



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 6514/1
Permit Holder:	Shire of Moora
Duration of Permit:	18 June 2016 - 18 June 2021

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

Airstrip Road reserves (PINS 11466452, 11466458, 11466457, 11433250, 11466451, 11433249, 11466459), Moora

3. Area of Clearing

The Permit Holder must not clear more than 1.54 hectares of native vegetation within the area hatched yellow on attached Plan 6514/1.

4. Application

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

5. Type of clearing authorised

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

PART II – MANAGEMENT CONDITIONS

6. Weed control

When undertaking any clearing or other activity 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 *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.

7. Conservation covenant

Prior to undertaking any clearing authorised under this Permit, the Permit Holder shall:

- (a) give a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* setting aside the *covenant area* for the protection and management of vegetation in perpetuity; and
- (b) provide to the CEO a copy of the executed conservation covenant.

PART III - RECORD KEEPING AND REPORTING

8. Records must be kept

In relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared; and
- (c) the size of the area cleared (in hectares).

9. Reporting

- (a) The Permit Holder must provide to the CEO on or before 18 March 2021 of each year, a written report:
 - (i) of records required under condition 8 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 July to 30 June of the preceding financial year.
- (b) If no clearing authorised under this Permit was undertaken between 1 July to 30 June of the preceding financial year, 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 18 March 2021, the Permit Holder must provide to the CEO a written report of records required under condition 8 of this Permit where these records have not already been provided under condition 9(a) of this Permit.

DEFINITIONS

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

Covenant area means the area of land cross-hatched red on attached Plan 6514/1.

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

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

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



James Widenbar
A/SENIOR MANAGER
CLEARING REGULATION

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

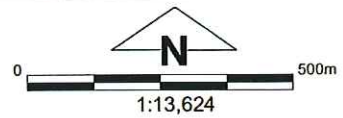
19 May 2016

Plan 6514/1



Legend

-  Imagery
-  Clearing Instruments Activities
-  Clearing Instruments Conditions



(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

James Widenbar Date *19/5/2016*
 James Widenbar



1. Application details

1.1. Permit application details

Permit application No.: 6514/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Moora

1.3. Property details

Property: ROAD RESERVE - 11466452, MOORA
ROAD RESERVE - 11466458, MOORA
ROAD RESERVE - 11466457, MOORA
ROAD RESERVE - 11433250, MOORA
ROAD RESERVE - 11466451, MOORA
Colloquial name: Airstrip Road reserve
Local Government Authority: MOORA, SHIRE OF
DER Region: Midwest
DPaW District: MOORA
LCDC: DANDARAGAN and WATHEROO-COOMBERDALE
Localities: MOORA

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.54		Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 19 May 2016
Reasons for Decision: The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the *Environmental Protection Act 1986*, and it has been concluded that the proposed clearing is at variance to clearing principle (a), (b), (e) and (f) and is not likely to be at variance to the remaining clearing principles.

Through assessment it has been determined that the clearing will lead to the loss 1.54 hectares of Carnaby's cockatoo foraging habitat in degraded to very good condition and growing in a highly cleared landscape.

To mitigate the significant environment impacts identified above, and in accordance with the WA Environmental Offset Policy and Environmental Offsets Guidelines, prior to undertaking any clearing, the Permit Holder is required to place 13.2 hectares of Carnaby's cockatoo habitat within Lot 1 on Diagram 40459 and of Lot 220 on Deposited Plan 301398 under a conservation covenant to be protected in perpetuity.

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Mapped Beard vegetation association 142 (15 per cent of the application area) is described as medium woodland; York gum & salmon gum (Shepherd et al. 2001).	The proposed clearing of 1.54 hectares within Airstrip Road reserve is for the purpose of upgrading the road.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994) To Very Good;	The condition of the vegetation was established through a site visit conducted by Department of Environment Regulation officers on 10 June 2015 (DER 2015). The application area is diverse and consists of three vegetation communities. The majority of the area is considered to be consistent with Beard vegetation association 952, Dryandra heath, and consists of <i>Allocasuarina campestris</i> and <i>Allocasuarina humilis</i> over numerous <i>Banksia</i> , <i>Acacia</i> , <i>Melaleuca</i> and

Mapped Beard vegetation association 952 (85 per cent of the application area) is described as shrublands; dryandra heath (Shepherd et al. 2001).

Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

other heath species and numerous sedges and herbs in a good to very good (Keighery 1994) condition. Two Mallee trees were observed in this community (DER 2015).

A small area consists of *Banksia prionotes* over low shrubs and herbs in a degraded (Keighery 1994) condition (DER 2015).

The southern end of the application area is in a degraded (Keighery 1994) condition and consists of *Casuarina obesa* over *Tecticornia halocnemoides* (samphire) on white sandy soils (DER 2015).

3. Assessment of application against clearing principles

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

Comments **Proposed clearing is at variance to this Principle**

The applicant has amended the application to 1.54 hectares from three hectares and has avoided the eastern side of Airstrip Road which contains better condition vegetation.

Approximately 50 per cent (approximately 0.76 hectares) of the vegetation under application is diverse and occurs in good to very good (Keighery 1994) condition and consists of *Allocasuarina campestris* and *Allocasuarina humilis* over numerous *Banksia*, *Acacia*, *Melaleuca* and other heath species and numerous sedges and herbs (DER 2015). Two other vegetation communities occur within the application which consist of *Banksia prionotes* over low shrubs and herbs in a degraded (Keighery 1994) condition and *Casuarina obesa* over *Tecticornia halocnemoides* (samphire) on white sandy soils occurring in an inundated area in a degraded (Keighery 1994) condition (DER 2015).

The application area is mapped as Beard vegetation associations 142 and 952, both of which have less than 16 per cent of their pre-European vegetation extent remaining within the Swan Coastal Plain Bioregion and are classed as highly cleared vegetation communities. The application area in good to very good (Keighery 1994) condition is representative of Beard vegetation association 952 (*Dryandra* heath).

Fourteen priority (including priority 1 and 2) and rare flora species have been recorded within 10 kilometres of the application area, many of which occur on similar soil and vegetation types as the application area. As 50 per cent of the vegetation under application is in good to very good (Keighery 1994) condition, habitat for rare or priority flora is likely to occur within the application area (Parks and Wildlife 2015). Targeted flora surveys were conducted in August and September 2015 within the application area and did not identify any rare or priority flora (Williams 2015a and 2015b).

The application area occurs within a confirmed breeding area for Carnaby's cockatoo (*Calyptorhynchus latirostris*) listed as Endangered under the Environment Protection and Biodiversity Conservation Act 1999 and as rare or likely to become extinct under the Wildlife Conservation Act 1950 (Parks and Wildlife 2007-). Carnaby's cockatoo forages intensively in suitable vegetation within 12 kilometres of roost and breeding sites. The proposed clearing area is likely to contain 1.2 hectares of suitable foraging habitat for this species as they area known to forage on the seeds, nuts and flowers of a large variety of plants including *Banksia* species (Shah 2006; Valentine and Stock 2008).

The Roadside Conservation Committee (RCC 2014) conducted a roadside survey within the Shire of Moora in 2014 and identified that portions of the application area have high value vegetation that are long enough (minimum two kilometres) to be considered for flora road nomination. A flora road is one which has special conservation value because of the vegetation contained within the road reserve (RCC 2014). The majority of the application area has a high to medium conservation value (80 per cent), with small sections having a low value (RCC 2014). This is a result of the intact structure of the vegetation within the road reserve, the number of native species present, and the low weed infestation. The application area is also mapped as having a high to medium level of value as a biological corridor (RCC 2014).

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

To mitigate the environmental impacts identified above the applicant has proposed to place 13.2 hectares of Carnaby's cockatoo habitat within Lot 1 on Diagram 40459 and of Lot 220 on Deposited Plan 301398 under a conservation covenant to be protected in perpetuity.

Methodology

References

- Parks and Wildlife (2007-)
- Parks and Wildlife (2015a)
- Williams (2015a)
- Williams (2015b)
- DER (2015)
- RCC (2014)
- Shah (2006)

- Valentine and Stock (2008)
- Keighery (1994)
- GIS databases
- SAC Bio Datasets (May 2016)
- Carnaby's cockatoo Breeding Areas
- Carnaby's cockatoo Roosting Areas

(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

Twelve conservation significant fauna species have been recorded within the local area (10 kilometre radius) (Parks and Wildlife, 2007-).

Given the vegetation type and condition identified on site (DER, 2015) the application area provides suitable foraging habitat for one of these species; Carnaby's cockatoo (*Calyptorhynchus latirostris*).

The vegetation under application is diverse and consists of three vegetation communities (DER, 2015). The majority of the area is considered to be consistent with Beard vegetation association 952, Dryandra heath, and consists of *Allocasuarina campestris* and *Allocasuarina humilis* over numerous *Banksia*, *Acacia*, *Melaleuca* and other heath species and numerous sedges and herbs in a good to very good (Keighery 1994) condition (DER, 2015). A small area consists of *Banksia prionotes* over low shrubs and herbs in a degraded (Keighery 1994) condition. This vegetation community is also considered to be suitable foraging habitat for black cockatoo species. Approximately 1.2 hectares of Carnaby's cockatoo foraging habitat occurs within the application area.

Two Mallee trees were observed in this community, however no hollows were sighted within these trees (DER, 2015) and the application area is not likely to provide nesting habitat for Carnaby's cockatoo.

Carnaby's cockatoo nest in large hollows of eucalyptus trees and forage on the seeds, nuts and flowers of a large variety of plants including *Banksia* species (Shah, 2006; Valentine and Stock, 2008). Clearing of feeding habitat on the Swan Coastal Plain poses a significant threat to the long term survival of Carnaby's cockatoos (Shah, 2006).

Carnaby's cockatoo was once abundant in Western Australia. Since the late 1940s the species has suffered a 30 per cent contraction in range, a 50 per cent decline in population, and between 1968 and 1990 disappeared from more than a third of its breeding range. Basic ecological theory, expert opinion and recent evidence, suggests that the remaining native and pine plantation foraging habitat on the Swan Coastal Plain is just sufficient to support the current population of Carnaby's cockatoo. Therefore any reduction in the amount of food source will result in a reduction in the carrying capacity of the region and therefore a decline in the population of Carnaby's cockatoo (Saunders, 1990; Johnstone and Storr, 1998; Saunders and Ingram, 1998; Garnett et al. 2011). The application area is on the border of the Swan Coastal Plain and the Avon Wheatbelt Bioregions and is within the northern range of the species where habitat loss and range contraction are the most marked (Saunders 1990; Johnstone and Storr 1998).

The Carnaby's cockatoo recovery plan (Parks and Wildlife, 2013) summarises habitat critical to the survival of Carnaby's cockatoos as:

- The eucalypt woodlands that provides nest hollows used for breeding, together with nearby vegetation that provides feeding, roosting and watering habitat that supports successful breeding;
- Woodland sites known to have supported breeding in the past and which could be used in the future, provided adequate nearby food and/or water resources are available or are re-established; and
- In the non-breeding season the vegetation that provides food resources as well as the sites for nearby watering and night roosting that enable the cockatoos to effectively utilise the available food resources.

The recovery plan also states, "Success in breeding is dependent on the quality and proximity of feeding habitat within 12 kilometres of nesting sites. Along with the trees that provide nest hollows, the protection, management and increase of this feeding habitat that supports the breeding of Carnaby's cockatoo is a critical requirement for the conservation of the species" (Parks and Wildlife, 2013). The application area occurs within a confirmed breeding area for Carnaby's cockatoo.

Given the above, the good to very good condition vegetation under application is considered significant foraging habitat for Carnaby's cockatoo.

The local area surrounding the application and the Shire of Moora retain approximately 15 per cent native vegetation. This is less than the recommended threshold level (30 per cent), below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). The application area is surrounded by bare paddocks within an extensively cleared landscape. The Roadside Conservation Committee has noted that roadside vegetation is an "extremely important component of vegetation in this landscape" and "provides connectivity with remaining vegetation remnants" (RCC 2014). Within a highly cleared landscape, vegetation along road reserves is likely to act as a biological corridor for fauna movement. Although the proposed clearing will not remove all of the vegetation along the road reserve, given the local area has been extensively cleared, the remaining vegetation represents significant habitat for indigenous fauna.

The majority of the application area has a high to medium conservation value (80 per cent), with small sections

having a low value (RCC 2014). This is a result of the intact structure of the vegetation within the road reserve, the number of native species present, and the low weed infestation. The vegetation is mapped as having a high to medium level of value as a biological corridor (RCC 2014).

Given the above, the application area contains significant habitat for both the conservation significant Carnaby's cockatoo and for local fauna and the proposed clearing is at variance to this Principle.

The applicant has amended the application to 1.54 hectares from three hectares and has avoided the eastern side of Airstrip Road which contains Carnaby's cockatoo foraging habitat in better condition.

To mitigate the environmental impacts identified above the applicant has proposed to place 13.2 hectares of Carnaby's cockatoo habitat within Lot 1 on Diagram 40459 and of Lot 220 on Deposited Plan 301398 under a conservation covenant to be protected in perpetuity.

Methodology

References

- Parks and Wildlife (2013)
 - Parks and Wildlife (2007-)
 - DER (2015)
 - RCC (2014)
 - Commonwealth of Australia (2001)
 - Saunders (1990)
 - Johnstone and Storr (1998)
 - Saunders and Ingram (1998)
 - Garnett et al. (2011)
 - Shah (2006)
 - Valentine and Stock (2008)
 - Keighery (1994)
- GIS Databases
- Carnaby's cockatoo Breeding Areas
 - Carnaby's cockatoo Roosting Areas

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

Comments

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

Five species of rare flora have been recorded within 10 kilometres of the application area with the closest mapped approximately 2.6 kilometres east of the application.

Approximately 50 per cent of the vegetation under application is diverse and occurs in good to very good (Keighery 1994) condition and consists of *Allocasuarina campestris* and *Allocasuarina humilis* over numerous *Banksia*, *Acacia*, *Melaleuca* and other heath species and numerous sedges and herbs (DER 2015). Two other vegetation communities occur within the application area which consist of *Banksia prionotes* over low shrubs and herbs in a degraded (Keighery 1994) condition and *Casuarina obesa* over *Tecticornia halocnemoides* (sapphire) on white sandy soils in an inundated area in a degraded (Keighery 1994) condition (DER 2015).

One species of rare flora is known to occur in clay, sandy clay or loam on winter wet plains and inundated areas. As the southern end of the application area occurs within an inundated area, it may contain suitable habitat for this species (Parks and Wildlife 2015). Targeted flora surveys of this area, undertaken in August and September 2015, did not identify rare flora (Williams 2015a and 2015b).

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

Methodology

References

- Parks and Wildlife (2015)
 - DER (2015)
 - Williams (2015a)
 - Williams (2015b)
 - Keighery (1994)
- GIS databases
- SAC Bio Datasets (May 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 not likely to be at variance to this Principle

There is one threatened ecological community (TEC) mapped within 10 kilometres of the application area. This community is known as 'Coombardale chert hills vegetation associations occurring on ridges and slopes of the chert hills of the Coombardale Floristic Region'. This TEC has been mapped approximately 4.5 kilometres from the area under application.

Given the distance to the TEC and that the proposed clearing does not occur on the ridges or slopes of the chert hills, it is unlikely that the application area comprises the whole or a part of, or be necessary for the

maintenance of this TEC.

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

Methodology GIS databases
-SAC Bio Datasets (May 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

The vegetation under application is mapped as Beard vegetation associations 142 and 952 which have 12 per cent and 11 per cent of their pre-European vegetation extent remaining within the Swan Coastal Plains bioregion, respectively (Government of Western Australia, 2014).

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents the clearance of ecological communities with an extent below 30 per cent of that present pre-European settlement, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). All of the mapped vegetation associations within the application area retain less than 30 per cent of their pre-European vegetation extent and are considered highly cleared vegetation communities. The majority of the vegetation under application occurs in a good to very good (Keighery 1994) condition and is considered to be representative of Beard vegetation association 952.

Aerial imagery indicates that the local area (10 kilometre radius) is approximately 15 per cent vegetated. The Shire of Moora retains approximately 15 per cent of its pre-European vegetation extent (Government of Western Australia 2014). Therefore, the application area is considered to occur within a highly cleared landscape.

The Roadside Conservation Committee has noted that roadside vegetation is an "extremely important component of vegetation in this landscape" and "provides connectivity with remaining vegetation remnants" (RCC 2014). Within a highly cleared landscape, vegetation along road reserves is likely to act as a biological corridor for fauna movement. Although the proposed clearing will not remove all the vegetation along the road reserve, given the local area has been extensively cleared, all remaining vegetation is likely to be necessary for the maintenance of significant habitat for indigenous fauna.

The application area is considered a significant remnant in an extensively cleared landscape as it represents a highly cleared vegetation community, contains significant foraging habitat for Carnaby's cockatoo and high biodiversity.

The proposed clearing is at variance to this Principle.

To mitigate the environmental impacts identified above the applicant has proposed to place 13.2 hectares of native vegetation in good (Keighery 1994) condition in a highly cleared landscape within Lot 1 on Diagram 40459 and of Lot 220 on Deposited Plan 301398, under a conservation covenant to be protected in perpetuity.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,222	586,977	39	37
Shire*				
Shire of Moora	375,697	59,295	15	24
Beard vegetation association in Bioregion*				
142	191	24	12	0
952	38,849	4292	11	0

Methodology References
-Commonwealth of Australia (2001)
-Keighery (1994)
-RCC (2014)
-Government of Western Australia (2014)
GIS Databases:
- NLWRA, Current extent of Native Vegetation
- Pre-European Vegetation

(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

The closest wetland or watercourse to the application area is an un-named lake located approximately 480 metres from the northern section of the application area. Moore River is approximately 800 metres from the application area. The southern end of the application area falls within an area prone to inundation.

A site inspection of the application area identified *Casuarina obesa* over *Tecticornia halocnemoides* (samphire) on white sandy soils in a degraded (Keighery 1994) condition in the southern end of the application area (DER 2015). This vegetation community is considered to be wetland dependent vegetation.

The proposed clearing is at variance to this Principle, however given the relatively small amount of clearing proposed in this area, the impact to this inundated area is considered to be minimal.

Methodology

References

- DER (2015)
- Keighery (1994)
- GIS databases
- Hydrography, linear

(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

The chief soils within the application area are sandy acidic yellow mottled soils, containing much ironstone gravel in the A horizons, both forming a complex pattern with each other and with lateritic sandy gravels (Northcote et al 1960 - 1968). These soils are susceptible to water erosion.

Groundwater salinity within the application areas is mapped as 3000 – 7000 and 7000- 14000 total dissolved solids, milligrams per litre.

As the proposed clearing is relatively small (1.54 hectares) and is spread along a linear area, the clearing is unlikely to cause appreciable land degradation in the form of water erosion or primary or secondary salinity.

The southern extent of the application falls within an area prone to inundation. Given the small amount of clearing proposed in this area, it is unlikely that the proposed clearing will cause waterlogging or eutrophication. Appropriate management measures conducted during construction will minimise impacts.

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

Methodology

References

- Northcote et al. (1960-68)
- GIS databases
- Hydrography, linear
- Groundwater Salinity
- Soils, statewide

(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 likely to be at variance to this Principle

There are three nature reserves mapped within 10 kilometres of the application area with the closest being approximately four kilometres away.

Given the distance to the nearest conservation area, it is not considered likely that the proposed clearing will impact on the environmental values of any conservation area.

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

Methodology

GIS databases

- Parks and Wildlife managed lands

(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 closest wetland or watercourse to the application area is an un-named lake located approximately 480 metres from the northern part of the proposed clearing. Moore River is approximately 800 metres from the proposed clearing. The southern end of the application area falls within an area prone to inundation.

Given the relatively small amount of clearing proposed, it is unlikely that it will cause deterioration in the quality of surface water.

The groundwater salinity within the application area is high and is mapped as 3000 - 7000 and 7000 – 14000 of Total Dissolved Solids, milligrams per litre. As the proposed clearing is relatively small (1.54 hectares) and is spread along a linear area, the proposed clearing is unlikely to measurably increase groundwater salinity.

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

Methodology GIS databases
-Hydrography, linear
-Groundwater Salinity

(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 likely to be at variance to this Principle**
The closest wetland or watercourse to the application area is an un-named lake located approximately 480 metres from the northern part of the proposed clearing. Moore River is approximately 800 metres from the proposed clearing. The southern end of the application area falls within an area prone to inundation.

Given the relatively small amount of clearing proposed in this area, it is unlikely that the proposed clearing will cause or exacerbate flooding. The proposed clearing is not likely to be at variance to this Principle.

Methodology GIS databases
-Hydrography, linear

Planning instruments and other relevant matters.

Comments The proposed clearing of 1.54 hectares within the western side of Airstrip Road reserve is for the purpose of upgrading the road. The proponent has advised that the upgrade is necessary due to high traffic levels during the fire season with the airstrip at the southern end of the application area being used for water bombing refilling. In addition, the road becomes dangerous during inclement weather and during the harvest period when heavy haulage and grain carriers use the road (Shire of Moora 2015).

A letter was sent to the applicant on 7 July 2015 requesting the applicant to address the environmental issues identified during the assessment of the application. A response was received on 9 September 2015. The applicant has amended the application to 1.54 hectares from three hectares and has avoided the eastern side of Airstrip Road which contains vegetation in better condition. On the 11 May 2016 an agreement to place 13.2 hectares of Carnaby's cockatoo habitat within Lot 1 on Diagram 40459 and of Lot 220 on Deposited Plan 301398 under a conservation covenant, was received from the applicant.

To mitigate the significant environment impacts identified above, and in accordance with the WA Environmental Offset Policy and Environmental Offsets Guidelines, prior to undertaking any clearing, the Permit Holder is required to place 13.2 hectares of Carnaby's cockatoo habitat within Lot 1 on Diagram 40459 and of Lot 220 on Deposited Plan 301398 under a conservation covenant to be protected in perpetuity.

The applicant has advised that Airstrip Road is to be upgraded to a seven metre wide sealed pavement with 1.5 metre wide gravel shoulders (Shire of Moora 2015).

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

No public submissions have been received for the application.

Methodology References
-Shire of Moora (2015)
GIS databases
-Aboriginal sites of significance

4. References

- DER (2015) Site Inspection Report for Clearing Permit Application CPS 6514/1. DER Ref A921323.
Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
DER (2015) Site visit report for CPS 6514/1 – Shire of Moora – Airstrip Road Reserve. Department of Environment Regulation. DER ref A921323
Garnett, S., Szabo, J. and Dutson, G. (2011) The Action Plan for Australian Birds 2010. CSIRO Publishing, Melbourne, Victoria.
Government of Western Australia. (2014). 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2014. WA Department of Environment and Conservation, Perth.
Johnstone, R.E. and Storr, G.M. (1998) Handbook of Western Australian Birds, Volume I, Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth.
Saunders, D.A. (1990). Problems of survival in an extensively cultivated landscape: the case of Carnaby's cockatoo *Calyptorhynchus funereus latirostris*. *Biological Conservation*. 54: 277-290.
Saunders, D.A. and Ingram, J.A. (1998). Twenty-eight years of monitoring a breeding population of Carnaby's cockatoo. *Pacific Conservation Biology*. 4: 261-270.
Shah, B. (2006) Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia. December 2006.

Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.

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