



mainroads
WESTERN AUSTRALIA

Road Widening Kojonup South SLK 254.9 to SLK 266

Assessment Report and Vegetation Management Plan

October 2017

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Amendments

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	Rochelle Lupton/Gaynor Owen Environment Officer	Draft v1	September 2017
Reviewer:	Vanessa Clarke Senior Environment Officer	Rev 0	10/10/2017
Author:	Gaynor Owen Environment Officer	FINAL	12/10/2017

1 SUMMARY

1.1 Project Information

Project Title: Road Widening Kojonup South SLK 254.9 – SLK 259.8 and SLK 260 - SLK266

Project location(s): The project is located south of Kojonup township on Albany Highway, from SLK 254.9 to 259.8 and SLK 260 - SLK266. The project is located in the Shire of Kojonup.

Area proposed to be cleared: 8.03 hectares (ha).

Project purpose / components: Works will consist of vegetation clearing either side of the current carriageway to allow for shoulder widening and sealing works. Shoulder widening will be to 2 m and the sealed road width will be 11m. Culvert extensions will be undertaken as required.

Temporary clearing required: No.

A detailed Assessment Report (AR) of the project clearing activities was undertaken. The AR outlined the key activities associated with the road project, the existing environment and an assessment of native vegetation clearing. This assessment provided an evaluation of the vegetation clearing impacts associated with the project using the Ten Clearing Principles and strategies used to manage vegetation clearing. Key items associated with the clearing assessment are listed below.

1.2 Key Clearing Impacts

- Three landform specific vegetation types were identified in the project area; *Corymbia calophylla* Woodlands on hillslopes, *Eucalyptus rudis* Woodlands in broad, shallowly incised drainage channels and *Eucalyptus wandoo* Woodlands on uplands of laterite and granite.
- A total of 2.36 ha of *Eucalyptus rudis* woodland will be cleared for the project, identified as riparian vegetation in the biological survey.
- The project is in pre-European Vegetation Association 4, characterised as Medium woodland; marri & wandoo; and 968, characterised as Medium woodland; jarrah, marri & wandoo. Vegetation association 4 has 19 % remaining in the Shire of Kojonup and 27% in the State and Jarrah Forrest IBRA region; and vegetation association 968 has less than 26 % remaining in the Shire of Kojonup. The project is in an extensively cleared landscape, which places particular regional significance on remaining vegetation.
- Two Threatened flora (*Conostylis drummondii* and *Conostylis setigera* subsp. *dasys*) are known from the vicinity and from habitats represented in the biological survey (*Eucalyptus wandoo* and *E. marginata* woodland). Neither species was identified in the biological survey area, potentially due to high weed infestation and degradation of habitat quality.
- Four conservation significant fauna were considered likely to occur in the project area; Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (Threatened), Baudin's Black Cockatoo (*Calyptorhynchus baudinii*) (Threatened), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) (Threatened) and Western Rosella (inland) (*Platycercus icterotis* subsp. *xanthogenys*) (Priority 4).
- A total of 8.03 ha of foraging habitat for Black Cockatoos will be cleared for the project, as well as 427 potential future breeding trees. Six of the 427 potential breeding trees were recorded to have four medium hollows and two large hollows currently suitable for use (large enough) by Black Cockatoos. A further 9 trees were recorded as bearing small and medium hollows which may develop to be suitable for use in the future. No individuals of Carnaby's or Baudin's Black Cockatoo were recorded in the biological survey, which was undertaken during breeding season. Several flocks of Red-tailed Black Cockatoos were observed perching or flying in the vicinity during the biological survey. Evidence of foraging on Marri capsules by Forest Red-tailed Black Cockatoo was also observed.

- The Eucalypt Woodlands of the Wheatbelt Threatened Ecological Community (TEC) was identified in the project area; 0.71 ha of this TEC will be cleared for the works.

The AR identified several environmental constraints associated with the proposed project activities. The project was referred to the Department of the Environment and Energy in April 2017 and was found to be a controlled action (TRIM document D17#629678).

1.3 Key Vegetation Management Actions

Project specific environmental management actions have been developed to manage all clearing impacts and these are outlined in the Vegetation Management Plan (VMP) provided in Appendix B.

2 ASSESSMENT SCOPE

This environmental impact assessment involved a desktop analysis of environmental aspects and impacts, a biological assessment, and an assessment of native vegetation clearing impacts. The desktop survey area is confined to a local area of a 20 km radius. This assessment determined the need to develop and obtain approvals from the Department of Water and Environmental Regulation (DWER) for vegetation management plans and an offset proposal.

3 PROJECT DESCRIPTION

Widening is required on Albany Highway south of the township of Kojonup. Works will consist of vegetation clearing either side of the current carriageway to allow for shoulder widening and sealing works. Culvert extensions will be undertaken as required.

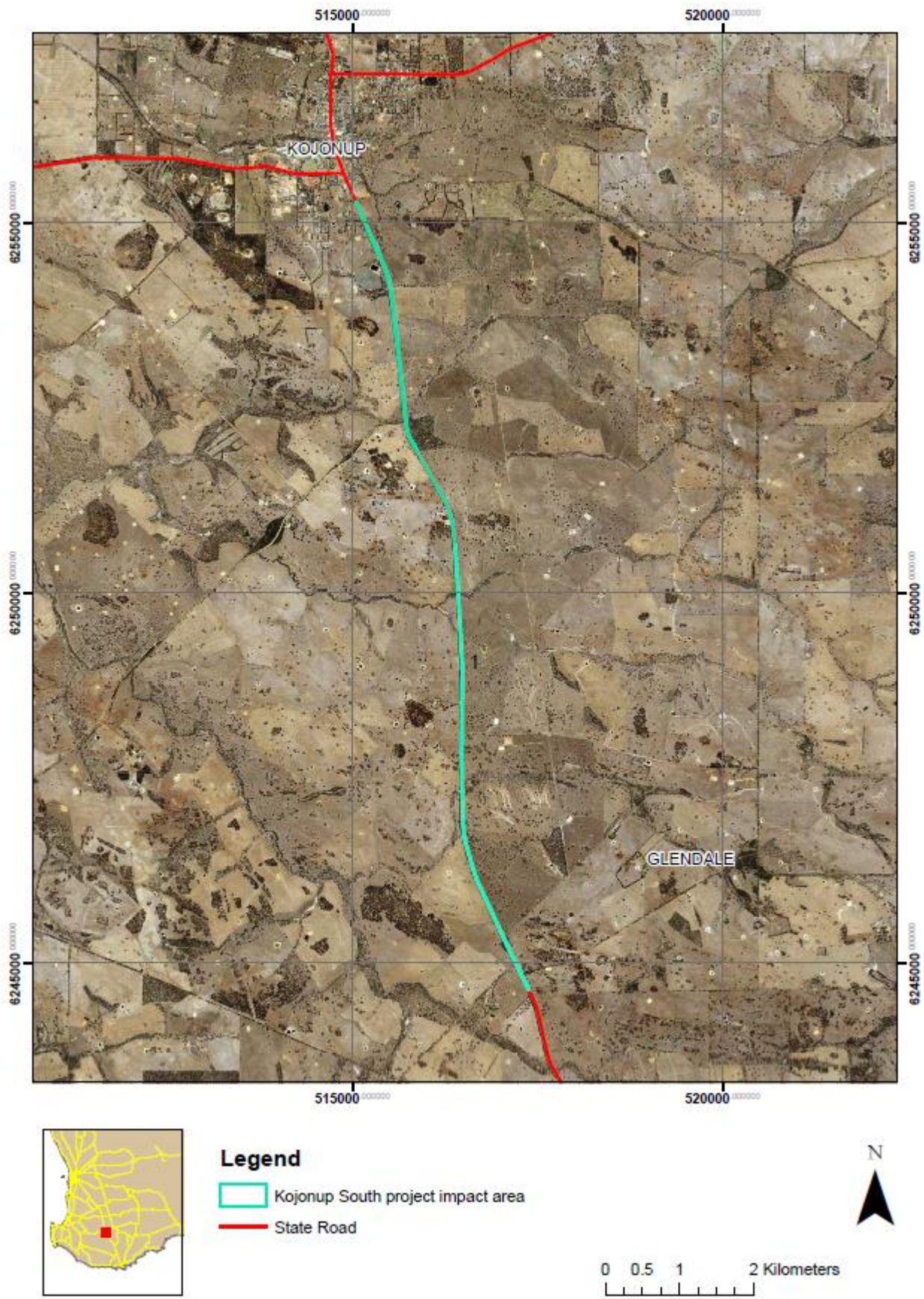
3.1 Project Location

The project area is located on Albany Highway south of Kojonup, from SLK 254.9 to 259.8 and SLK 260 to 266 in the Shire of Kojonup.

117.1693 -33.8639 decimal degrees

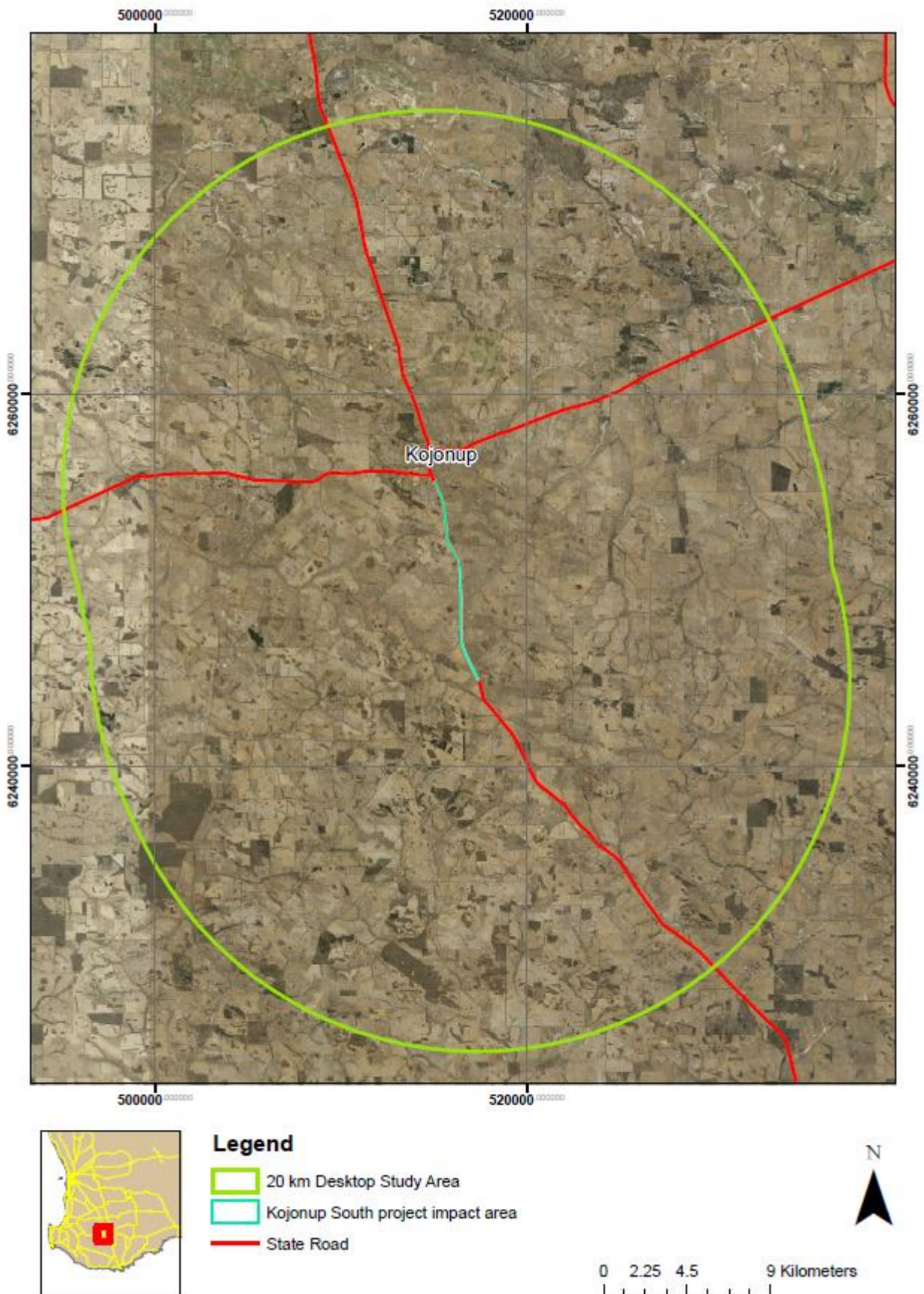
The project area is shown in Figure 1:

Figure 1 – Project Area



The location and boundaries of the study area (20 km radius) for the project are shown in Figure 2:

Figure 2 – Project Location and Study Area



4 METHODOLOGY

A preliminary assessment of the project area and the potential constraints of the proposal were undertaken by viewing ArcGIS shapefiles, reviewing government agency managed databases and consulting with relevant stakeholders where necessary.

A biological survey was undertaken in spring 2016 (Rathbone 2016). The biological survey identified a number of environmental constraints in the project area (Section 7).

The decision whether to refer the project to the DotEE was based upon whether the project may have a significant impact upon matters of National Environmental Significance (NES), which are protected under the EPBC Act (1999). The project was referred in April 2017 and found to be a controlled action (TRIM document D17#629678).

5 CLEARING OF NATIVE VEGETATION

Native vegetation describes all indigenous aquatic and terrestrial vegetation (living or dead). The term does not include vegetation that was intentionally sown, planted or propagated unless it was required under a statutory condition.

Apart from activities that are exempt under the clearing regulation (Section 5 – Prescribed Clearing), all native vegetation clearing completed by Main Roads WA will be undertaken using a permit.

5.1 Project Justification and Measures to Avoid and Minimise Clearing

Albany Highway is a major transport route for the state of Western Australia to the Great Southern Region. 793 people were killed or seriously injured in the Great Southern Region from 2004 to 2013, a rate of 135.8 people per 100,000 population persons.

Most of the fatal and serious crashes that occur in the regional areas of Western Australia involve only one vehicle which has run off the road and/or collided with an object or rolled over. Almost half of accidents are cars hitting a stationary object, and over half occur on 110 km/h roads. It is estimated that 30% of these accidents were caused by fatigue. Road widening allows for swifter driver recovery and reduces run off road collisions.

Ten accidents have occurred on this stretch of road from SLK 255.21 to SLK 266 from 2012 to 2016. Five were classified as major accidents, and a further two required medical attention or hospitalisation. Widening is required to improve the safety features of this road and meet the Austroads safety guidelines. The shoulder widths of this section of road are only 0.3 to 0.6 m which does not allow for driver recovery. In addition, Albany Highway is predominantly used to carry long distance, high speed traffic where driver error and driver fatigue are expected to play a large role in accidents. According to the Road Safety Management Guideline, increasing the sealed shoulder from 0.5 m to 2 m will reduce Killed and Seriously Injured (KSI) numbers by 64%.

The impact area has been minimised to the smallest area possible and limited to the road reserve. Further project clearing will be avoided as the site office, materials storage areas, construction vehicles/machinery and access tracks will be located on previously disturbed or cleared areas. Back slopes will be steepened to 1:4 ratio from 1:6 to minimise clearing.

5.2 Vegetation Description

5.2.1 Project Site Vegetation Description

Three landform specific vegetation types were identified in the project area; *Corymbia calophylla* Woodlands on hillslopes, *Eucalyptus rudis* Woodlands in broad, shallowly incised drainage channels and Eucalyptus wandoo Woodlands on uplands of laterite and granite. Each vegetation type was represented in condition scales ranging from degraded (native understory very sparse or absent) to good (native understory present but obvious disturbance or low-moderate cover of agricultural weeds present) or as a mosaic of both categories.

Table 1: Summary of Project Area's Mapped Pre-European Vegetation Associations

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
The project is in pre-European Vegetation Association 4, characterised as Medium woodland; marri & wandoo; and 968 described as Jarrah (<i>Eucalyptus marginata</i>), Marri & Wandoo (Government of Western Australia 2017).	8.03 ha	Good to Degraded (EPA 2016)	8.03 ha of clearing over 11 km

Table 2: Pre-European Vegetation Representation

Pre-European Vegetation Association(s) in:	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DPA reserves
IBRA Region Jarrah Forest	4,506,660.26	2,416,018.14	53.61	69.17
Statewide Veg Assoc No. 4	1,054,279.89	293,367.54	27.83	22.78
IBRA region Veg Assoc No. 4 in the IBRA Jarrah Forest region	1,022,712.69	286,299.02	27.99	23.02
Local Government Authority Shire of Kojonup	213,813.59	41,809.48	19.55	1.74
Statewide Veg Assoc No. 968	296,877.84	95,642.43	32.22	57.30
IBRA region Veg Assoc No. 968 in the IBRA Jarrah Forest region	140,823.45	68,791.96	48.85	51.40
Local Government Authority Shire of Kojonup	8,173.42	2,104.94	25.75	0

Table 3: Vegetation type and hectares of clearing

Vegetation Type	Hectares of clearing
<i>Corymbia calophylla</i> Woodland	3.90
<i>Eucalyptus rudis</i> Woodland	2.72
<i>Eucalyptus wandoo</i> Woodland	1.41
<i>Total</i>	8.03

Table 4: Vegetation condition

Vegetation Condition (Keighery 1994)	Hectares of clearing
Degraded	5.53
Good - Degraded	1.80
Good	0.70
<i>Total</i>	8.03

5.3 Assessment against the Ten Clearing Principles

In assessing whether the project is likely to have a significant impact on the environment, the project was assessed against the ten clearing principles (EP Act 1986, Schedule 5).

The project is at variance to Principle (b), (d), (e) and (f) and may be at variance with Principle (a) of the 10 clearing principles.

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

Comments	Proposed clearing may be at variance to this Principle
	<p>Three landform specific vegetation types were identified in the project area; <i>Corymbia calophylla</i> Woodlands on hillslopes, <i>Eucalyptus rudis</i> Woodlands in broad, shallowly incised drainage channels and <i>Eucalyptus wandoo</i> Woodlands on uplands of laterite and granite.</p> <p>A total of 146 taxa from 41 families (including 47 weeds) were recorded in the biological survey. Twenty six conservation significant flora were identified as potentially occurring within 20 km of the project. Of these, 9 were considered possibly occurring or likely to occur based on habitat available in the project area. The floristic survey of the proposed clearing area was undertaken by an expert South Coast botanist (Rathbone 2016), but no Priority or Threatened flora were recorded during the biological survey.</p> <p>Three other Priority flora were considered likely to occur as they are known in close proximity and habitats are represented in the survey area. <i>Acacia grisea</i> (P4) and <i>Gastrolobium ovalifolium</i> (P4) could occur within the survey area in low numbers. One Priority 4 orchid (<i>Caladenia integra</i>) is considered likely to occur and the field survey timing was inadequate as it was not aligned with the flowering period (September) (Western Australian Herbarium [WAH] 2016). However, they are relatively abundant (26-44 records) and widespread (range = 350-450km) (WAH 2016), therefore a low number of individuals within the potential project footprint (given that the surveyed area is much greater than the proposed clearing area) would be unlikely to constitute a significant impact to these species, should they actually occur.</p> <p>Four conservation significant fauna were considered as present/likely to occur in the project area; Carnaby's Black Cockatoo (<i>Calyptorhynchus latirostris</i>) (Threatened), Baudin's Black Cockatoo (<i>Calyptorhynchus baudinii</i>) (Threatened), Forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii naso</i>) (Threatened) and Western Rosella (inland) (<i>Platycercus icterotis</i> subsp. <i>xanthogenys</i>) (Priority 4).</p> <p>The proposed clearing may be at variance to this Principle.</p>
Methodology	Threatened Species Scientific Committee 2015 Rathbone 2016

(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.

Comments	Proposed clearing is at variance to this Principle
	<p>Four conservation significant fauna were considered likely/known to occur in the project area; Carnaby's Black Cockatoo (<i>Calyptorhynchus latirostris</i>) (Threatened), Baudin's Black Cockatoo (<i>Calyptorhynchus baudinii</i>) (Threatened), Forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii naso</i>) (Threatened) and Western Rosella (inland) (<i>Platycercus icterotis</i> subsp. <i>xanthogenys</i>) (Priority 4).</p> <p>A total of 8.03 ha of foraging habitat for Black Cockatoos, which includes 427 potential future breeding trees with a Diameter at Breast Height (DBH) >500mm (or 300 mm for wandoo) as per the referral guidelines (Commonwealth of Australia 2012) will be cleared for the project. Six of the 427 potential breeding trees were recorded to have four medium hollows and two large hollows currently suitable for use (large enough) by Black Cockatoos. A</p>

	<p>further 9 trees were recorded as bearing small and medium hollows which may develop to be suitable for use in the future. No individuals of Carnaby's or Baudin's Black Cockatoo were recorded in the biological survey, which was undertaken during their breeding season. Several flocks of Forest Red-tailed Black Cockatoos were observed perching or flying in the vicinity during the biological survey. Evidence of foraging on Marri capsules by Forest Red-tailed Black Cockatoo was also observed.</p> <p>A number of measures will be applied to mitigate impacts to Black Cockatoos, including the provision of an offset and the installation of ten 'cockatubes' in a suitable location within 10 km of the project, upon the advice of a relevant Department of Biodiversity, Conservation and Attractions.</p> <p>The proposed clearing is at variance to this Principle.</p>
Methodology	Black Cockatoo Referral Guidelines (2012) Rathbone 2016

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

Comments	Proposal is not likely to be at variance to this Principle
	<p>The floristic survey of the proposed clearing area was undertaken by an expert South Coast botanist (Rathbone 2016) but no Threatened flora was recorded during the field survey.</p> <p>Two Threatened flora (<i>Conostylis drummondii</i> and <i>Conostylis setigera</i> subsp. <i>dasys</i>) are known from the vicinity and from habitats represented in the survey (<i>Eucalyptus wandoo</i> and <i>E. marginata</i> woodland). The habitats identified in the biological survey were floristically similar, but in poorer condition than known populations of these species. The weed infestation was considered to be a contributing factor to the lack of Threatened flora in the project area. Several plants of <i>Conostylis setigera</i> were observed in the survey, which all had distinctively glabrous leaf lamina that is diagnostic of the non-threatened subspecies (subsp. <i>setigera</i>).</p> <p>The proposal is not likely to be at variance to this Principle.</p>
Methodology	Rathbone 2016

(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.

Comments	Proposed clearing is at variance to this Principle
	<p>The Eucalypt Woodlands of the Wheatbelt TEC was identified in the project area; a total of 0.71 ha of this TEC will be cleared for the works. The patches identified in the project area varied from 1 m to 12 m and were all in Good or Good to Degraded condition, typically part of a larger strip of vegetation that met the requirements of the Wheatbelt TEC adjacent to and outside the road reserve. The TEC identified in the project area are small linear strips alongside the road; this is demonstrated in Figure 3.</p> <p>Clearing of these small strips is unlikely to lead to the long term decline of the TEC. However, as a very small area of TEC is proposed to be cleared, the proposed clearing is at variance to this Principle.</p>
Methodology	Threatened Species Scientific Committee 2015 Rathbone 2016

(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.

Comments	Proposed clearing is at variance to this Principle
	<p>The project is in pre-European Vegetation Association 4, characterised as Medium woodland; marri & wandoo; and 968, characterised as Medium woodland; jarrah, marri & wandoo. Vegetation association 4 has 19 % remaining in the Shire of Kojonup and 27% in the State and Jarrah Forrest IBRA region; and vegetation association 968 has less than 26 % remaining in the Shire of Kojonup (Government of Western Australia 2017). While vegetation in the project area was typically in Degraded condition, the project is in an extensively cleared landscape, which places particular regional significance on remaining vegetation.</p> <p>The project is considered to be at variance to this principle.</p>
Methodology	Rathbone 2016 Government of Western Australia (2017)

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

Comments	Proposed clearing is at variance to this Principle
	<p>Three minor non perennial watercourses intersect the project area, including Mandalup Brook.</p> <p>The project will involve culvert upgrades as required for the widening, these are expected to be in the same location as existing culverts and no changes to surface water flows are expected as a result of works. A Bed and Banks Permit was applied for but was not required as the project is not in a Proclaimed Surface Water Area.</p> <p>A total of 2.36 ha of <i>Eucalyptus rudis</i> woodland will be cleared for the project, identified as riparian vegetation in the biological survey.</p> <p>The proposed clearing is at variance to this Principle.</p>
Methodology	Rathbone 2016 DOW database

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

Comments	Proposed clearing is not likely to be at variance to this Principle												
	<table border="1"> <thead> <tr> <th>Degradation hazard</th> <th>Risk</th> </tr> </thead> <tbody> <tr> <td>Flood</td> <td><3% of map unit has a moderate to high flood risk</td> </tr> <tr> <td>Salinity</td> <td>3-10% of map unit has a moderate to high salinity risk or is presently saline</td> </tr> <tr> <td>Waterlogging</td> <td>10-30% of map unit has a moderate to very high waterlogging risk</td> </tr> <tr> <td>Water erosion</td> <td><3% of map unit has a high to extreme water erosion risk</td> </tr> <tr> <td>Wind erosion</td> <td>10-30% of map unit has a high to extreme wind erosion risk</td> </tr> </tbody> </table> <p>(DAFWA shapefiles 2016)</p> <p>The project has a moderate risk of waterlogging and wind erosion likely resulting by past clearing practices. The widening of an existing road is unlikely to significantly contribute to these degradation risks, particularly as the clearing is sporadically placed over 11 km. The project will involve culvert upgrades as required for the widening, these are expected to be in the same location as existing culverts and no changes to surface water flows are expected as a result of works, therefore no increase in waterlogging risk is likely.</p>	Degradation hazard	Risk	Flood	<3% of map unit has a moderate to high flood risk	Salinity	3-10% of map unit has a moderate to high salinity risk or is presently saline	Waterlogging	10-30% of map unit has a moderate to very high waterlogging risk	Water erosion	<3% of map unit has a high to extreme water erosion risk	Wind erosion	10-30% of map unit has a high to extreme wind erosion risk
Degradation hazard	Risk												
Flood	<3% of map unit has a moderate to high flood risk												
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Waterlogging	10-30% of map unit has a moderate to very high waterlogging risk												
Water erosion	<3% of map unit has a high to extreme water erosion risk												
Wind erosion	10-30% of map unit has a high to extreme wind erosion risk												

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

(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.

Comments	Proposed clearing is not at variance to this Principle
	The nearest reserve is Jingalup Nature Reserve (R 17759) located 18.5 km south west of the project. This reserve will not be directly nor indirectly impacted by the clearing. The proposed clearing is not at variance to this principle.
Methodology	DPA shapefiles

(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.

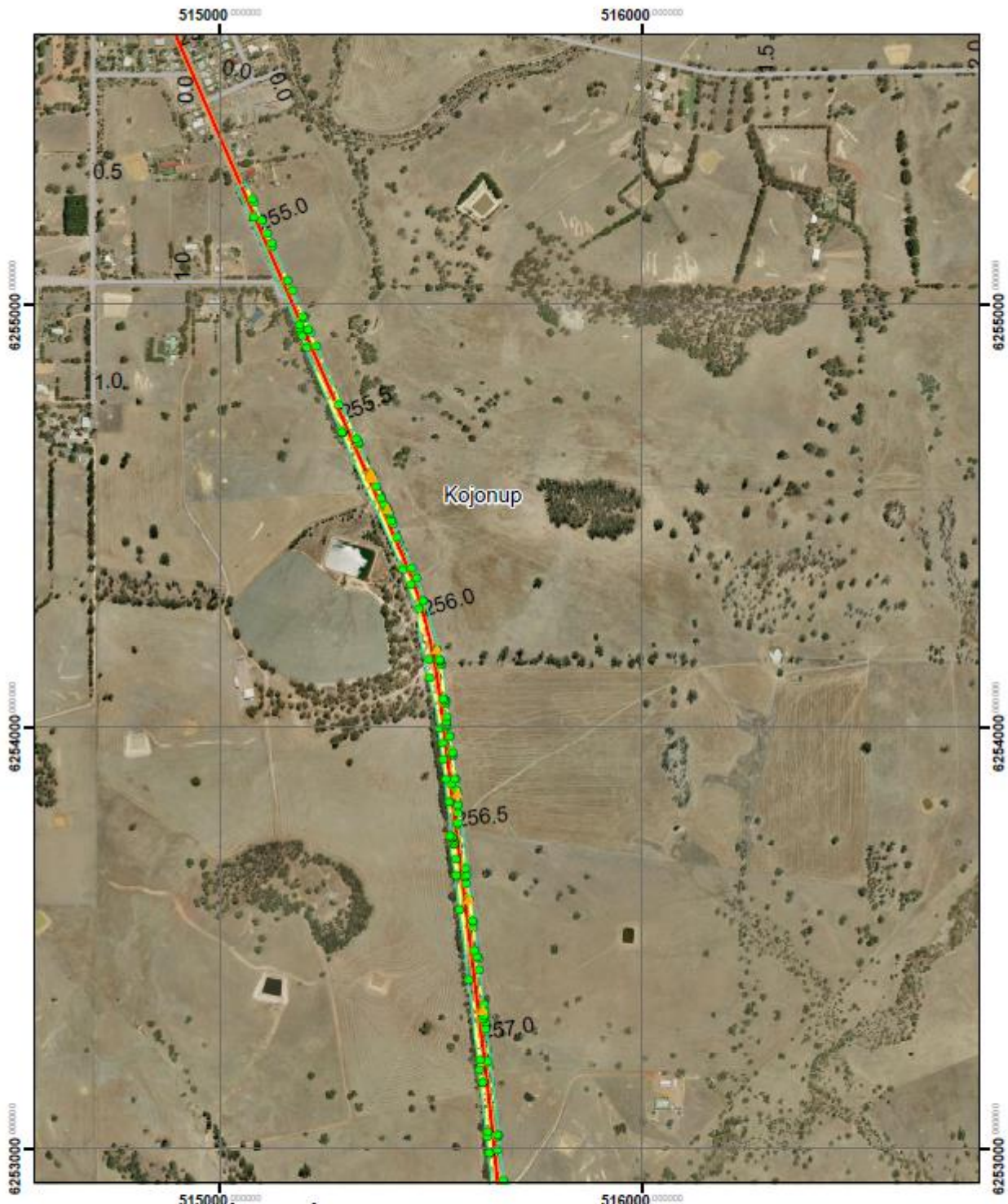
Comments	Proposed clearing is not likely to be at variance to this Principle
	The project is located within the Hardy Estuary Blackwood River catchment. The hydrogeology is characterised as granitoid rocks of low permeability. The project also intersects the Mandalup Brook. The project will involve the upgrade of culverts in their existing locations and therefore impacts to surface and underground water are not expected. The proposed clearing is not likely to be at variance to this principle.
Methodology	DWER Hydrogerological Atlas

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

Comments	Proposed clearing is not at variance to this Principle
	According to the Department of Agriculture and Food WA (DAFWA) risk mapping, the project is in an area with <3% at moderate to high risk of flooding. The widening of an existing road is unlikely to significantly contribute to flood risk, particularly as the clearing is sporadically placed over 11 km. The project will involve culvert upgrades as required for the widening, these are expected to be in the same location as existing culverts and no changes to surface water flows or increase in flooding risk is expected as a result of works. The proposed clearing is not at variance to this Principle.
Methodology	DAFWA shapefiles

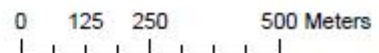
6 CONSTRAINTS MAPPING

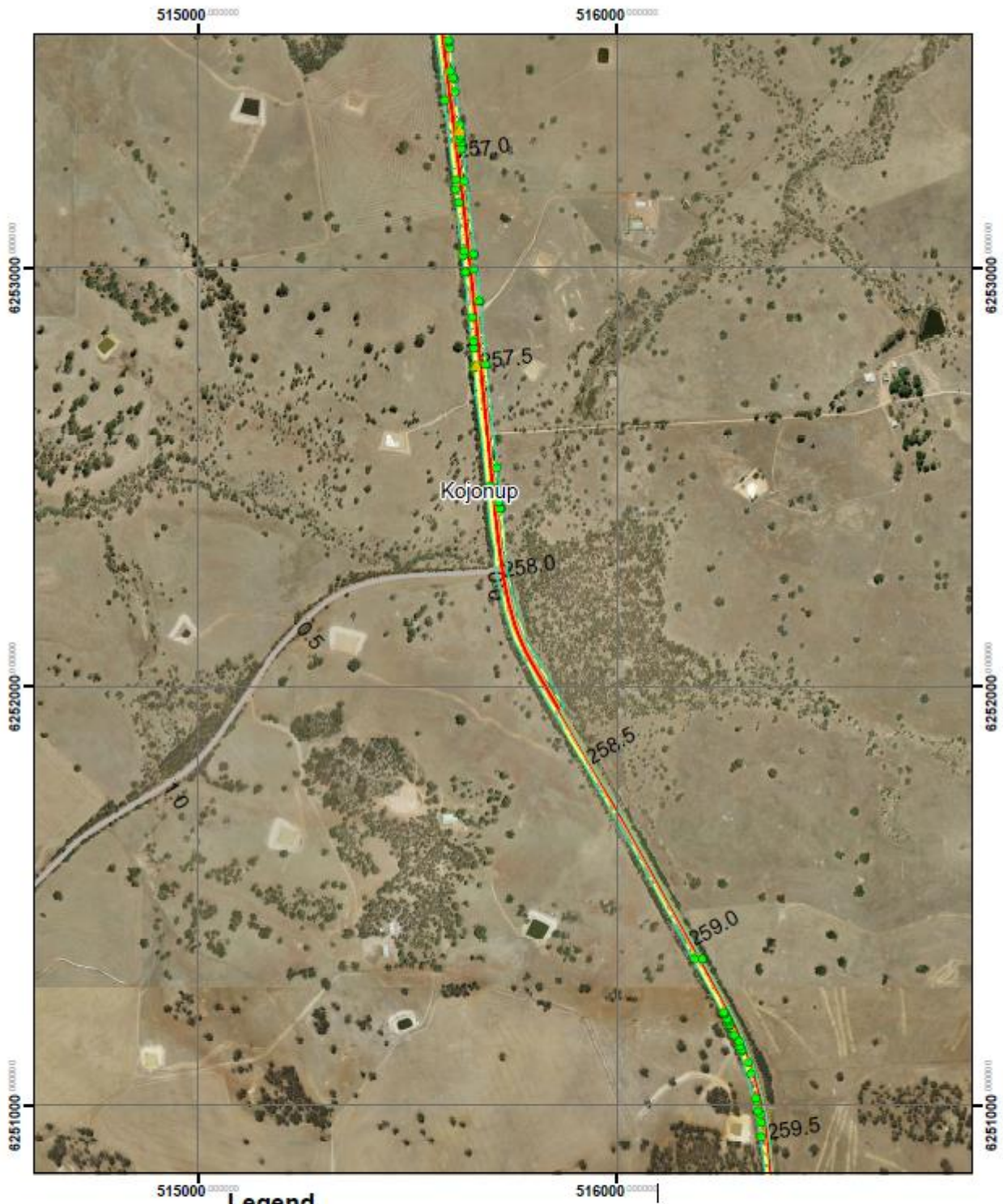
Figure 3 – Cockatoo Habitat within the Project Area



Legend

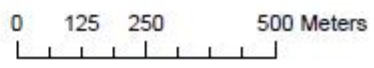
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-  Significant Trees
-  Cockatoo Foraging Habitat
-  Kojonup South project impact area
-  State Road

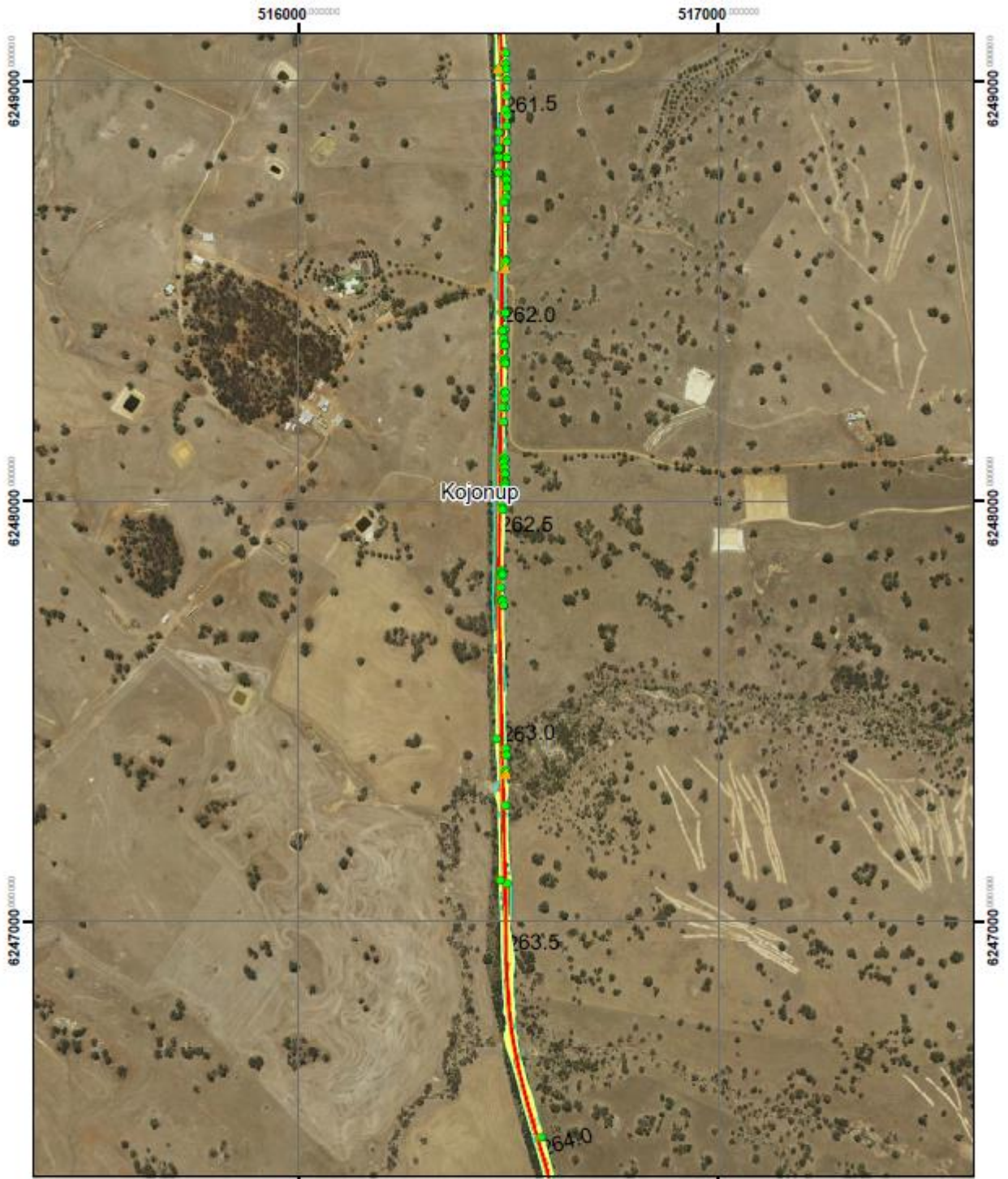




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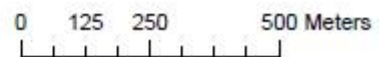
-  Cockatoo Hollows
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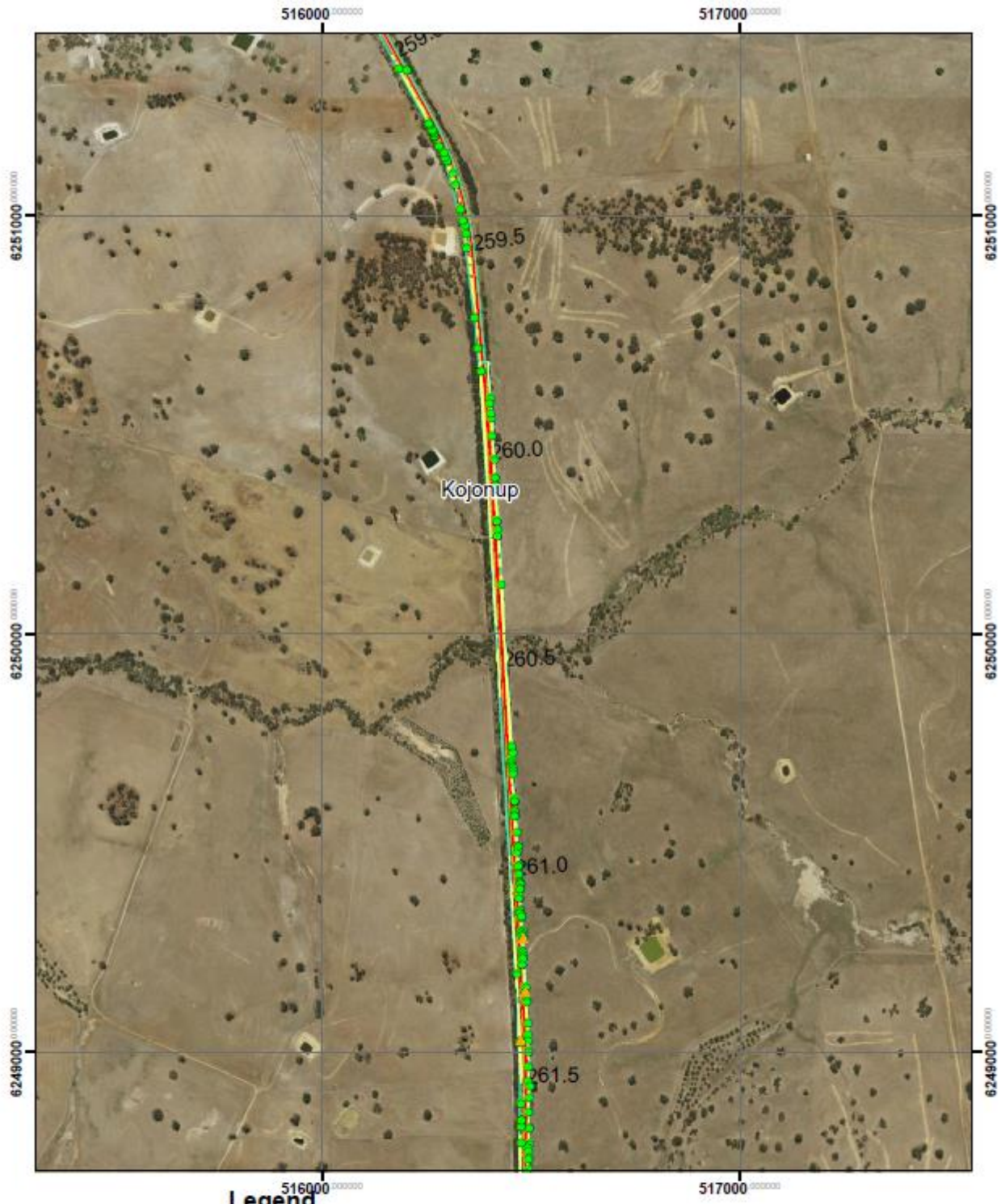




Legend

- ▲ Cockatoo Hollows
- Significant Trees
- Cockatoo Foraging Habitat
- Kojonup South project impact area
- State Road

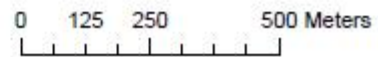




Legend



- ▲ Cockatoo Hollows
- Significant Trees
- Cockatoo Foraging Habitat
- Kojonup South project impact area
- State Road



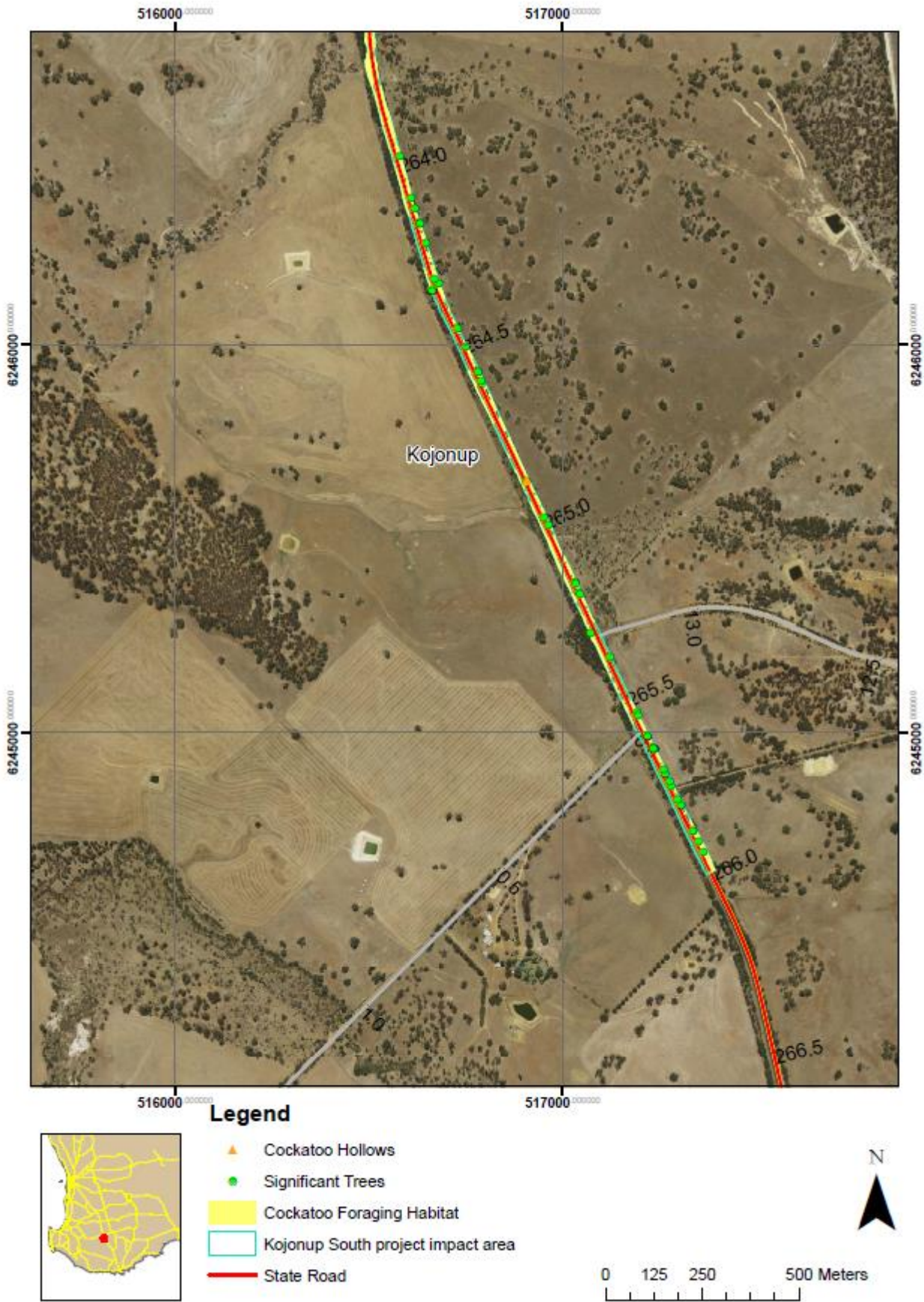
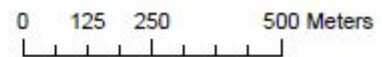
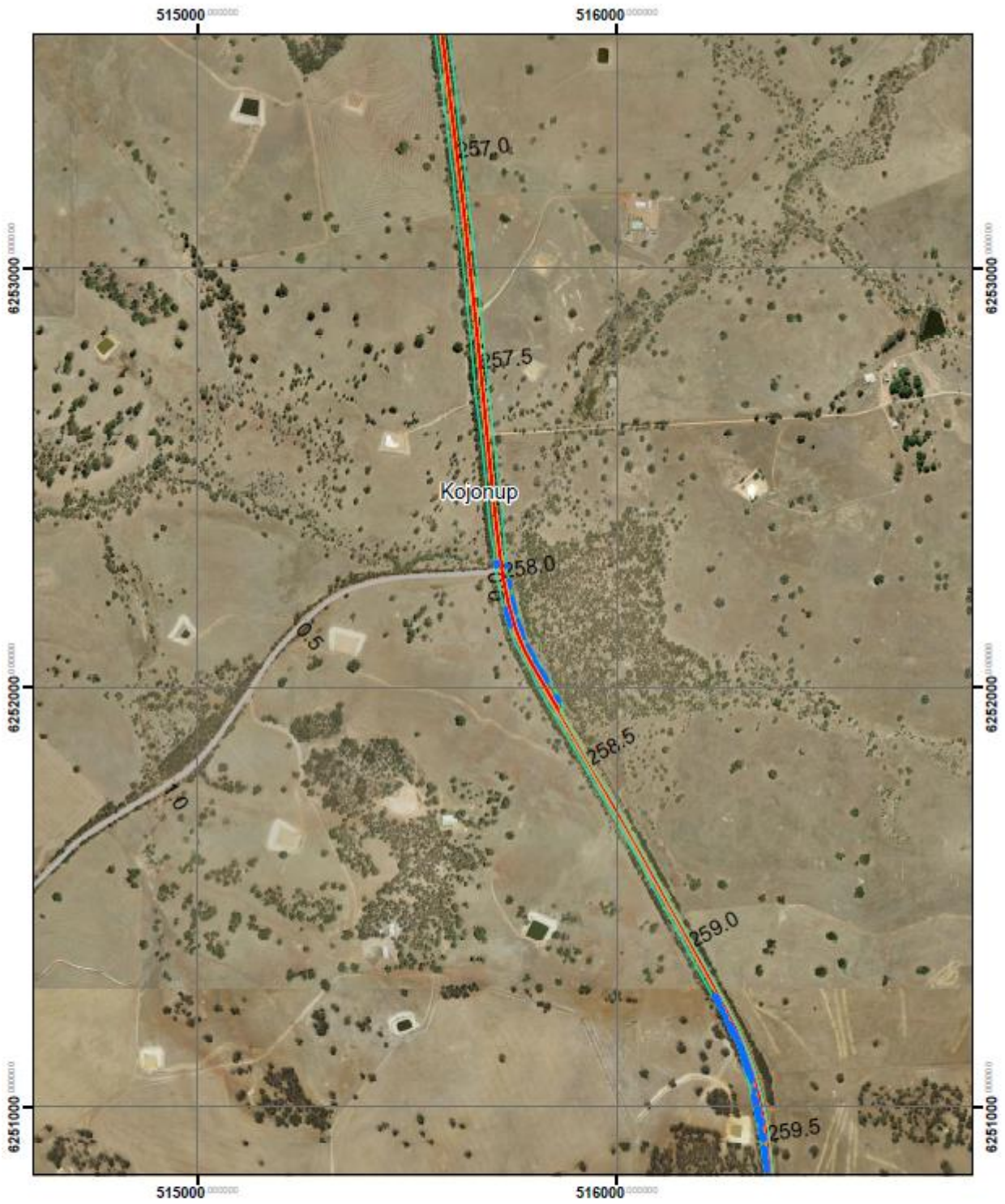


Figure 4 – Wheatbelt TEC within the Project Area



- Legend**
- Wheatbelt TEC
 - Kojonup South project impact area
 - State Road

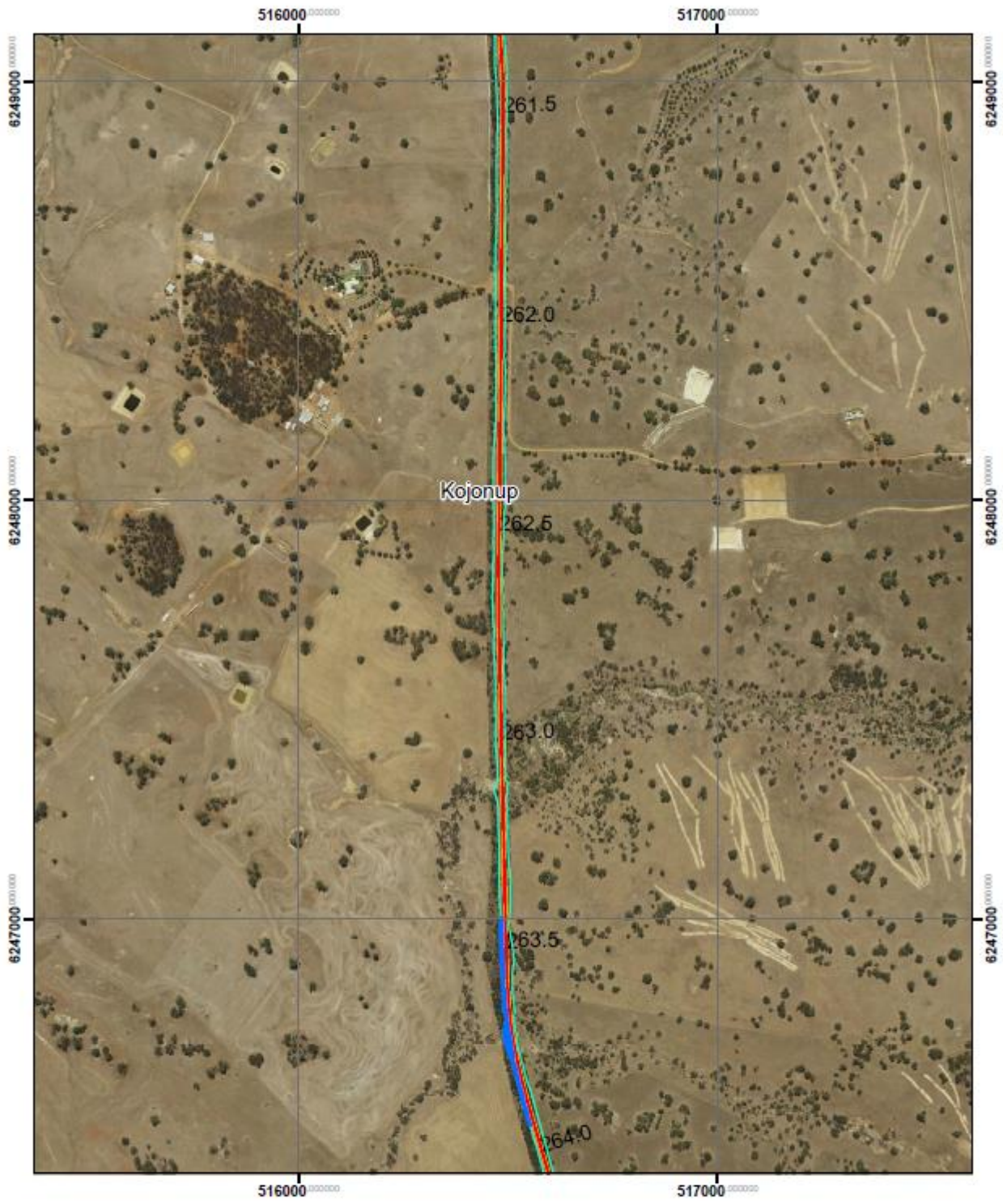




Legend

-  Wheatbelt TEC
-  Kojonup South project impact area
-  State Road

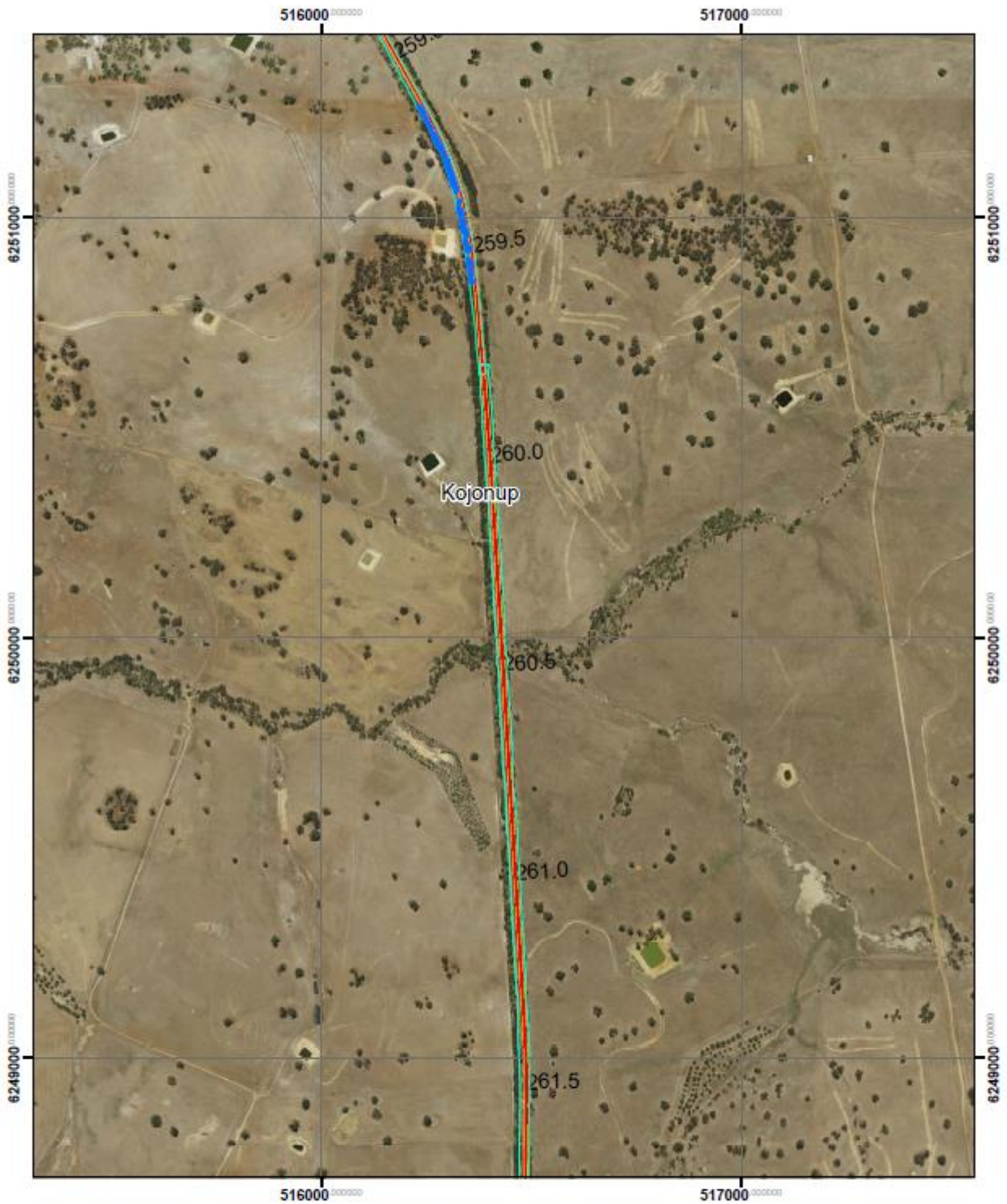




Legend

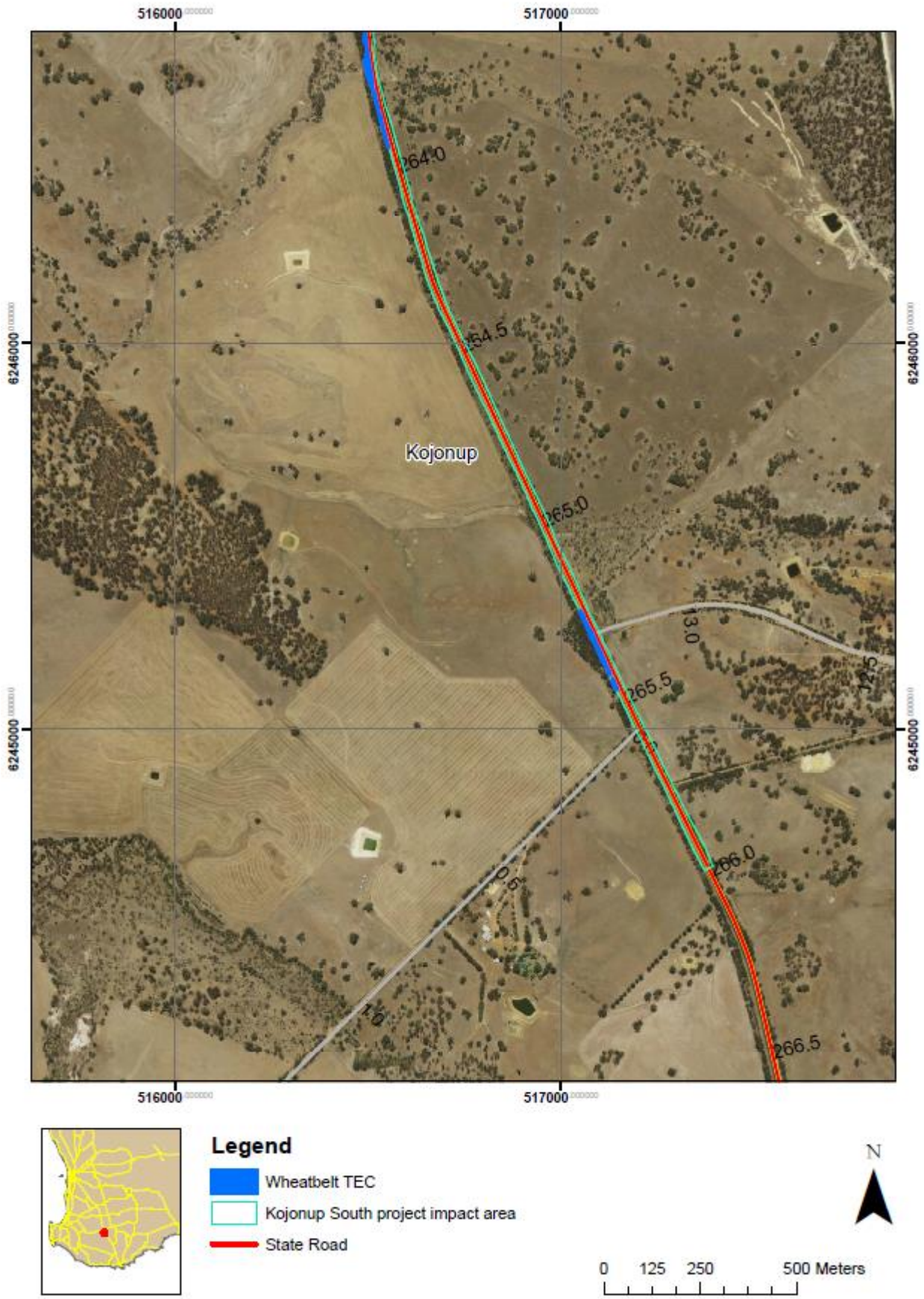
-  Wheatbelt TEC
-  Kojonup South project impact area
-  State Road





- Legend**
- Wheatbelt TEC
 - Kojonup South project impact area
 - State Road





7 SUMMARY OF BIOLOGICAL SURVEYS

The project was surveyed in Spring 2016 (Rathbone 2017). A vegetation assessment using floristic quadrats was conducted to identify the vegetation type and condition. Information was recorded in quadrats with dimensions of 100 m² in accordance with the Technical Guide for Flora and Vegetation Surveys for Environmental Impact Assessment (Environmental Protection Authority 2016).

A targeted search for potential Threatened and Priority flora identified from the desktop assessment was conducted across the survey area. The search was conducted in the appropriate season to detect most of the Threatened or Priority species with a high likelihood of occurrence.

A fauna habitat assessment was undertaken in accordance with Guidance Statement No. 56, Assessment of Environmental Factors for Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia (EPA 2004). The fauna assessment primarily focused on the identification of fauna habitat based on vegetation type and structure and the likelihood of occurrence determined from the desktop analysis. Opportunistic recording of faunal evidence (sightings, bird calls, tracks, scats, bones and feeding signs) was undertaken during the concurrent vegetation survey.

8 ADDITIONAL PRE CLEARING ACTIONS REQUIRED

The following table summarises what further pre-clearing impact assessment and vegetation management is required in accordance with CPS 818.

Table 3: Summary of Additional Management Actions

Impact of Clearing	Yes/No or NA	Further Action Required
1. The AR indicates that the clearing is 'Seriously at Variance', At Variance' or 'May be at Variance' with one or more of the clearing principles.	Yes	1. Submissions are required to be sought from relevant parties. Must adopt variance levels specified in DWER's submission response. 2. An Assessment Report is required to be undertaken. 3. A Vegetation Management Plan (VMP) is required to be approved by DWER. The VMP must be approved prior to undertaking clearing of the area to which the VMP is related 4. An offset proposal is required to be approved by DWER. The offset proposal must be approved prior to undertaking clearing of the area to which the offset is related.
2. The Assessment Report indicates that the clearing is at variance or may be at variance with clearing principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding.	No	No further action required.
3. The project involves clearing for temporary works (as defined by the permit under Condition 11 of CPS 818).	No	No further action required.
4a. The project is in part of a region that has annual rainfall greater than 400mm and is south of the 26 th parallel of latitude. 4b. The project will require movement of soil in conditions other than dry conditions.	Yes Yes	The project is in an extensively cleared landscape with no protectable environmental assets. An exemption from providing a DMP is requested.
5. The proposal requires referral to either the WA EPA or the Commonwealth DoEE.	No	No further action required.

9 STATEMENT ADDRESSING STAKEHOLDER SUBMISSIONS

Main Roads invited submissions from specified stakeholders, in accordance with condition 7 of CPS 818. Table 4 identifies the stakeholders who were contacted regarding the impacts of the proposed clearing associated with the project. Copies of all submissions can be found in Appendix C.

Table 4: Summary of Submissions Received from Stakeholders

Name	Position	Agency
Rick Mitchell-Collins	Chief Executive Officer	Shire of Kojonup
Marion Fulker	Chair	Conservation and Parks Commission
		Department of Water Drainage and Waterways Branch

10 VEGETATION MANAGEMENT

The impact area for the project has been limited to the road reserve and minimised as far as possible to only 8.03 ha over 11 km.

The main management measures that are specific to this project include:

- Any tasks required by construction crew in relation to Black Cockatoos will be included in the JSA.
- The approved clearing boundary will be pegged to prevent impacts to adjacent vegetation outside the limitations of clearing.
- The clearing area will be checked by the Environment Officer or delegate prior to commencement of clearing.
- Trees with hollows large enough for current use will be cleared outside the breeding season if possible. If not possible, trees with hollows large enough for current use will be inspected by a qualified ecologist for Black Cockatoo nesting. If nesting is identified, the tree will remain until the chick has fledged.
- Main Roads will install ten 'cockatubes' in a suitable location within 10km of the project, upon the advice of a relevant Department of Parks and Wildlife expert. The tubes will be installed within 6 months of project commencement to ensure no break in the availability of hollows for the subsequent breeding season.
- Tubes installed will be 375mm internal diameter, suitable for Red-tailed, Baudin's and Carnaby's Black Cockatoos.
- Bridal Creeper will be specifically targeted prior to clearing to eradicate this weed and prevent its spread as a result of the project. Bridal creeper occurs between SLK 254.9 and 256 on both sides of the road. Creeper removal will commence in early 2018 and will be conducted over several phases by a qualified weed sprayer to ensure no propagules are allowed to spread.

A Vegetation Management Plan has been developed to manage and minimise vegetation clearing for the project (refer Appendix B).

11 REFERENCES

- Environmental Protection Authority (EPA) (2016) *Flora and Vegetation Surveys for Environmental Impact Assessment*.
- EPA (2004), Guidance Statement No. 56: Terrestrial Fauna Surveys for Impact Assessment in Western Australia, Perth, Environmental Protection Authority.
- Department of the Environment and Energy (2016), Protected Matters Search Tool Report. Available online from: <http://www.environment.gov.au/epbc/pmst/index.html>, Accessed 26/11/2016.
- Commonwealth of Australia (2012), EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) *Calyptorhynchus latirostris*, Baudin's cockatoo (vulnerable) *Calyptorhynchus baudinii*, Forest red-tailed black cockatoo (vulnerable) *Calyptorhynchus banksii naso*, <https://www.environment.gov.au/system/files/resources/895d4094-af63-4dd3-8dff-ad2b9b943312/files/referral-guidelines-wa-black-cockatoo.pdf>, accessed 27 April 2017
- Government of Western Australia (2016), 2016 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report), Current as of October 2016, Department of Parks and Wildlife, Perth, Western Australia.
- Keighery, B. J. (1994), Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc.). Nedlands, Western Australia.
- Rathbone (2017), Flora & Fauna Assessment Albany Highway, South of Kojonup Townsite 254.9-266 SLK, prepared for Main Roads Western Australia
- Threatened Species Scientific Committee (TSSC 2015), Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Approved Conservation Advice (including listing advice) for the Eucalypt Woodlands of the Western Australian Wheatbelt, <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/128-conservation-advice.pdf>

12 APPENDICES

Appendix	Title
Appendix A	Biological Assessment
Appendix B	Vegetation Management Plan
Appendix C	Stakeholder letters

Appendix A: Biological Assessment

Refer to the biological assessment:

Rathbone, D. (2017). *Flora & Fauna Assessment Albany Highway, South of Kojonup Townsite 254.9 – 266 SLK*. Unpublished report for Main Roads Western Australia.

Appendix B: Vegetation Management Plan

ROAD WIDENING KOJONUP SOUTH SLK 254.9 TO SLK 266

Introduction

This Vegetation Management Plan (VMP) has been prepared by Main Roads for the purpose of managing native vegetation clearing impacts associated with the project. In specified circumstances, Main Roads VMP is required to be approved by DWER as a condition of Main Roads Statewide Clearing Permit CPS 818.

Scope of the Vegetation Management Plan

The VMP highlights the key project management issues and provides actions required to be undertaken by Main Roads before, during and following project completion. The aim of the VMP is to provide actions to manage the clearing impacts, to allocate areas of responsibility required for the implementation of management actions identified and to provide mechanisms to report on compliance with those actions. Timeframes for the completion of actions and monitoring are also provided.

When preparing the VMP an emphasis has been placed on management actions regarding the native vegetation clearing impacts, being determined by the variance level to the clearing principles ('Seriously at Variance', 'At Variance' and 'May be at Variance').

The VMP actions will be incorporated into the project specific Environmental Management Plan (EMP). Construction contractors are also required to comply with Main Roads' standard environmental management contract specifications (required for Type C and D projects).

Vegetation clearing activities are required to be undertaken in accordance with the environmental management measures detailed in Main Roads Specifications 204 (Environment), 301 (Clearing) and 302 (Earthworks), 304 (Revegetation and Landscaping). All revegetation activities should be completed in accordance with Main Roads *Environmental Guideline Revegetation Planning and Techniques*. Topsoil will also be managed according to Main Roads *Topsoil Management Guideline*.

Scope of the Project Activities

Works will consist of vegetation clearing either side of the current carriageway to allow for shoulder widening and sealing works. Culvert extensions will be undertaken as required.

Communication

Native vegetation clearing and vegetation management will be communicated at induction, toolbox and/or contract meetings. Information located in the VMP will be communicated to all project and construction personnel, (including sub-contractors) prior to the commencement of project activities and during all phases of project implementation. Where necessary, Main Roads will liaise with the DWER to obtain further advice regarding vegetation management

VMP Accountability

Method	Frequency	Participants	Record
Induction	Prior to construction	Project Personnel	Induction records
JSEA	Prior to construction	Project Personnel	JSEA paperwork
Toolbox Meetings	Weekly	Project Personnel	Minutes of Meeting
Prestart Meetings	As required	Project Personnel	Minutes of Meeting

Method	Frequency	Participants	Record
Department of Environment Regulation	As required	Main Roads' Project Manager and Contractor Project Manager	Minutes of meeting

External Communication and Complaints

A complaints register shall be maintained. All complaints received shall be forwarded to the Main Roads' Project Manager for action. Serious complaints shall be investigated within 24 hours of the complaint being received.

Contingency Measures

Should any significant non-conformance issues arise, the appropriate Department will be notified and contingency measures discussed.

Auditing

Auditing will be undertaken for this project, and will include one (or several) of the following:

- Project Manager auditing compliance with this VMP based on the Compliance Checklist, which will be provided by the Environment Officer once all approvals are received and shall be based on this VMP, plus any additional measures required by the regulator/s.
- The project will also be audited by the Environment Officer at designated intervals as required in the EMP e.g. checking of the clearing line prior to clearing.
- Main Roads may choose to have the project audited by an external third party to ensure that any Contractor VMPs are compliant with approvals and permit conditions (desktop audit), or to ensure that construction activities are in compliance with approvals and permit conditions (on-ground audit).

VEGETATION MANAGEMENT PLAN				
Project Component	Management Action	Record Keeping/ Monitoring	Responsible Person	Completion Timeframe
<i>Standard Record Keeping Management</i>				
Record Keeping and Inductions	<ul style="list-style-type: none"> Ensure standard record keeping requirements are completed within 1 month of completion of the project activities. 	Post-construction record maintenance.	Site Supervisor	Within 1 month of completion of the project activities.
	<ul style="list-style-type: none"> Copies of the Vegetation Management Plan to be held on site and all actions implemented and recorded. Maintain the following records for the areas cleared: <ul style="list-style-type: none"> A map and GPS coordinates clearing area The size of the area cleared in hectares The dates in which clearing was undertaken. <p>Maintain the following records for the project area:</p> <ul style="list-style-type: none"> the location of the area to which the VMP has had action applied; an ESRI shapefile showing the locations of the areas of clearing for project activities; a description of the management actions implemented; and the size of the area to which the management actions were applied (in hectares). <p>Maintain the following records for the project area:</p> <ul style="list-style-type: none"> For any pathogen other than dieback, the appropriate steps taken to minimise the risk of the pathogen. For any weed, the appropriate steps taken to minimise the risk of the weed spread causing environmental harm. 	EOS records	Project Manager Environment Officer	During and post construction
	<ul style="list-style-type: none"> All construction crew will be inducted into the EMP. Weekly toolbox will raise areas of concern. At prestart the requirements of the EMP will be reviewed with contractors. Any tasks required by construction crew in relation to Black Cockatoos will be included in the JSA. 	Induction notes and Toolbox meeting minutes and attendance records.	Site Supervisor	Prior to works
<i>Project Specific Aspects</i>				

VEGETATION MANAGEMENT PLAN				
Project Component	Management Action	Record Keeping/ Monitoring	Responsible Person	Completion Timeframe
Vegetation	<ul style="list-style-type: none"> The approved clearing boundary will be pegged to prevent impacts to adjacent vegetation outside the limitations of clearing. The clearing area will be checked by the Environment Officer or delegate prior to commencement of clearing. 	One surveillance monitoring will occur prior to clearing.	Site Supervisor Environment Officer or delegate	Prior to clearing commencing
	<ul style="list-style-type: none"> Topsoil will be stockpiled and respread after works. 	One surveillance monitoring will occur within two weeks once clearing has been completed.	Site Supervisor Environment Officer or delegate	Within two weeks once clearing has been completed
	<ul style="list-style-type: none"> Mulched vegetation will be spread over and behind the backslopes to retain seed bank. 	One surveillance monitoring will occur within two weeks once clearing has been completed.	Site Supervisor Environment Officer	Within two weeks once clearing has been completed
	<ul style="list-style-type: none"> Burning of cleared vegetative materials or burning within the road reserve shall not be permitted under any circumstances 	One surveillance monitoring will occur within two weeks once clearing has been completed.	Site Supervisor	Within two weeks once clearing has been completed
	<ul style="list-style-type: none"> Clearing activities must be completed in accordance with Main Roads Specifications: 204 (Environment), 301 (Clearing), 302 (Earthworks). 		Site Supervisor	
Avoid and manage impacts to fauna.	<ul style="list-style-type: none"> Fauna are not to be fed or intentionally harmed or killed. 	Any fauna injured or killed on site will be recorded as an incident.	Site Supervisor Environment Officer	Project lifespan/ ongoing
	<ul style="list-style-type: none"> In the event that sick, injured or orphaned native wildlife are found on the project site, the WILDCARE Helpline (08) 9474 9055) will be contacted for assistance. 	Any sick, injured or orphaned native wildlife found on site will be recorded as an incident.	Site Supervisor	Project lifespan/ ongoing
	<ul style="list-style-type: none"> Restrict movement of machines and other vehicles to the limits of the areas cleared. 	Any sick, injured or orphaned native wildlife found on site will be recorded as an incident.	Site Supervisor	Project lifespan/ ongoing
	<ul style="list-style-type: none"> A 'soft start' will be implemented prior to clearing to allow animals in the area to move away before clearing activities commence. 	Any sick, injured or orphaned native wildlife found on site will be	Site Supervisor Environment Officer	Prior to clearing

VEGETATION MANAGEMENT PLAN				
Project Component	Management Action	Record Keeping/ Monitoring	Responsible Person	Completion Timeframe
		recorded as an incident.		
Avoid and manage impacts to fauna - Black Cockatoos	<ul style="list-style-type: none"> Trees with hollows large enough for current use will be cleared outside the breeding season if possible. If not possible, trees with hollows large enough for current use will be inspected by a qualified ecologist for Black Cockatoo nesting. If nesting is identified, the tree will remain until the chick has fledged. Main Roads will install ten 'cockatubes' in a suitable location within 10km of the project, upon the advice of a relevant Department of Biodiversity, Conservation and Attractions expert. The tubes will be installed within 6 months of project commencement to ensure no break in the availability of hollows for the subsequent breeding season. Tubes installed will be 375mm internal diameter, suitable for Red-tailed, Baudin's and Carnaby's Black Cockatoos. 	Environmental Compliance Document & records	Site Supervisor Environment Officer Contractor	Project lifespan/ ongoing As required
Dieback and weed management.	<ul style="list-style-type: none"> All equipment and machinery to arrive clean on site. No vehicles are to go outside the approved clearing area for the project, so as to prevent the spread of dieback. Weeds control will be incorporated into the yearly weed spray program. Bridal Creeper will be specifically targeted prior to clearing to eradicate this weed and prevent its spread as a result of the project. Bridal creeper occurs between SLK 254.9 and 256 on both sides of the road. Creeper removal will commence in early 2018 and will be conducted over several phases by a qualified weed sprayer to ensure no propagules are allowed to spread. 	Vehicle cleaning records Yearly weed spray program	Contractor Roadside Management Officer	Prior to mobilisation Yearly

