



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 6498/1
Permit Holder:	Shire of Serpentine- Jarrahdale
Duration of Permit:	1 August 2015 – 1 August 2020

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

LOT 9050 ON DEPOSITED PLAN 402315 (BYFORD)
LOT 1153 ON DEPOSITED PLAN 74069 (BYFORD)
LOT 8001 ON DEPOSITED PLAN 73082 (BYFORD)
LOT 8006 ON DEPOSITED PLAN 73458 (BYFORD)
LOT 9047 ON DEPOSITED PLAN 401762 (BYFORD)
LOT 9048 ON DEPOSITED PLAN 401762 (BYFORD)
LOT 9051 ON DEPOSITED PLAN 401762 (BYFORD)
LOT 5 ON DIAGRAM 82920 (BYFORD)
LOT 4 ON DIAGRAM 75562 (BYFORD)
LOT 49 ON PLAN 9526 (BYFORD)
LOT 48 ON PLAN 9526 (BYFORD)
LOT 47 ON PLAN 9526 (BYFORD)
LOT 46 ON PLAN 9526 (BYFORD)
LOT 45 ON PLAN 9526 (BYFORD)
LOT 44 ON PLAN 9526 (BYFORD)
LOT 43 ON PLAN 9526 (BYFORD)
LOT 42 ON PLAN 9526 (BYFORD)
LOT 41 ON PLAN 9526 (BYFORD)
LOT 40 ON PLAN 9526 (BYFORD)
LOT 39 ON PLAN 9526 (BYFORD)
LOT 38 ON PLAN 9526 (BYFORD)
LOT 446 ON DEPOSITED PLAN 72802 (BYFORD)
LOT 2 ON DIAGRAM 65664 (BYFORD)
LOT 1 ON DIAGRAM 65664 (BYFORD)
LOT 281 ON DEPOSITED PLAN 72017 (BYFORD)
LOT 282 ON DEPOSITED PLAN 72610 (BYFORD)
LOT 23 ON PLAN 16845 (BYFORD)
LOT 239 ON DIAGRAM 95657 (BYFORD)
LOT 238 ON DIAGRAM 95657 (BYFORD)
LOT 235 ON DIAGRAM 95657 (BYFORD)
LOT 234 ON DIAGRAM 95657 (BYFORD)
LOT 233 ON DIAGRAM 95657 (BYFORD)
LOT 232 ON DIAGRAM 95657 (BYFORD)
LOT 51 ON DIAGRAM 89805 (BYFORD)
LOT 22 ON PLAN 16845 (BYFORD)
LOT 15 ON DIAGRAM 9644 (BYFORD)
LOT 152 ON DIAGRAM 87936 (BYFORD)

LOT 151 ON DIAGRAM 87936 (BYFORD)
LOT 150 ON DIAGRAM 87936 (BYFORD)
LOT 122 ON DIAGRAM 85188 (BYFORD)
LOT 121 ON DIAGRAM 85188 (BYFORD)
LOT 120 ON DIAGRAM 85188 (BYFORD)
LOT 119 ON DIAGRAM 85188 (BYFORD)
LOT 118 ON DIAGRAM 85188 (BYFORD)
LOT 117 ON DIAGRAM 85188 (BYFORD)
LOT 116 ON DIAGRAM 85188 (BYFORD)
ABERNETHY ROAD RESERVE (PINS 1129726, 1148253, 11756241, 11803712, 11959984,
11963003, 11966276, 11994258) (BYFORD)
BRADLEY CLOSE ROAD RESERVE (PIN 1244875) (BYFORD)
DOLEY ROAD RESERVE (PINS 11549977, 11994158) (BYFORD)
GALILEE CLOSE ROAD RESERVE (PIN 12001376) (BYFORD)
GORDIN WAY ROAD RESERVE (PIN 11969672) (BYFORD)
KARDAN BOULEVARD (PIN 11902439) (BYFORD)
MALARKEY ROAD RESERVE (PIN 11757380) (BYFORD)
RENAUD WAY ROAD RESERVE (PIN 1137669) (BYFORD)
SAINTLY TURN ROAD RESERVE (PIN 12007259) (BYFORD)
SOLDIERS ROAD RESERVE (PIN 11427042) (BYFORD)
THATCHER ROAD RESERVE (PINS 11756242, 1244874) (BYFORD)
TOURMALINE BOULEVARD ROAD RESERVE (PIN 11967932) (BYFORD)
WARRINGTON ROAD RESERVE (PIN 11427041) (BYFORD)
BRIGGS ROAD RESEVE (PIN 11756437) (BYFORD)

3. Area of Clearing

The Permit Holder must not clear more than 1.7 hectares of native vegetation within the area hatched yellow on attached Plan 6498/1.

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. Offsets – management order

The Permit Holder shall:

- (a) Prior to undertaking any clearing authorised under this Permit, provide evidence from the Department of Lands that the management order over Lot 151 on Plan 1367, Byford (Reserve 37332), will be amended for the dual purpose of Public Recreation and Conservation; and
- (b) Provide to the CEO a copy of the amended management order no later than 31 January 2016.



M Warnock
SENIOR MANAGER
CLEARING REGULATION

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

2 July 2015

CPS 6498/1, 2 July 2015

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Plan 6498/1



Legend

-  Localities
-  Imagery
-  Clearing Instruments Activities
-  Clearing Instruments Conditions



1:19,374

(Approximate when reproduced at A4)
GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

M Warnock Date *2/7/15*
M Warnock

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

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend



GOVERNMENT OF
WESTERN AUSTRALIA
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1. Application details

1.1. Permit application details

Permit application No.: 6498/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Shire of Serpentine Jarrahdale

1.3. Property details

Property:

LOT 9050 ON DEPOSITED PLAN 402315 (BYFORD)
LOT 1153 ON DEPOSITED PLAN 74069 (BYFORD)
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Colloquial name:
Local Government Authority:
DER Region:
DPaW District:
LCDC:
Localities:

SERPENTINE-JARRAHDAL, SHIRE OF
 Greater Swan
 SWAN COASTAL
 SERPENTINE - JARRAHDAL
 BYFORD

1.4. Application

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

1.5. Decision on application

Decision on Permit Application:	Grant
Decision Date:	2 July 2015

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
<p>The vegetation under application is mapped as: Beard Vegetation Association's (Shepherd et al. 2001): 3: Medium forest; jarrah-marri. 968: Medium woodland; jarrah, marri and wandoo.</p> <p>Hedde Vegetation Complex (Hedde et al. 1980): Guildford Complex mixture of open forest to tall open forest of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus wandoo</i> (Wandoo) - <i>Eucalyptus marginata</i> (Jarrah) and woodland of <i>Eucalyptus wandoo</i> (Wandoo) (with rare occurrences of <i>Eucalyptus lane-poolei</i> (Salmon White Gum)). Minor components include <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca raphiophylla</i> (Swamp Paperbark).</p> <p>Beermullah Complex Mixture of low open forest of <i>Casuarina obesa</i> (Swamp Sheoak) and open woodland of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus wandoo</i> (Wandoo) - <i>Eucalyptus marginata</i> (Jarrah). Minor components include closed scrub of <i>Melaleuca</i> species and occurrence of <i>Actinostrobus pyramidalis</i> (Swamp Cypress).</p> <p>Mattiske Vegetation Complex Fo: Mosaic of open forest of <i>Corymbia calophylla</i>-<i>Eucalyptus wandoo</i>-<i>Eucalyptus marginata</i> subsp. <i>elegantella</i> and open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>-<i>Corymbia calophylla</i>-<i>Allocasuarina fraseriana</i>-<i>Banksia</i> spp. on the erosional spurs off the Darling Scarp to woodland of <i>Eucalyptus rudis</i> on the dissecting gullies in humid to semiarid zones (Mattiske and Havel 1998).</p>	<p>The proposed clearing of 1.7 hectares on various lots along Abernethy Road, Byford is for the purpose of road widening.</p>	<p>Completely Degraded; No longer intact, completely/almost completely without native species (Keighery, 1994).</p>	<p>The vegetation condition was determined from a flora and vegetation survey of the application area conducted in October 2014 (360 Environmental 2014).</p> <p>The vegetation under application consists of 0.01 hectares of mature isolated <i>Melaleuca preissiana</i>, 0.33 hectares of open woodland of <i>Corymbia calophylla</i> over low open shrubland of <i>Xanthorrhoea preisii</i> and <i>Hibbertia hypericoides</i>, 0.99 hectares of isolated mature trees of <i>Corymbia calophylla</i>, 0.01 of isolated <i>Acacia saligna</i>, 0.08 hectares of mature isolated <i>Eucalyptus rudis</i>, 0.06 hectares of isolated mature <i>Corymbia calophylla</i> with <i>Kingia australis</i>, 0.16 hectares of open woodland of <i>Corymbia calophylla</i> over low shrubland of <i>Banksia armata</i>, <i>Kingia australis</i> and <i>Hibbertia hypericoides</i> and 0.03 hectares of woodland of <i>Corymbia calophylla</i> over introduced <i>Watsonia meriana</i> var. <i>bulbilifera</i> (360 Environmental 2014)</p>

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

The proposed clearing of 1.7 hectares on various lots along Abernethy Road, Byford is for the purpose of road widening. The vegetation under application consists of 0.01 hectares of mature isolated *Melaleuca preissiana*, 0.33 hectares of open woodland of *Corymbia calophylla* (Marri) over low open shrubland of *Xanthorrhoea preisii* and *Hibbertia hypericoides*, 0.99 hectares of isolated mature Marri trees, 0.01 hectares of isolated *Acacia saligna*, 0.08 hectares of mature isolated *Eucalyptus rudis*, 0.06 hectares of isolated mature Marri with *Kingia australis*, 0.16 hectares of open woodland of Marri over low shrubland of *Banksia armata*, *Kingia australis* and *Hibbertia hypericoides* and 0.03 hectares of woodland of Marri over introduced *Watsonia meriana* var. *bulbilifera* and occurs in a completely degraded (Keighery 1994) condition (360 Environmental 2014).

A flora and vegetation survey of the application area and surrounds, undertaken in October 2014, recorded 58 taxa including 20 introduced species (360 Environmental 2014). Eight priority flora species and 11 rare flora species have been recorded within a ten kilometre radius of the application area, however no priority or rare flora species were recorded within the application area during the flora survey (360 Environmental 2014; 2015). As the application area is in a completely degraded (Keighery 1994) condition, lacking a diverse understorey, it is not considered likely that the application area contains priority or rare flora habitat.

No threatened or priority ecological communities (TECs/PECs) occur within the application area given the completely degraded (Keighery 1994) condition of the vegetation under application.

A black cockatoo habitat assessment of the application area identified 52 potential breeding trees (trees with a diameter greater than 500 millimetres at breast height) as well as extensive evidence of foraging such as chewed Marri nuts by threatened black cockatoo species (360 Environmental 2014; 2015). No hollows were observed within the application area (360 Environmental 2014; 2015).

The vegetation under application occurs within the extensively cleared eastern side of the Swan Coastal Plain adjacent to the more vegetated Jarrah Forest Bioregion. The remaining vegetation in this area is considered significant fauna habitat for local and conservation significant avian species such as the three threatened black cockatoo species.

However, given the vegetation under application is completely degraded and does not contain rare or priority flora or TECs/PECs, it is not considered to contain high biodiversity. The proposed clearing is not likely to be at variance to this Principle.

Methodology

References

360 Environmental (2014)
360 Environmental (2015)
Keighery, B.J. (1994)
GIS Databases
SAC Bio Datasets (28/04/2015)

(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

Proposal is at variance to this Principle

A total of 55 conservation significant fauna species have been recorded within a 10 kilometre radius of the application area. A large number of these records are from the Jarrah Forest Bioregion to the east of the application area. Of these 55, three species are considered likely to occur within the application area. These include the forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) listed vulnerable under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and as rare or likely to become extinct under the Wildlife Conservation Act 1950 (WC Act), the Baudin's cockatoo (*Calyptorhynchus baudinii*), listed vulnerable under the EPBC Act and as rare or likely to become extinct under the WC Act and Carnaby's cockatoo (*Calyptorhynchus latirostris*) listed as endangered under the EPBC Act and as rare or likely to become extinct under the WC Act (Parks and Wildlife 2007-).

A level 1 fauna habitat assessment was conducted over the application area and one habitat type was identified being *Eucalyptus* remnants (360 Environmental 2014). Up to 10 common bird species were recorded during the survey all of which are common on the Swan Coastal Plain (360 Environmental 2014). One conservation significant species, the forest red-tailed black cockatoo, was recorded flying over the application area (360 Environmental 2014).

Ten confirmed roosting sites for the Carnaby's Cockatoo occur within a 10 kilometre radius of the application area. The Carnaby's cockatoo is known to forage intensively in suitable vegetation within 12 kilometres of a roost site. In addition, the application area occurs within the unconfirmed breeding range for Carnaby's cockatoos.

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 conservation significant forest red-tailed black cockatoo is known to feed predominately on Jarrah and Marri seeds and has been recorded within Jarrah and Marri woodland vegetation (Johnstone and Kirkby 1999). The Baudin's cockatoo (*Calyptorhynchus baudinii*), predominately feeds on Marri but is also known to feed on proteaceous trees and shrubs, especially banksias (Johnstone and Storr 1998). Carnaby's cockatoo nests in large hollows of eucalyptus trees and forages on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea*, *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, Marri and a range of introduced species (Shah 2006; Valentine and Stock 2008).

A black cockatoo habitat assessment of the application area identified 52 potential breeding trees (trees with a diameter greater than 500 millimetres at breast height) as well as extensive evidence of foraging such as chewed Marri nuts by threatened black cockatoo species (360 Environmental 2014, 2015). No hollows were observed within the application area (360 Environmental 2014; 2015).

The application area is mapped on the edge of a mapped ecological linkage, however given the completely degraded (Keighery 1994) condition of the vegetation and as the functionality of the linkage will not be impacted, it is not likely to impact on ground dwelling fauna or the movement of fauna through the landscape.

The vegetation under application occurs within the extensively cleared eastern side of the Swan Coastal Plain adjacent to the more vegetated Jarrah Forest Bioregion. Therefore, whilst the vegetation under application is in a completely degraded (Keighery 1994) condition, it provides significant habitat for indigenous bird species and significant feeding habitat for threatened black cockatoo species. The proposed clearing is at variance to this principle.

To offset the residual environmental impacts identified the applicant has proposed to conserve in perpetuity 5.6 hectares of black cockatoo foraging and potential breeding habitat within Lot 151 on Plan 13067 Byford (Reserve 37332) located one kilometre from the application area. This protection is to be achieved through placing a management order for the dual purpose of Public Recreation and Conservation.

Methodology

References

360 Environmental (2014)
360 Environmental (2015)
Keighery, B.J. (1994)
Garnett et al. (2011)
Johnstone and Storr (1998)
Johnstone and Kirkby (1999)
Parks and Wildlife (2007-)
Saunders (1990)
Saunders and Ingram (1998)
Shah, B. (2006)
Valentine and Stock (2008)
GIS Databases
SAC Bio Datasets (28/04/2015)
NLWRA, Current Extent of Native Vegetation
Carnaby's cockatoo roosting areas confirmed
Carnaby's cockatoo breeding areas unconfirmed

(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

Eleven rare flora species have been recorded within a ten kilometre radius of the application area. The closest rare flora occurs 160 metres west of the application area within the same Beard vegetation type but a different soil type as the application area.

The majority of the application area consists of Marri woodland in a completely degraded (Keighery 1994) condition (360 Environmental 2014).

A flora and vegetation survey of the application area and surrounds, undertaken in October 2014, recorded 58 taxa including 20 introduced species (360 Environmental 2014; 2015). No rare flora species were recorded within the application area during the flora survey (360 Environmental 2014; 2015).

The flora survey is considered to be adequate in identifying the presence of rare flora within the local area as it was conducted during the flowering season of the rare non-perennial flora species recorded in the local area and would have identified the perennial rare flora species as they are recognizable all year round. Given this

and that the application area is in a completely degraded (Keighery 1994) condition, lacking a diverse understorey, the vegetation is not necessary for the continued existence of rare flora. The proposed clearing is not likely to be at variance to this principle.

Methodology **References**
360 Environmental (2014)
360 Environmental (2015)
Keighery, B.J. (1994)
GIS Database
SAC Bio Datasets 28/04/2015

(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 **Proposal is not at variance to this Principle**

The closest threatened ecological communities to the application area are Swan Coastal Plain (SCP)3c Eucalyptus calophylla - Xanthorrhoea preissii woodlands and shrublands occurring 300 metres south, SCP 20b Banksia attenuata and/or Eucalyptus marginata woodlands of the eastern side of the Swan Coastal Plain occurring 600 metres east, SCP 9 Dense shrublands on clay flats occurring 800 metres south and SCP 8 Herb rich shrublands on claypans occurring 517 metres west of the application area.

The majority of the application area contains Marri over grassy weeds however small patches consisting of Marri with Xanthorrhoea preissii and Kingia australis occur (360 Environmental 2014; 2015). These three species, along with the location of the proposed clearing and soils present within the application area indicate that the application area may have consisted of TEC SCP3a. However, as the subject area is in a completely degraded (Keighery 1994) condition the vegetation under application does not represent a TEC. The proposed clearing is not at variance to this Principle.

Methodology **References**
360 Environmental (2014)
360 Environmental (2015)
Keighery, B.J. (1994)
GIS Databases
Sac Databases 28/04/2015

(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 **Proposal is at variance to this Principle**

The vegetation under application is mapped as Heddl Guildford Complex and Beermullah Complex which have five and seven per cent of their pre-European extent remaining. The mapped Beard vegetation associations 3 and 968 have 18 and seven per cent pre-European vegetation extent remaining, respectively. The application area is also mapped as Matiske vegetation complex Fo which has 12 per cent pre-European extent remaining.

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 (Commonwealth of Australia 2001). The Environmental Protection Authority (2006) recognises the Perth Metropolitan Region as a 'constrained area', providing for the variation of the minimum percentage of vegetation complexes remaining to 10 per cent of the pre-European extent. Three of the five mapped vegetation associations/complexes have less than 10 per cent of their pre-European extent remaining. Given the completely degraded (Keighery 1994) condition of the vegetation under application it is not considered that it represents these vegetation communities.

The local area has approximately 35 per cent of native vegetation remaining. However the application area occurs on the border between the extensively cleared eastern side of the Swan Coastal Plain and the more vegetated Jarrah Forest Bioregion. The vegetation under application occurs within the highly cleared eastern portion of the Swan Coastal Plain which has less than 15 per cent pre-European vegetation extent remaining and is considered an extensively cleared landscape (Del marco et al. 2004).

Given the highly cleared landscape in which this application occurs, any native vegetation remaining is likely to represent important habitat for local fauna species. The application area contains 1.7 hectares of foraging habitat for the conservation significant Baudin's cockatoo, Carnaby's cockatoo and the forest red-tailed black cockatoo.

Therefore, the application area is considered a significant remnant of native vegetation in an area that has been extensively cleared and is at variance to this Principle.

To offset the residual environmental impacts identified the applicant has proposed to conserve in perpetuity 5.6 hectares of black cockatoo foraging and potential breeding habitat within Lot 151 on Plan 13067 Byford (Reserve 37332) located one kilometre from the application area. This protection is to be achieved through placing a management order for the dual purpose of Public Recreation and Conservation.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,222	586,975	39	36
Shire*				
Shire of Serpentine - Jarrahdale	90,049	49,448	55	83
Beard Vegetation Association in Bioregion*				
3	17,365	3,216	18	11
968	136,188	9,796	7	17
Hedde Vegetation Complex **				
Guildford Complex	92,497	4,963	5	0.4
Beermullah Complex	6,707	444	7	2
Mattiske Vegetation Complex**				
Fo	11,594	1,445	12	2

Methodology

References

Commonwealth of Australia (2001)
 **Parks and Wildlife (2015)
 Del Marco, A., Miles, C., Taylor, R., Clarke, K. and Savage, K. (2004)
 EPA (2006)
 *Government of Western Australia (2013)
 Keighery, B.J. (1994)
 Parks and Wildlife (2015)
 GIS Databases:
 Hedde Vegetation Complexes
 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

Proposal is at variance to this Principle

A Multiple Use palusplain wetland is mapped over the whole of the application area and two Resource Enhancement palusplain wetlands are mapped within the eastern portion of the application area. A perennial watercourse (Beenup Brook) also occurs within the area under application.

A flora and vegetation survey of the proposed clearing identified 0.03 hectares of the vegetation community woodland of Marri over introduced *Watsonia meriana* var. *bulbilifera* in a completely degraded (Keighery 1994) condition in association with the mapped Resource Enhancement wetlands. In addition, 0.01 hectares of mature isolated *Melaleuca preissiana* was also recorded within the application area growing in association with the mapped watercourse (360 Environmental 2014; 2015).

Given the above, the proposed clearing will impact on native vegetation growing in association with a wetland and watercourse and is at variance to this Principle. As the vegetation growing in association with a wetland and watercourse is small in size (0.04 hectares) and is in a completely degraded (Keighery 1994) condition, the clearing is unlikely to significantly impact wetland/watercourse vegetation.

Methodology

References

360 Environmental (2014)
 360 Environmental (2015)
 Keighery, B.J. (1994)
 GIS Databases
 Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
 Hydrography, linear

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

Comments Proposal is not likely to be at variance to this Principle

Soils within the application area are mapped as hard neutral yellow mottled soils and sandy acidic yellow mottled soils some of which contain ironstone gravel (Northcote et al. 1960-68). These soils have a high risk of wind erosion due to the high infiltration rates associated with sands. The high wind erosion potential is due to the sandy nature of the topsoil and without appropriate ground cover, or adequate dust suppression on exposed surfaces the proposed clearing may cause land degradation in the form of wind erosion.

However, given the long, linear nature of the proposed clearing which is proposed over a 2.8 kilometre area and the sealing of exposed surfaces, the risk of appreciable wind erosion is low.

The majority of the area under application has a low risk of salinity. The salinity risk increases in the low lying areas and associated wetlands. Given the low risk of salinity of the majority of the application area and the long and linear shape of the proposed clearing, the proposed clearing is not considered likely to contribute to an increase in salinity.

Therefore, it is not considered likely for the proposed clearing to cause appreciable land degradation.

Methodology References
Northcote et al. (1960-68)
GIS Databases
Soils, Statewide
Salinity Risk

(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 Proposal is not likely to be at variance to this Principle

Numerous conservation areas occur within the local area (10 kilometre radius) of the application area. The closest conservation area is Bush Forever site 321, located approximately 370 metres to the south of the application area and adjacent to Bush Forever site 350, 400 metres to the south. Bush Forever site 65 is situated approximately 480 metres west of the application area. The closest Parks and Wildlife managed land is the Carnup Nature Reserve located 2.1 kilometres south of the application area.

The proposed clearing is fragmented and within an existing road reserve. The application area is not connected to the conservation areas through continuous vegetation and does not provide an ecological linkage between conservation areas. Therefore the proposed clearing is not considered likely to impact conservation areas and is not likely to be at variance to this Principle.

Methodology GIS Databases
Bush Forever
Parks and Wildlife Managed Land

(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 Proposal is not likely to be at variance to this Principle

A Multiple Use palusplain wetland is mapped over the whole of the application area and two Resource Enhancement palusplain wetlands are mapped within the eastern portion of the application area. A perennial watercourse (Beenup Brook) also occurs within the area under application.

The majority of the area under application has a low risk of salinity. The salinity risk increases in the low lying areas and associated wetlands. Given the low risk of salinity of the majority of the application area and the long and linear shape of the proposed clearing, it is not considered likely to contribute to an increase in salinity of groundwater.

A flora and vegetation survey of the application area identified 0.04 hectares of wetland dependent vegetation occurring within the area under application in completely degraded (Keighery 1994) condition (360 Environmental 2014; 2015).

Given that the wetland areas within the area under application have been significantly altered due to urban and industrial development, is in a completely degraded (Keighery 1994) condition and the proposed clearing of 0.04 hectares of wetland vegetation is small, impacts to surface water quality are likely to be minimal. The proposed clearing is not likely to be at variance to this Principle.

Methodology References
360 Environmental (2014)
360 Environmental (2015)
Keighery, B.J. (1994)

GIS Databases:
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
Hydrography, linear
Salinity Risk

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

Comments	<p>Proposal is not likely to be at variance to this Principle</p> <p>A Multiple Use palusplain wetland is mapped over the whole of the application area and two Resource Enhancement palusplain wetlands are mapped within the eastern portion of the application area. A perennial watercourse (Beenup Brook) also occurs within the area under application.</p> <p>The flora and vegetation survey of the application area identified 0.04 hectares of wetland dependent vegetation occurring within the area under application in completely degraded (Keighery 1994) condition (360 Environmental 2014; 2015).</p> <p>Given that the wetland areas within the area under application have been significantly altered due to urban and industrial development, occurs in a completely degraded (Keighery 1994) condition and the proposed clearing of 0.04 hectares of wetland vegetation is small, the proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding. The proposed clearing is not likely to be at variance to this Principle.</p>
Methodology	<p>References</p> <p>360 Environmental (2014) 360 Environmental (2015) Keighery, B.J. (1994) GIS Databases: Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain Hydrography, linear Salinity Risk</p>

Planning instruments and other relevant matters.

Comments	<p>The proposed clearing of 1.7 hectares on various lots along Abernethy Road, Byford is for the purpose of widening Abernethy Road from two lanes to four.</p> <p>The proposal has been referred (EPBC 2015/7441) to the Commonwealth Department of the Environment and has been assessed as Not a Controlled Action under the Environment Protection and Biodiversity Conservation Act 1999 on 14 April 2015.</p> <p>A letter was sent to the applicant dated 25 May 2015 requesting information on how the applicant plans to avoid or mitigate residual impacts of the proposed clearing. To offset the residual environmental impacts identified the applicant has proposed to conserve in perpetuity 5.6 hectares of black cockatoo foraging and potential breeding habitat within Lot 151 on Plan 13067 Byford (Reserve 37332) located one kilometre from the application area. This protection is to be achieved through placing a management order for the dual purpose of Public Recreation and Conservation.</p> <p>The area under application is zoned as Rural, Urban Deferred and Urban under the Perth Metropolitan Regional Scheme.</p> <p>One Aboriginal Sites of Significance (Beenup Brook) occurs within the application area. It is the applicant's responsibility to ensure that they comply with their responsibilities under the Aboriginal Heritage Act 1972.</p>
Methodology	<p>GIS Databases Perth Metropolitan Regional Scheme Aboriginal Sites of Significance</p>

4. References

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