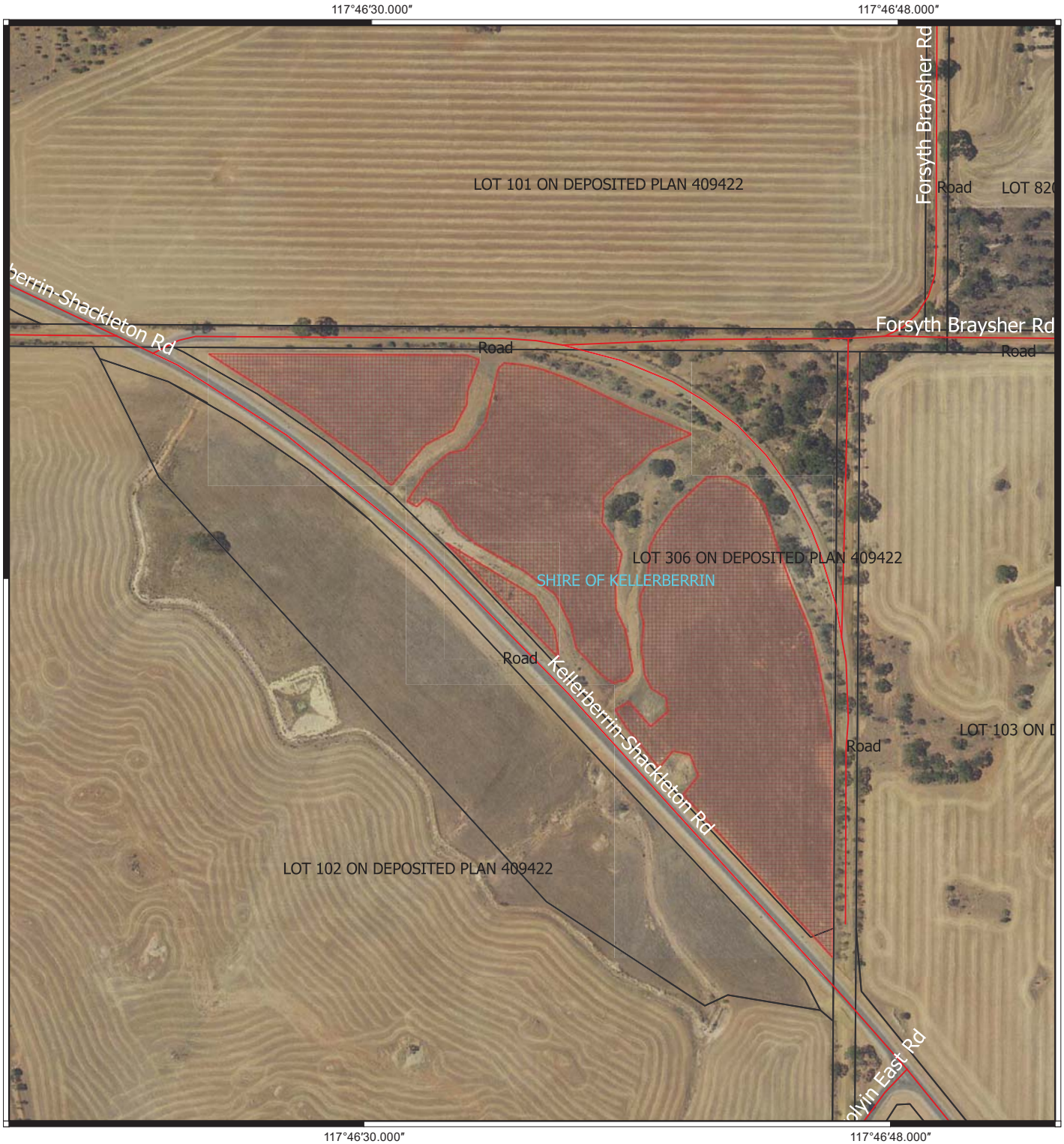
Plan 8253/1j



Legend

- CPS subject to conditions
- Local Government Authorities
- Roads

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- Cadastre - LGATE 218

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GOVERNMENT OF WESTERN AUSTRALIA

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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.: 8253/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Kellerberrin
Application received date: 14 November 2018

1.3. Property details

Property: Baandee North Road Reserve (PINs: 1294752, 1294750, 1294746, 1294742 and 11848160), North Baandee
Local Government Authority: Shire of Kellerberrin
Localities: North Baandee

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
2.8393		Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 3 January 2020

Reasons for Decision:

The clearing permit application was received on 14 November 2018 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance to principles (a), (e) and (f), and is not likely to be at variance to any of the remaining clearing principles.

Through the assessment, the Delegated Officer has determined that the proposed clearing will impact on vegetation growing in association with two ephemeral watercourses. The Delegated Officer noted the impacts to vegetation via the existing road and adjacent agricultural land and the small area of riparian vegetation proposed for clearing. Impacts to riparian habitat is considered to be minimal.

The Delegated Officer also determined that the proposed clearing may cause the spread of weeds into adjacent areas of remnant vegetation. To mitigate potential impacts to adjacent remnant vegetation, a weed management condition has been placed on the permit. The weed management condition requires earth-moving machinery to be clean of weeds when entering and exiting the clearing area, ensure that no known weed-affected soil, mulch, fill or other material is brought into the area to be cleared and restrict the movement of machines and other vehicles to the limits of the area to be cleared.

The Delegated Officer determined that the proposed clearing is likely to have a significant residual environmental impact on:

- 1.17 hectares of native vegetation which is representative of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC; and
- 1.67 hectares of native vegetation that is a significant remnant within an extensively cleared landscape.

Consistent with the WA Environmental Offset Policy (2011) and WA Environmental Offsets Guidelines (2014), and pursuant to section 51I(2)(b) of the EP Act, in order to mitigate the significant residual environment impacts described above, the Permit Holder is required to provide an offset that involves the transfer of the purpose of Crown Reserve 33419 from 'gravel' to 'conservation', and revegetate an area of 3.04 hectares within Lot 306 on Deposited Plan 409422 as per the approved offset revegetation plan.

The Delegated Officer has granted the clearing permit subject to conditions requiring weed management measures and the implementation of an offset.

2. Site Information

Clearing Description This applicant proposes to clear 2.8393 hectares of native vegetation for the purposes of widening the Baandee North Road. This will improve road safety on the Baandee North Road, which experiences heavy traffic from road trains originating from surrounding Shires accessing

the Great Northern Highway. The application area was reduced from 5 hectares of clearing on 13 March 2019, with this reduction in the extent of the clearing area achieved by the applicant eliminating all unnecessary clearing from the application area.

Vegetation Description

The application area is mapped as occurring within the following mapped vegetation associations (Shepherd et al. 2001):

- 955: Mosaic: shrublands; scrub-heath (South East Avon) / shrublands; *Allocasuarina campestris* thicket; and
- 1049: Wheatbelt; York Gum (*Eucalyptus loxophleba*), Salmon Gum (*Eucalyptus salmonophloia*). Goldfields; Gimlet (*Eucalyptus salubris*), Redwood (*Eucalyptus transcontinentalis*), Giant Mallee (*Eucalyptus oleosa*), Riverine; River Gum (*Eucalyptus camaldulensis*).

On 24 October 2018, the section of the Baandee North Road was surveyed by Santaleuca Consulting (2018). The area surveyed for flora and vegetation values extends for nearly 13 kilometres from Hearle Road, heading north to approximately 3 kilometres from Bereford Road (Santaleuca Consulting 2018). Each section of the road was driven and then walked and the vegetation encountered was classified and analysed against the criteria contained within the *Approved Conservation Advice (including listing advice) for the Eucalypt Woodlands of the Western Australian Wheatbelt* (Threatened Species Scientific Committee 2015) (Santaleuca Consulting 2018). Pre-prepared lists of Threatened and Priority flora species were also used to confirm or deny the presence of these species within the survey area, with any flora which could not be identified on site or through subsequent analysis sent to the Western Australia Herbarium for classification (Santaleuca Consulting 2018). The survey was undertaken in accordance with the methodology contained within the *Technical Guidance; Flora and Vegetation surveys for Environmental Impact Assessment* (Environmental Protection Authority 2016) (Santaleuca Consulting 2018).

On 7 November 2018, after the specimens of the Priority 2 listed flora species *Aluta aspera* subsp. *localis* collected during the initial survey had their taxonomy confirmed, further samples of this species were collected to be sent to the Western Australian Herbarium (Santaleuca Consulting 2019a). Santalueca Consulting (2019a) was able to determine that approximately 100 individuals of this species were present in the application area, with the occurrence of this species found on both sides of the road and extending to the edge of the road reserve. On 14 January 2019, Santalueca Consulting (2019a) collected seed from the above flora species at the request of the Western Australian Herbarium.

The following vegetation communities were identified during the flora and vegetation survey undertaken by Santaleuca Consulting (2018). The descriptions of some of the identified vegetation communities were updated in additional notes provided by Santaleuca Consulting (2019a).

- VT1: Mallee *Eucalypt* sp. dominate this section with minimal midstorey. Understorey is a mix of chenopods and agricultural weeds;
- VT2: The soils harden in the valley to white sandy clays and are dominated *by* Salmon Gum (*Eucalyptus salmonophloia*). Species growing in association with the Salmon Gum are Small Leaf Bluebush (*Maireana brevifolia*), Barrier Saltbush (*Enchylaena tomentosa*), Jam (*Acacia acuminata*), Grey Copperburr (*Sclerolaena diacantha*), *Lepidosperma* sp., Blueberry Lily (*Dianella revolute*), *Acacia hemiteles, Austrostipa scabra,* Old Man Saltbush (*Atriplex nummularia*) and Boree (*Melaleuca pauperiflora*). All secondary species are sparse and appear more to the northern than the southern end;
- VT3: Mallet *Eucalyptus* sp. over storey on the west side of road. Chenopods and native grasses make up the understorey, with a high density of agricultural weeds;
- VT4: On the east side of the same section of road as vegetation association VT3, *Eucalyptus capillosa* appears as part of the over storey, otherwise dominated by mallee *Eucalyptus* sp.;
- VT5: Mallee *Eucalyptus* sp. comprise the over storey, but at a thinner density. High chenopod species density;
- VT6: Dominant *Eucalyptus* sp. overstorey, consisting of Gimlet (*Eucalyptus salubris*), *Eucalyptus capillosa*, Salmon Gum (*Eucalyptus salmonophloia*), Yorrell (*Eucalyptus yilgarnensis*) and *Eucalyptus loxophleba* subsp. *lissophloia*. Mallet type *Eucalyptus* sp. occur at a density of approximately 50 trees per hectare. Light midstorey of *Acacia hemiteles* and Boree (*Melaleuca pauperiflora*). Minimal understorey consisting of mainly chenopods and light agricultural weeds;
- VT7: Soil changes to granite sands with no over storey species. Mid storey species are minimal but plentiful, such as Jam (*Acacia acuminata*) and Silver Wattle (*Acacia lasiocalyx*);
- VT8: *Eucalyptus loxophleba* subsp. *lissophloia*, Yorrell (*Eucalyptus yilgarnensis*) and *Eucalyptus capillosa* subsp. *polyclada* over storey of high density. Broom Bush (*Melaleuca uncinata*), *Melaleuca eleuterostachya*, Saltwater Paperbark (*Melaleuca cuticularis*), Jam (*Acacia acuminata*) mid storey and a mix of native annuals such as Orange Immortelle (*Waitzia acuminata*) and mixed agricultural weeds make up the second and third storeys;

- VT9: Mallee *Eucalyptus* sp. growing in association with *Westringia cephalantha* subsp. *cephalantha*, Kondrung (*Astroloma serratifolium*), *Allocasuarina acutivalvis*, *Baeckea muricata*, *Lepidosperma* sp., Broom Bush (*Melaleuca uncinata*) and Jam (*Acacia acuminata*). Weed cover is light as is any ground cover apart from *Austrostipa scabra* and Orange Immortelle (*Waitzia acuminata*);
- VT10: Gimlet (*Eucalyptus salubris*) with associated Red-flowered Mallee (*Eucalyptus erythronema*) growing in association with *Westringia cephalantha* subsp. *cephalantha*, Kondrung (*Astroloma serratifolium*), *Allocasuarina acutivalvis*, *Baeckea muricata*, *Lepidosperma* sp., Broom Bush (*Melaleuca uncinata*) and Jam (*Acacia acuminata*). Weed cover is light as is any ground cover apart from *Austrostipa scabra* and Orange Immortelle (*Waitzia acuminata*);
- VT11: Dominant over storey of *Eucalyptus capillosa* with Ribbon-barked Gum (*Eucalyptus sheathiana*), Yorrell (*Eucalyptus yilgarnensis*) and *Eucalyptus kochii* subsp. *plenissima*, growing in association with *Westringia cephalantha* subsp. *cephalantha*, Kondrung (*Astroloma serratifolium*), *Allocasuarina acutivalvis*, *Baeckea muricata*, *Lepidosperma* sp., Broom Bush (*Melaleuca uncinata*) and Jam (*Acacia acuminata*). Weed cover is light as is any ground cover apart from *Austrostipa scabra* and Orange Immortelle (*Waitzia acuminata*);
- VT12: Dominant species are *Allocasuarina acutivalvis*, *Allocasuarina corniculata*, Bottlebrush Grevillea (*Grevillea paradoxa*), Quandong (*Santalum acuminatum*), *Acacia neurophylla*, Emu Tree (*Hakea franscisiana*) with occasional Tammin Mallee (*Eucalyptus leptopoda*). Sedges and annual native grasses including annual herbs complete a very healthy ecosystem, despite numerous historical disturbances;
- VT13: *Allocasuarina* sp. dominated vegetation similar to the previous community, with some Tammin Mallee (*Eucalyptus leptopoda*). Main ground cover is *Austrostipa scabra* annual grasses;
- VT14: Mixed *Allocasuarina* sp. second storey and mallee *Eucalyptus* sp. over storey. A mosaic reflecting the changing soils from white clayey sands to sandy gravels;
- VT15: Comprising a few very large *Eucalyptus capillosa*. Other *Eucalypts* sp. in this area are Stiff-leaved Mallee (*Eucalyptus rigidula*), *Eucalyptus horistes* and *Eucalyptus loxophleba* subsp. *lissophloia*, scattered among previously disturbed areas and sporadic patches of secondary storey species. The second storey consists of *Allocasuarina acutivalvis*, Quandong (*Santalum acuminatum*), Dysentery Bush (*Alyxia buxifolia*), *Acacia hemiteles, Senna artemisioides* subsp., Roadside Teatree (*Leptospermum erubescens*), *Melaleuca* sp., Jam (*Acacia acuminata*) and Broom Bush (*Melaleuca uncinata*). Understorey species are confined to Blueberry Lily (*Dianella revoluta*), Barrier Saltbush (*Enchylaena tomentose*), Orange Immortelle (*Waitzia acuminata*) and *Austrostipa scabra* and agricultural weeds;
- VT16: Land slopes down to heavier white sandy clays supporting *Eucalyptus capillosa* and Salmon Gum (*Eucalyptus salmonophloia*). Very little mid storey and understorey dominated by agricultural weeds;
- VT17: Reverts to sandy gravel soils with minimum over storey. *Allocasuarina* sp. dominant the mid storey. Basic understorey dominated by *Austrostipa scabra* and some agricultural weeds;
- VT18: Mallee *Eucalyptus* sp. dominant, with very weedy understorey;
- VT19: Mixed mallee *Eucalyptus* sp. and *Allocasuarina* sp. with minimal understorey. Very high agricultural weed load;
- VT20: Mixed *Eucalypt* sp. including Gimlet (*Eucalyptus salubris*) and *Eucalyptus capillosa* as mallets and other mallees. Mid storey changes to Boree (*Melaleuca pauperiflora*), Broom Bush (*Melaleuca uncinata*) and *Eremophila drummondii*. Understorey very sparse with little in the way of species or weeds;
- VT21: *Allocasuarina* sp. overstorey. Gravel pits adjoin this vegetation community; and
- VT22: Open Salmon Gum (*Eucalyptus salmonophloia*), Gimlet (*Eucalyptus salubris*), and Yorrell (*Eucalyptus yilgarnensis*) over storey. Under storey dominated by *Austrostipa scabra* and Orange Immortelle (*Waitzia acuminata*).

Vegetation Condition

The survey of the application area undertaken by Santaleuca Consulting (2018) determined the vegetation in the application ranged in condition from Degraded to Excellent. The majority of the vegetation ranged from Good to Very Good condition (Santaleuca Consulting 2018).

Vegetation condition ratings are defined as follows:

- Excellent: Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species (Keighery, 1994).
- Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
- Good: Vegetation structure significantly altered by very obvious signs of multiple disturbance; retains basic structure or ability to regenerate (Keighery 1994).
- Degraded: Basic vegetation structure severely impacted by disturbance; scope for regeneration but not to a state approaching Good condition without intensive management (Keighery 1994).

Soil type

The application area is mapped as occurring within the following mapped land systems (Department of Primary Industries and Regional Development 2017):

- Tandegin, Booraan Subsystem: Hillslopes predominantly containing hard setting, grey to brownish sandy loam over clay soils;
- Kellerberrin, Merredin Subsystem: Broad, flat valleys of the eastern wheatbelt containing heavy, red and grey soils;
- Tandegin, Collgar Subsystem: Gentle, lower slopes containing sandy surfaced duplex or mallee soils;
- Tandegin, Ulva Subsystem: Yellow sandplain and gravel plain of the Eastern wheatbelt. This unit contains small areas of pale sand; and
- Tandegin, Steep Rocky Hills 3 Subsystem: Areas of bare rock and steep rocky hills with minimal soil development.

Local Area

The local area is defined as the area within a 20 kilometre radius from the perimeter of the application area.

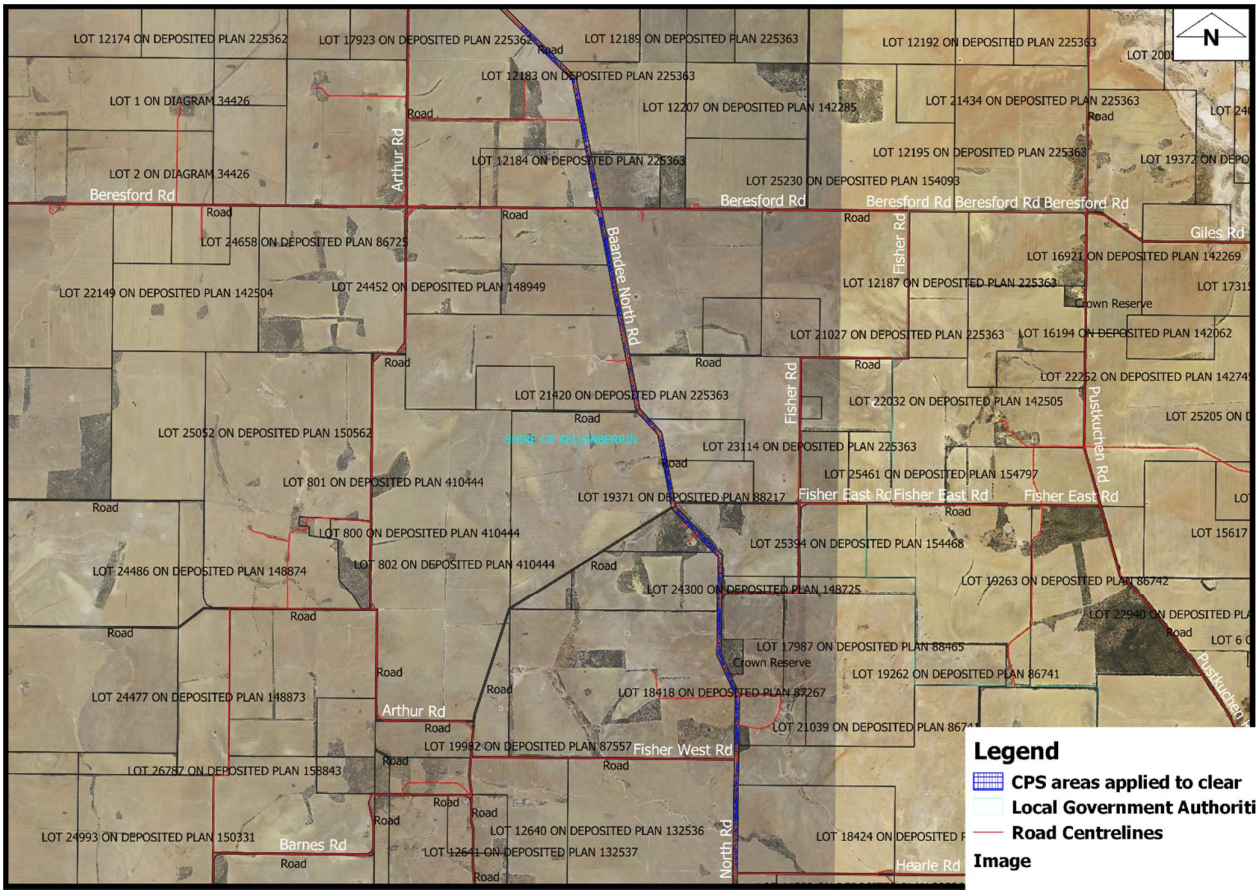

Figure 1: Application area hatched in blue

3. Minimisation and mitigation measures

On 13 March 2019, the applicant submitted an amended application area which reduced the proposed area of clearing from 5 hectares to 2.8393 hectares. The applicant removed all vegetation which was deemed not necessary to clear to facilitate the road widening activities. This amended application area is the subject of this assessment report.

The largest individual clearing area associated with the amended application area has an extent of approximately 0.16 hectares, with the remaining clearing areas having an extent between 0.07 and 0.0001 hectares. These clearing areas are isolated from each other and do not form a continuous clearing area within the remnant vegetation corridor associated within the Bandee North Road reserve.

The applicant has advised that the following efforts were made to mitigate the clearing area impact:

- Reduced the clearing width from 19 metres to 17 metres; and
- Removed 58 vegetation areas from the submitted clearing area, comprising of 478 mainly large Mallee of White Gum trees located within the 16 to 17 metre wide clearing zone totalling 0.17 hectares (Shire of Kellerberrin 2019a).

An additional targeted flora survey for *Aluta aspera* var. *localis* was undertaken in July 2019 to determine the impact of the proposed clearing for this priority flora species. This survey determined the size of the population present within the vicinity of the application area was approximately 9660 plants mostly located within private land located adjacent to Bandee North Road reserve. The flora survey determined that 20 individuals of *Aluta aspera* var. *localis* may be impacted by the proposed clearing (Santaleuca Consulting, 2019b).

The applicant advised that during the planning process, consideration was given to relocating the road onto adjacent cleared freehold land, however:

- The adjacent landholders indicated they would not give up this land;
- The Shire of Kellerberrin would have to pay for excising and purchasing the land, construct the new road alignment subgrade, construct new culverts, construct new intersections, pay to relocate water services and fence the new alignment an additional cost of $230, 000 – 245, 000 / km would be required. The Shire does not have the financial capacity to fund this;
- There would be difficulties to align a new road close to the existing alignment due to the existence of six homesteads and sheds and 10 dams within 700 metres of the current alignment; and
- There is 86 hectares of native vegetation at SLK 12.07 to 16.22 and 194 hectares of native vegetation at SLK 35 to 25.70 which would likely be impacted from a realignment (Shire of Kellerberrin, 2019).

4. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity

Proposed clearing is at variance with this Principle

A review of available databases determined that 32 flora species of conservation significance have been recorded in the local area, comprising five Priority 1 flora species, six Priority 2 flora species, eleven Priority 3 flora species, two Priority 4 flora species and eight threatened flora species (Western Australian Herbarium 1998-). The flora and vegetation survey undertaken by Santalueca Consulting (2018) did not identify any flora species of conservation significance found within the local area within the application area. The survey identified a significant population of the Priority 2 flora species *Aluta aspera* subsp. *localis* within the application area and its surrounds, numbering approximately 100 individual plants. The population of *Aluta aspera* subsp. *localis* extended into remnant vegetation situated on an adjacent private property. The area found to host the above flora species is approximately 2 hectares in size and displays signs of historical disturbances (Santaleuca Consulting 2018). *Aluta aspera* subsp. *localis* is known from nine records from the Avon Wheatbelt Interim Biogeographic Regionalisation of Australia (IBRA) region (Western Australian Herbarium 1998-). This species is known to occur within *Eucalyptus* sp. woodland to *Allocasuarina* / *Acacia* woodland on sandplain, undulating landforms and plain environments, where it grows within dry yellow sand – gravel, granitic white sand to yellow sandy clay and brown sandy loam soils (Western Australian Herbarium 1998-).

The Department of Biodiversity, Conservation and Attractions (DBCA) advises that *Aluta aspera* subsp. *localis* is currently listed as a Priority 2 flora species, however a review of its conservation status indicates Priority 1 is a more appropriate conservation status for this species (DBCA 2019a). This is due to the small number of recorded locations of this species (9 records housed at WA Herbarium), none of which occur within conservation estate (DBCA 2019a). The population recorded within the application area represents a new location for this species, an extension of this flora species known range of approximately 35 kilometres and possibly the second largest population of this species recorded (DBCA 2019a). This population is therefore considered significant to the conservation of *Aluta aspera* subsp. *localis*.

The DBCA (2019a) acknowledges that the survey report prepared by Santaleuca Consulting (2018) states that a population of approximately 100 individuals of *Aluta aspera* subsp. *localis* was found in one section of the road reserve (on either side of the road), however further wide-ranging surveying on adjacent private land has not been undertaken at this stage. The area occupied by the above species was estimated to be two hectares within a historically disturbed area (DBCA 2019a), with the report not quantifying the number of individuals proposed to be impacted by this application, with the exception that most individuals occur outside the proposed clearing envelope. The DBCA's (2019a) analysis of shapefiles provided by the applicant of the application area and the recorded extent of occurrence of *Aluta aspera* subsp. *localis* indicates that a very small proportion of the population will be targeted for clearing, and that the proposed clearing will not be continuous along the road verge in this area. The DBCA (2019a) advises that if only a small proportion of the population is to be impacted by the proposed clearing, it is unlikely to impact the conservation status of this species, provided the remaining population is sufficiently conserved.

An additional targeted flora survey for *Aluta aspera* var. *localis* was undertaken in July 2019. This survey determined the size of the population present within the vicinity of the application area was approximately 9660 plants, mostly located within private land located adjacent to Bandee North Road reserve. The flora survey determined that 20 individuals of *Aluta aspera* var. *localis* may be impacted by the proposed clearing (Santaleuca Consulting, 2019b). The clearing of 20 individuals will result in a loss of 0.2 per cent of the known population. Given the small proportion of individuals potentially impacted, the proposed clearing is not likely to have a significant impact upon this local population or on the conservation status of this species.

As discussed further under principle (d), no threatened ecological community (TEC) listed under the *Biodiversity Conservation Act 2016* (BC Act) are likely to occur within the application area.

A review of available databases determined the application area intercepts several mapped occurrences of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' Priority 3 priority ecological community (PEC). This ecological community is also listed as a Critically Endangered TEC under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The approved conservation advice for this ecological community specifies a number of criteria for vegetation to be considered representative of this TEC (Threatened Species Scientific Committee 2015). These criteria include a woodland structure where

the trees are typically spaced and the canopy is open, the canopy is dominated by Eucalypt species (those with a tree or mallet growth form), the minimum crown cover of the tree canopy in a mature woodland is 10% and understories which are highly variable in structure and composition (Threatened Species Scientific Committee 2015). The distribution of this ecological community is recognised as being limited to the Avon Wheatbelt IBRA Region (Merredin and Katanning subregions), Mallee IBRA Region (Western Mallee subregion) and the Jarrah Forest IBRA Region; limited to the outlying patches in the eastern regions of the Northern Jarrah Forests and Jarrah Forest subregions adjacent to the Avon Wheatbelt, which are off the Darling Range and receive less than 600 millimetres of annual rainfall (Threatened Species Scientific Committee 2015). These criteria also specify minimum patch sizes and condition ratings, which include a requirement that a patch should meet at least a 'Degraded' to 'Good' (Keighery 1994) condition rating, and minimum patch sizes of two hectares for vegetation in 'Good' (Keighery 1994) or better condition (Threatened Species Scientific Committee 2015). Patches in 'Good' (Keighery 1994) to 'Degraded' (Keighery 1994) condition must have a minimum patch size of five or more hectares (Threatened Species Scientific Committee 2015).

Advice received from the DBCA (2019b) advises that vegetation communities VT2, VT4, VT6, VT8, VT10, VT11, VT16, VT20 and VT22, as identified in the survey report prepared by Santaleuca Consulting (2018 and 2019b) are considered to meet the key diagnostic characteristics of the above federally listed TEC. No other PEC's or TEC's were identified within the application area. The approved conservation advice for this TEC identifies one of the major threats to its ongoing persistence is the clearing of native vegetation (DBCA 2019b). Roadsides often present the only remaining example of the original vegetation types within extensively cleared landscapes, with this especially true in agricultural landscapes with almost 98% of the vegetation in some areas having been historically cleared (DBCA 2019b). The conservation advice recognises the importance of native vegetation remnants along road verges and their value as wildlife corridors, particularly if they link to other non-roadside vegetation remnants and habitat for threatened species (DBCA 2019b).

The DBCA (2019b) concluded that the proposed clearing may cause a moderately significant impact to the largest lineal remnant of this TEC in the immediate area. The application area comprises a part of this federally listed TEC and may also be necessary for the maintenance of this TEC.

As discussed under principle (b), a review of available databases found that five fauna species of conservation significance have been recorded in the local area. The proposed clearing is not likely to impact on significant habitat for these species.

The application area is located adjacent to remnant native vegetation. The proposed clearing my indirectly impact this vegetation through the spread of weeds. Weed management practices will help mitigate this risk.

The application area comprises of vegetation in excellent and very good (Keighery, 1994) condition, contains priority flora species and a federally listed TEC, therefore the application area is considered to comprise a high level of biodiversity. The proposed clearing is at variance with 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.

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

A review of available databases determined that five fauna species of conservation significance have been recorded in the local area, comprising (DBCA 2007-):

- Shield-backed Trapdoor Spider (Idiosoma nigrum) (listed as 'Endangered' under the BC Act) and 'Vulnerable' under the EPBC Act);
- Malleefowl (Leipoa ocellata) (listed as 'Vulnerable' under the BC Act and the EPBC Act);
- Greater Bilby (Macrotis lagotis) (listed as 'Vulnerable' under the BC Act and the EPBC Act);
- Numbat (Myrmecobius fasciatus) (Listed as 'Endangered' under the BC Act and 'Vulnerable' under the EPBC Act); and
- Western Brush Wallaby (Notamacropus irma) (Priority 4).

The database review found that the majority of the recorded occurrences of the Greater Bilby within approximately 100 kilometres of the application area predate 1970 (DBCA 2007-). Given the age of the recorded occurrences of the Greater Bilby within this distance from the application area, it is considered unlikely this species will utilise the habitats of the application area.

Since European settlement, the Numbat's distribution has dramatically declined and currently this species is known to survive only in a small area of Western Australia's Jarrah Forest and Wheatbelt regions; the Dryandra Woodland and Upper Warren Area (DBCA 2019c). Previously, this species was found to inhabit a wide range of habitats including Mulga woodland, spinifex sandplains and Eucalypt forests and woodlands, with their habitat generally dominated by Eucalyptus species with abundant hollow logs and branches for shelter and termites for food (DBCA 2019c). Given the contraction in range this species has experienced, it is considered unlikely this species will utilise the habitats of the application area.

Optimum habitat for the Western Brush Wallaby is open forest or woodland, particularly favouring open seasonally wet flats with low grasses and open scrubby thickets (DBCA 2019d). It is also found in some areas of mallee and heathland and it is uncommon in Karri Forests (DBCA 2019d). A review of available databases determined that only four records of this species have been recorded within 100 kilometres of the application area, with these records predating 1980 (DBCA 2007-). Given the extensively cleared nature of the local area and the lack of recorded occurrences of this species within 100 kilometres of the application area, it is considered unlikely this species will utilise the habitats of the application area. The proposed clearing is not anticipated to adversely impact the conservation status or distribution of the above fauna species of conservation significance.

In the Wheatbelt region of Western Australia, the Shield-backed Trapdoor Spider typically inhabits clay soils and populations of this species are associated with Eucalypt woodlands and Acacia shrublands (Department of the Environment and Energy 2019a).

Leaf litter and twigs are extremely important to individuals of this species as they provide material for burrow construction, inhibit soil moisture loss and increase the presence of prey species (Department of the Environment and Energy 2019a). In the Wheatbelt region, critical habitat for this species comprises open York Gum (*Eucalyptus loxophleba*), Salmon Gum (*Eucalyptus salmonophloia*) and *Eucalyptus capillosa* woodland, where Jam (*Acacia acuminata*) forms a sparse understorey in heavy clay soils (Department of the Environment and Energy 2019a). Given the habitats found in the application area, the application area likely comprises suitable habitat for the Shield-backed Trapdoor Spider. Noting the small size of the proposed clearing and that the remnant vegetation corridor associated with the Baandee North Road has an average width of 20 metres either side of this road (Santaleuca Consulting 2018), it is anticipated the proposed clearing will not result in a significant reduction in the habitat available for this species within the local area.

The Malleefowl derives its name from its preferred habitat, comprising scrubland and woodland dominated by mallee and wattle species (Department of the Environment and Energy 2019b). In Western Australia, this species is most commonly seen in reserves and private property within and around the Wheatbelt Region, with recent surveys also determining the Malleefowl continues to persist in the Goldfields region (DBCA 2019e). This species is known to occur within a number of conservation reserves and has also been reintroduced to Francois Peron National Park in Shark Bay (DBCA 2019e). A review of photographs of the clearing areas supplied by the applicant (NRM Consultant 2019) determined that no historical Malleefowl mounds were present in the application area. Given the habitat preferences of the above species and the relatively narrow nature of the remnant vegetation corridor associated with Baandee North Road, it is not anticipated that the application area comprises suitable habitat for the Malleefowl. The remnant vegetation corridor associated with the Baandee North Road may be utilised by Malleefowl to navigate between remnant patches of native vegetation linked together by this vegetation corridor.

Due to the length and width of the vegetation corridor associated with the Baandee North Road, the condition of the vegetation and the fact that it connects several patches of remnant vegetation together, including the North Baandee Nature Reserve, this vegetation corridor likely represents an ecological linkage within the local area. A review of aerial photography of the application area and the proposed clearing locations determined that of the 499 individual clearing locations proposed, the majority of these clearing locations occur within 10 metres of either side of the centreline of the Baandee North Road. The distance of ten metres from the road centreline incorporates the Baandee North Road itself, its associated windrows and the vegetation growing on the roadside. This review determined that the proposed clearing in these locations only targets roadside vegetation, leaving the majority of the remnant vegetation corridor intact. Of the 123 proposed clearing locations which stretch beyond a distance of ten metres from the centreline of Baandee North Road, the above review of the clearing locations determined that, excluding instances when the roadside vegetation corridor meets a patch of remnant vegetation, the average width of the remnant vegetation corridor which will remain unaffected by the proposed clearing is approximately 18 metres. Therefore sufficient vegetation cover will remain to facilitate fauna movement through the vegetation corridor in these locations.

In five of the proposed clearing locations, the clearing will result in the disruption of the continuity of the remnant vegetation corridor. A review of photographs of these clearing locations provided by the applicant determined that in three of these locations the vegetative cover comprises a single Eucalypt sp. tree with no understorey in two locations and minimal understorey in the third location (NRM Consultant 2019). In the other locations, the vegetation comprises a narrow remnant of mallee Eucalyptus sp. trees with minimal understory and a narrow remnant of *Melaleuca lateriflora* with minimal understory (NRM Consultant 2019). In all the above locations the vegetation would be considered to be in Degraded (Keighery 1994) condition. In addition, the disruption to the remnant vegetation corridor caused by the above clearing is between only 8 - 38 metres in length at each location. The vegetation in the above locations is sparse and provides limited cover currently to any fauna species utilising the remnant vegetation corridor to traverse between patches of remnant vegetation. The anticipated loss of vegetation coverage in some sections of the vegetation corridor will not significantly undermine or degrade the overall value of this vegetation corridor from its current state in providing fauna movement between patches of remnant vegetation along the Baandee North Road.

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

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

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

As discussed under principle (a), a review of available databases determined that eight threatened flora species, including two species listed under the EPBC Act, have been recorded in the local area. The flora and vegetation survey undertaken by Santaleuca Consulting (2018) did not identify any threatened flora species within the surveyed area. Therefore, no adverse impacts to the conservation status or distribution of any threatened flora species are anticipated to result from the proposed clearing.

Given the above, the proposed clearing is not at variance with 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 with this Principle

According to available databases no TECs listed under the BC Act have been mapped within the local area. A flora and vegetation survey undertaken by Santaleuca Consulting (2018) did not identify any vegetation representative of a state listed TEC.

Given the above, the application area is not likely to comprise or be necessary for the maintenance of a state listed TEC.

The proposed clearing is not likely to be at variance with 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 with 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 (i.e. pre-European settlement) (Commonwealth of Australia 2001). This is the threshold level below which species loss appears to accelerate exponentially at an ecosystem level.

As indicated in Table 1, the Avon Wheatbelt IBRA region retains approximately 18.51 per cent of its pre-European native vegetation extent (Government of Western Australia 2018). The mapped vegetation complex's 955 and 1049 currently retain approximately 10.7 and 6.79 per cent of their pre-European native vegetation extents respectively (Government of Western Australia 2018). A review of available databases determined the local area retains approximately 10.74 per cent of its pre-European native vegetation extent.

As discussed under principle (a), the application area contains Priority flora species and the presence of federally listed TEC. When the above is considered alongside the highly cleared nature of vegetation complex's 955 and 1049, the Avon Wheatbelt IBRA region and the local area, the application area represents a significant remnant of native vegetation in an area that has been extensively cleared. Given the above, the proposed clearing is at variance with this principle.

Table 1: Remnant native vegetation extents

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current Extent in DBCA Managed Lands (ha)	(%)
IBRA Bioregion*					
Avon Wheatbelt	9,517,109.85	1,761,226.55	18.51	174,960.72	9.93
Beard Vegetation Association					
955	120,564.93	12,900.72	10.70	1,097.56	8.51
1049	833,384.77	56,618.34	6.79	3,375.83	5.96

(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 with this Principle

A review of available databases determined that no wetlands occur within the application area. The database review determined the proposed clearing will intercept one ephemeral watercourse and will occur within 0.5 metres of another ephemeral watercourse. The proposed clearing therefore may result in the loss of vegetation growing in association with a watercourse. The proposed clearing is at variance with this principle.

A review of aerial photography of the application area determined the vegetation growing in the vicinity of the aforementioned ephemeral watercourses is consistent with the surrounding vegetation and is not representative of a distinct vegetation community associated with surface water features. A review of the application area determined the clearing area intercepting the ephemeral watercourse has an area of approximately 56 square metres and the clearing area positioned within 0.5 metres of the other ephemeral watercourse has an area of approximately 36 square meters. A review of aerial photography of the local area determined both surface water features have experienced significant historical clearing to support agricultural developments in the local area. Consequently, the remnant vegetation corridor associated with the Bandee North Road represents some of the only remaining vegetation along the extent of both surface water features. When the above is considered alongside the extensive clearing which has occurred in the local area, as noted under principle (e), it is not anticipated the clearing of small areas of vegetation associated with the above watercourses will adversely impact the ecological values of these watercourses.

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

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

As discussed under principle (e), the local area has undergone extensive clearing to support historical agricultural developments, with only approximately 10.74 per cent of the local area's pre-European native vegetation extent remaining. The proposed clearing footprint has been limited to a series of relatively small stands of vegetation and individual trees, with the largest individual clearing area approximately 0.16 hectares in size, with the remaining clearing areas between 0.07 and 0.0001 hectares in size. As discussed earlier, these clearing areas are isolated from each other and do not form a continuous clearing area within the remnant vegetation road corridor. As a result, the majority of the vegetation corridor associated with the Bandee North Road reserve will remain intact at the completion of the proposed clearing. In addition, the establishment of road infrastructure within the cleared areas would be anticipated to stabilise the cleared ground, preventing land degradation impacts from arising and causing adverse impacts to the ecological values of the application areas surrounds.

Based on the above, the proposed clearing is not likely to be at variance with 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 is not likely to be at variance with this Principle

Several conservation areas occur within the local area, the nearest of which is the North Bandee Nature Reserve situated approximately 1.7 kilometres north west of the application area. Given the distance between the application area and the North Bandee Nature Reserve, no adverse impacts to this conservation reserve, or any other conservation reserve, are anticipated to

result from the proposed clearing. The proposed clearing is situated within the Bandee North Road reserve, which connects the above conservation reserve to other remnant patches of native vegetation. This remnant vegetation corridor therefore potentially serves as an ecological linkage promoting species diversity and recruitment within the local area.

The flora and vegetation survey undertaken by Santaleuca Consulting (2018) determined that the width of the remnant vegetation corridor is on average 20 metres either side of the Baandee North Road. As discussed earlier in this report, the proposed clearing targets individual trees and small stands of vegetation and it is anticipated that the majority of the remnant vegetation corridor found within the Bandee North Road reserve will remain intact. This will ensure that the value of this remnant vegetation as an ecological linkage persists beyond the proposed clearing and it is not anticipated that the proposed clearing will indirectly impact the diversity or recruitment of species within the North Bandee Nature Reserve.

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

As discussed under principle (f), the proposed clearing is likely to result in the clearing of a 36 square metre area adjacent to a mapped ephemeral watercourse and a 56 square metre area within the mapped extent of an ephemeral watercourse. As discussed under principle (f), both of the aforementioned watercourses have experienced significant clearing to support historical agricultural developments in the local area. Given minimal clearing of the vegetation associated with the mapped ephemeral watercourses, the proposed clearing of the aforementioned areas is not anticipated to result in adverse impacts to the quality of surface water flows. In addition, the establishment of road infrastructure within the cleared areas is anticipated to stabilise the ground, ensuring any sedimentation of surface water flows resulting from the proposed clearing would be short lived and not result in an enduring impact on surface water quality.

A review of available databases determined the local groundwater resources have been mapped as having a total dissolved solids content of between 14,000 and over 35,000 milligrams per litre. Given the extensively cleared nature of the local area and the small extent of the proposed clearing, the proposed clearing is unlikely to result in adverse impacts to the quality of the local groundwater resources.

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

A review of available databases determined the application area is situated within the Swan Avon – Yilgarn catchment. This catchment has an area of approximately 58,360 square kilometres. The database review also determined that the application area is situated within a flat plain environment which only varies in height by 40 metres over a distance of approximately 12 kilometres.

As discussed in principle (f), the proposed clearing will result in the clearing of small areas of vegetation in the vicinity of mapped ephemeral watercourses. However, when consideration is given to the small extent of the proposed clearing within these areas, it is not anticipated to adversely impact surface water inflows into either the application area or its surrounds.

Given the extent of the Swan Avon – Yilgarn catchment, the flat topography of the application area and the knowledge that the proposed clearing is unlikely to adversely impact surface water inflows into either the application area or its surrounds, the proposed clearing is unlikely to cause, exacerbate or intensify flooding in the local area.

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

Planning instruments and other relevant matters.

No Aboriginal sites of significance have been mapped within the application area.

On 20 September 2018, it was announced the Shire of Kellerberrin had received over $1 million in funding from the Federal Government towards widening and strengthening approximately 18.79 kilometres of road and the construction of a 40 metre concrete floodway within the Baandee North Road, to improve heavy vehicle safety (Liberal Party, Western Australia 2019). This funding was received under round six of the Federal Government's Heavy Vehicle Safety and Productivity Program (Liberal Party, Western Australia 2019). This program provides funding to local councils and State and Territory Governments to help fund works designed to improve the safety and efficiency of important heavy vehicle routes across Australia (Liberal Party, Western Australia 2019).

In addition to the above, Main Roads Western Australia have recognised Baandee North Road in the Roads 2030: Regional Strategies for Significant Local Government Roads – Wheatbelt North (published 2013 and amended 2015) (Main Roads Western Australia 2015). This comprises a strategic review of regionally significant Local Government roads and development strategies pertaining to these roads, along with providing an agreed strategic approach to the allocation of limited funding across the extensive road network in the Great Southern region. Baandee North Road is a major heavy vehicle transport route for grain from Baandee to the Doodlakine CBH Receival Facilities and onto the main east-west standard gauge rail line (Main Roads Western Australia 2015). In addition, it provides access for local residents to the Doodlakine Public Passenger Service on the Prospector and Avon Link trains, enhances access to Kellerberrin itself and its associated industries and businesses and facilitates the utilisation of the Great Eastern Highway (Main Roads Western Australia 2015). This road is also a major access

route to Nungarin and further north for local and visitor traffic to access the Great Eastern Highway and comprises a transport route for agricultural commodities including fertiliser, grain, livestock, gypsum and lime (Main Roads Western Australia 2015). Baandee North Road continues into the Shire of Nungarin (Main Roads Western Australia 2015).

The above strategy document articulated this roads development would increase the economic efficiency of a major direct heavy vehicle transport route serving towns and farmers north of Kellerberin and increase the efficiency of grain rail transport from Doodlakine on the main east - west line (Main Roads Western Australia 2015). The development strategy proposed for this road incorporates the reconstruction and widening of the roads shoulders with sectional works also required (Main Roads Western Australia 2015). The road is proposed to be widened to seven metres to provide a constant width and improve safety standards along the entire route to support its use by heavy vehicle traffic and local and visiting traffic (Main Roads Western Australia 2015). Substandard crests and curves will also be improved and visual safety requirements will be implemented at designated points (Main Roads Western Australia 2015).

This clearing permit application was advertised on the Department of Water and Environmental Regulation's (DWER) website on 30 November 2018 with a 21 day submission period. On 19 December 2018 a submission was received. This submission opposed the grant of the clearing permit on the following grounds:

- The surrounding area is highly cleared and the submitter objects to further clearing in this highly cleared landscape;
- Flora and fauna surveys of the application area are unavailable;
- The proposed clearing is unnecessary. The proposal does not consider all future upgrades which may be required to the Baandee North Road and does not allow cumulative impact assessment to occur regarding future upgrades to the Baandee North Road; and
- The proposed clearing area is excessive and alternative options to the clearing have not been appropriately considered.

In regards to the abovementioned submission DWER advises the following:

- Impacts to vegetation in a highly cleared landscape are addressed in the above report under principle (e). The applicant has submitted an offset proposal that adequately offsets the significant residual impacts of clearing native vegetation that is considered significant as a remnant in an extensively cleared area and representative of a federally listed TEC.
- At the time of advertising the application, flora surveys were unavailable. The applicant has provided two flora and vegetation surveys since submitting the application and they are now available on DWER's FTP website.
- In regards to concerns that the proposed clearing is unnecessary, the applicant has advised that Baandee North Road is the main sealed arterial road linking the Baandee North agricultural area to the Great Eastern Highway for a considerable distance. Subsequently, it is not feasible to reroute larger restricted access vehicles or triple road trains to a nearby suitable heavy vehicle route (Shire of Kellerberrin 2019a).
- In regards to the proposed clearing being excessive, the applicant has revised the proposed clearing area and reduced the proposed clearing to 2.8393. Further information on avoidance and mitigation matters can be noted in Section 3 of this report.
- DWER considers the Shire of Kellerberrin have the appropriate expertise for road design including the location, width and associate features.

In regards to the applicant looking into alternative options, the applicant advised that during the planning process, consideration was given to relocating the road onto adjacent cleared freehold land. As discussed within Section 3 of this report, the ability to relocate the road was not deemed feasible (Shire of Kellerberrin 2019a).

During planning to reconstruct the Baandee North Rd it was identified that a clearing permit would be required for the following reasons:

- The existing road pavement is in very poor condition and has a deficient seal width (3.7m) and carriageway width (7.5m on average), which is considered unsafe for the freight task now required of this road.
- To make the road safer, and provide sufficient drainage to reserve the new road pavement. The minimum required road profile clear zone is 17 metres. This has been reduce from the desired 19 metres width (Shire of Kellerberrin 2019a).

On 19 December 2018, the DWER's Swan Avon Region advised that there are currently no existing licences or permits under the *Rights in Water and Irrigation Act 1914* (RIWI Act) which relate to this proposal. The proposal is located within the Avon River System Surface Water Area proclaimed under the RIWI Act, where there may be a requirement to obtain a licence to take water or a permit to interfere with the Bed and Banks of a water course. The applicant is encouraged to contact the Department's Swan Avon Region office to discuss water management options.

5. Applicant's Submissions

On 4 January 2019, the applicant's consultant provided photographs depicting the vegetation found in the application area (NRM Consultant 2019). On 21 January 2019, the applicant provided the flora and vegetation survey report prepared by Santaleuca Consulting (2018) in support of this application. On 1 March 2019, the applicant's consultant provided shapefiles showing the mapped extent of the Priority 2 flora species *Aluta aspera* subsp. *localis* recorded during the flora surveys undertaken by Santaleuca Consulting (2018 and 2019). The applicant's consultant also provided shapefiles depicting the locations of the vegetation community's recorded during the flora and vegetation survey undertaken by Santaleuca Consulting (2018). In addition, notes providing further information on the flora and vegetation surveys undertaken in support of this clearing permit application were supplied on 1 March 2019 (Santaleuca Consulting 2019a). The findings derived from these materials are detailed in this report.

On 13 March 2019, the applicant submitted an amended application area which reduced the proposed area of clearing from 5 hectares to 2.8393 hectares by removing all vegetation which was deemed not necessary to clear to facilitate the proposed upgrades to the Baandee North Road (Shire of Kellerberrin 2019b).

On 26 June 2019, DWER wrote to the applicant and requested further information to verify the impacts of the proposed clearing

including:

- Additional efforts to avoid and/or mitigate the need for clearing, in particular to the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC.
- Additional information to quantify the impact of the proposed clearing on the identified population of the Priority 2 flora species *Aluta aspersa* subsp. *localis* including further targeted flora surveys.
- Identification of appropriate onsite impact mitigation strategies and/or satisfactory environmental offsets to counterbalance the significant residual impacts of the proposed clearing on a TEC and a significant remnant of native vegetation within an extensively cleared area (DWER 2019a).

On 20 August 2019, the applicant provided a response to DWER's letter of 26 June 2019 including the following information:

- An additional targeted flora survey for *Aluta aspera* var. *localis* was undertaken in July 2019 to determine the impact of the proposed clearing for this priority flora species.
- An offset proposal comprising of changing the vesting of Crown Reserve 33419 from 'gravel' to 'conservation'. The Shire of Kellerberrin noted that the reserve comprised 9.15 hectares of native vegetation representative of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC, 12 hectares of tammer vegetation and approximately 10 hectares of good quality vegetation.
- Further information on avoidance and mitigation methods undertaken by the Shire of Kellerberrin including a 'report on clearing impact mitigation and avoidance'. This information has been summarised in section 3 (Shire of Kellerberrin 2019a and c).

On 12 September 2019, DWER wrote to the applicant and requested further information regarding the proposed offset including:

- Support from Department of Planning, Lands and Heritage that the rezoning of Crown Reserve 33419 is supported; and
- Confirmation of the environmental values of the offset site through a reconnaissance survey of the vegetation (DWER 2019b).

On 29 October 2019, the applicant submitted a revised offset proposal comprising of changing the vesting of Crown Reserve 33419 from 'gravel' to 'conservation' comprising of 5.4 hectares of native vegetation of the ' Eucalypt Woodlands of the Western Australia' and 13.3 hectares of vegetation in excellent (Keighery, 1994) condition. In addition the applicant has proposed to revegetate an area of 6.5 hectares within Lot 306 on Deposited Plan 409422 to vegetation representative of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC (Shire of Kellerberrin 2019d).

On 3 December 2019, the applicant provided a comprehensive revegetation plan for Lot 306 on Deposited Plan 409422 Shire of Kellerberrin 2019e).

6. Suitability of Proposed Offset

After avoidance, minimisation and mitigation (outlined in Section 3 of this report), it is considered that the proposed clearing will result in the following significant residual impacts:

- 1.17 hectares of native vegetation which is representative of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC; and
- 1.67 hectares of native vegetation this is a significant remnant within an extensively cleared landscape.

The applicant has proposed two offsets, to counterbalance the significant residual impacts listed above, consisting of:

1. Transfer the purpose of Crown Reserve 33419 from 'gravel' to 'conservation' including the protection of:
    - 5.4 hectares of native vegetation representative of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC in excellent (Keighery, 1994) condition; and
    - 13.3 hectares of native vegetation in excellent condition that is a significant remnant in a highly cleared area.
2. Revegetation of 6.5 hectares of native vegetation within Lot 306 on Deposited Plan 409422 to a good or better condition comprising of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC. The Shire of Kellerberrin propose to transfer the purpose of Lot 306 to 'conservation'.

A vegetation condition report of Crown Reserve 33419 provided by the applicant determined that 5.75 hectares of vegetation within the reserve is representative of the TEC.

In assessing whether the proposed offset is adequately proportionate to the significant environmental values listed above, the Department of Water and Environmental Regulation (DWER) undertook a calculation using the Commonwealth Offsets Assessment Guide calculator. Noting the vegetation condition report of Crown Reserve 33419, DWER's calculations determined that the protection of 5.75 hectares of vegetation comprising of the TEC within Crown Reserve 33419 and revegetation of 3.04 hectares of native vegetation within Lot 306 to a good or better condition will adequately offset the significant residual impacts associated with the Eucalypt Woodlands of the Western Australian Wheatbelt' TEC. To offset the significant residual impact associated with a significant remnant within an extensively cleared landscape, DWER determined that the protection of 5.65 hectares of native vegetation within Crown Reserve 33419 is adequate.

The balance of area within Crown Reserve 33419 and Lot 306 can be banked for other authorised clearing, pending the same offset requirements for the Clearing Permit.

7. References

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Department of Biodiversity, Conservation and Attractions (2019a) Advice received regarding occurrences of *Aluta aspera* subsp. *localis*. Maintained on DWER's internal achieve system (A1784568).
Department of Biodiversity, Conservation and Attractions (2019b) Advice received regarding the 'Eucalypt woodlands of the Western Australian Wheatbelt Priority Ecological Community'. Maintained on DWER's internal achieve system (A1781620).
Department of Biodiversity, Conservation and Attractions (2019c) Fauna Profile – Numbat; *Myrmecobius fasciatus*. Conservation Status: Endangered. Available from: https://www.dpaw.wa.gov.au/images/documents/plants-animals/animals/animal_profiles/numbat_fauna_profile.pdf.
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Department of Water and Environmental Regulation (2019b) Request for further Information – CPS 8253/1. Western Australia (DWER Ref: A1822900)
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Santaleuca Consulting (2019b) Population survey: *Aluta aspersa* var. *localis* Priority 2 species 1471 Baandee North Road. Prepared for the Shire of Kellerberrin by Santaleuca Consulting.
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Shire of Kellerberrin (2019a) Clearing Permit CPS 8253/1 – A report on Clearing Impact Mitigation and Avoidance. Western Australia (DWER Ref: A1816188)
Shire of Kellerberrin (2019b) Email requesting to amend application area. Western Australia (DWER Ref: A1775481)
Shire of Kellerberrin (2019c) Supporting Information for Clearing Permit Application CPS 8253/1. Western Australia (DWER Ref: A1816188)
Shire of Kellerberrin (2019d) Offset Proposal and Supporting Information for Clearing Permit Application CPS 8253/1. Western Australia (DWER Ref: A1837313)
Shire of Kellerberrin (2019e) Revegetation Plan and Supporting Information for Clearing Permit Application CPS 8253/1. Western Australia (DWER Ref: A1837313)
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GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity, Conservation and Attractions, Managed Tenure
- Geomorphic Wetlands Management Category
- Hydrography Linear – Linear
- Hydrography WA 250K – Surface Water Lines
- SAC bio datasets
- TPFL March 2019
- Vegetation Complexes; pre – European Vegetation
- WA Herb Data March 2019
- WA TEC PEC Boundaries