



1. Application details

1.1. Permit application details

Permit application No.: 1158/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Shire of Cunderdin

1.3. Property details

Property: Quellington Road Reserve (CUNDERDIN 6407)
 Coleman/Bulgin/Fleay Road Reserves (CUNDERDIN 6407)
 Doodenanning Road Reserve (CUNDERDIN 6407)
 Cunderdin-Quairading Road Reserve (CUNDERDIN 6407)
 Local Government Area: Shire Of Cunderdin & Shire Of York
 Colloquial name: Various Road Reserves within the Shire of Cunderdin

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.2		Mechanical Removal	Road construction or maintenance
0.1		Mechanical Removal	Road construction or maintenance
2.2	20	Mechanical Removal	Road construction or maintenance
		Mechanical Removal	Road construction or maintenance

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
Beard Vegetation Associations: 1049 - Medium woodlands; wandoo, York gum, salmon gum, morel & gimlet 352 - Medium woodland; York gum 694 - Shrublands; scrub-heath on yellow sandplain Banksia-Xylomelum alliance in the Geraldton Sandplain & Avon-Wheatbelt Regions	The proposal includes the clearing of up to 20 mature <i>Eucalyptus</i> spp. and 3.5ha of native vegetation within approximately 37km of road reserve for road construction and maintenance. - Cunderdin-Quairading Road - Clearing of up to 20 mature Eucalypt trees within the 23km road reserve for safety reasons associated with increased traffic. - Intersection of Coleman Road, Bulgin Road and Fleay Road - Clearing of vegetation not previously cleared to improve line of sight and safety within the four-way intersection (0.1ha). Vegetation comprises mainly <i>Acacia acuminata</i> . - Doodenanning Road - Clearing of 7.2km for widening of the road by 3m to meet road train standards set by Main Roads (2.2ha). Vegetation comprises <i>Eucalyptus</i> spp. and <i>A. acuminata</i> . - Quellington Road - Clearing for widening of the western portion between the Shire of York boundary and Reynolds Road (0.7ha). Clearing of vegetation not previously cleared to improve line of sight and safety at the northern elbow bends (0.5ha). Vegetation comprises <i>Eucalyptus</i> spp. and <i>A. acuminata</i> .	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	Vegetation clearing description based on a site visit conducted by DEC officers on Monday 18 September 2006. The majority of the vegetation under application is completely degraded, however a portion is in degraded condition.

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 at variance to this Principle**

The vegetation under application is mainly completely degraded, with a lack of understorey and middle storey structure and with extensive weed invasion. The vegetation under application within Doodenanning Road and Quellington Road reserves may include rare flora given the close proximity to known populations. In addition the vegetation under application is considered to comprise significant habitat for fauna given the location within a Shire that has 1.8% of pre-European vegetation extent remaining.

Given that the vegetation under application comprises significant fauna habitat, has the potential to include rare flora, and is located in a Shire with less than 2% vegetation remaining, it is considered that it is representative of an area of high biodiversity when viewed in a local context.

In order to minimise and mitigate any loss of biodiversity conditions have been placed on the permit requiring appropriately timed flora surveys to be conducted prior to clearing, and requiring revegetation at a ratio greater than 1:1.

Methodology DEC site visit 18/9/06

(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**

The vegetation under application includes mainly mature Eucalypt trees. Tree hollows were observed in a number of mature Eucalypt trees contained within Cunderdin-Quairading Road, Doodenanning Road and Quellington Road reserves, and it is considered that the removal of mature Eucalypt species from these areas could result in hollows present being removed.

Biodiversity Coordination Section (2006) advise that while '*Eucalyptus loxophleba* (York gum) can develop hollows, they are typically too small to offer habitat for Cockatoos from the *Calyptorhynchus* genus and are more readily occupied by smaller (and more common) avian taxa'. The tree hollows also have the potential to be utilised by priority fauna species such as Red-tailed Phascogale (*Phascogale calura*) and the Southern Brush-tailed Phascogale that are found in the Shire of Cunderdin and adjacent surrounds.

The vegetation under application is contained within road reserves in a Shire that has been extensively cleared for agriculture, and therefore is likely to provide ecological corridors for indigenous fauna species.

Given the potential for the applied vegetation to provide habitat hollows and ecological linkages for fauna, and given the location in a landscape that has had more than 98% of pre-European vegetation cleared, it is considered that all remaining vegetation is likely to comprise significant habitat for indigenous fauna.

To mitigate the loss of habitat within the areas proposed to be cleared a condition will be placed on the permit to ensure surveys are undertaken by a fauna specialist to identify trees that may be suitable as habitat for specially protected fauna under the *Wildlife Conservation (Specially Protected Fauna) Notice 2005* and, where applicable, translocation of fauna is undertaken. A condition will also be placed on the permit requiring revegetation at a rate greater than 1:1 to mitigate habitat loss in the long term.

Methodology Biodiversity Coordination Section, (2006)
DEC site visit 18/9/06

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

Comments **Proposal may be at variance to this Principle**

Biodiversity Coordination Section (2006) advise that there are 75 records of 11 Declared Rare Flora (DRF) species within the local area (10km radius), a number of which have been identified along the roads under application.

The DRF species *Acacia ataxiphylla* subsp. *magna* is known to occur on both verges of Cunderdin Quairading Road just north of Goldfields Road, and also within adjacent road reserves and private property. Other DRF species known to occur in areas adjacent to Cunderdin Quairading Road include *Hakea aculeata*, *Guichenotia seorsiflora* and *Verticordia huegellii* var. *tridens*.

The DRF species known to occur in areas near Doodenanning Road include *Frankenia parvula* and *H. aculeata*, the closest of which is located approximately 2.8km to the northwest of the intersection with Great Eastern Highway. The DRF species known to occur in areas near the intersection of Coleman Road, Bulgin

Road and Fleay Road include *H. aculeata*, the nearest of which is located approximately 2.4km to the southwest. The DRF species known to occur in areas near Quellington Road include *H. aculeata*, the nearest of which is located approximately 5km to the southeast.

The proposed clearing within the Cunderdin Quairading Road reserve and the Coleman/Bulgin/Fleay Road intersection comprises isolated mature *Eucalyptus spp.* and *Acacia acuminata* (Jam) and therefore any DRF contained within the understorey or located nearby is not considered likely to be impacted.

The proposed clearing within Doodenanning Road and Quellington Road reserves is for the widening of these roads and includes clearing of approximately 1.5m of vegetation on either side of the road. This vegetation would include understorey and therefore any DRF present may be impacted.

Given that the vegetation under application within Doodenanning Road and Quellington Road reserves may include DRF species, it is considered that the proposal may be at variance to this Principle. A condition has been placed on the permit requiring that appropriately timed flora surveys be conducted on these roads prior to clearing.

Methodology Biodiversity Coordination Section, (2006)
DEC site visit 18/9/06

(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 likely to be at variance to this Principle

Biodiversity Coordination Section (2006) advise that the following two Priority Ecological Communities (PEC) have been identified within the local area (10km radius):

- Mortlock Flats - Salt flats Plant assemblages of the Mortlock River (East Branch)
- Low Level Sandplains - *Banksia prionotes* and *Xylomelum angustifolium* low woodlands on transported yellow sands.

PECs are regarded as being possibly threatened ecological communities that either do not meet survey criteria or are not adequately defined.

The vegetation under application is in a degraded to completely degraded condition and comprises mainly *Acacia acuminata* and *Eucalyptus spp.* and is therefore not considered likely to comprise the aforementioned Priority Ecological Communities, or be necessary for their maintenance.

Methodology Biodiversity Coordination Section (2006)
DEC site visit 18/9/06
GIS Databases:
Threatened Ecological Communities - CALM 12/4/05

(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 seriously at variance to this Principle

The vegetation within the Quellington Road reserve is part of Beard vegetation association 352 of which there is 15.2% of pre-European extent remaining (Shepherd et al. 2002), and which is also considered to be 'vulnerable' (Department of Natural Resources and Environment 2002).

The southern-most portion of the Cunderdin-Quairading Road reserve is also part of Beard vegetation association 694 of which there is 17.1% of pre-European extent remaining (Shepherd et al. 2002), and which is considered to be 'vulnerable' (Department of Natural Resources and Environment 2002).

Within the Shire of Cunderdin and the Avon Wheatbelt Region there is 1.8% and 16.0% respectively of pre-European vegetation remaining (Shepherd et al. 2002). Vegetation within these areas is therefore considered to be 'endangered' and 'vulnerable' for biodiversity conservation (Department of Natural Resources and Environment 2002).

The State Government is committed to the National Objective Targets for Biodiversity Conservation, which includes targets that prevent the clearing of ecological communities with an extent below 30% of that present pre-1750 (Department of Natural Resources and Environment 2002; EPA 2000). Beyond this value, species extinction is believed to occur at an exponential rate and any further clearing may have irreversible consequences for the conservation of biodiversity.

The vegetation under application is part of vegetation complexes of which there is less than the recommended minimum of 30% pre-European extent remaining. In addition, the Shire of Cunderdin has been extensively cleared for agriculture, with less than 2% of vegetation remaining. Given the low vegetation representations within the vegetation association and within the Shire of Cunderdin, it is considered that vegetation in a degraded or better condition can significantly contribute to the conservation of biodiversity. It is therefore considered that the clearing as proposed is seriously at variance to this Principle.

To mitigate any impacts of the clearing on remnant vegetation, while acknowledging the need to maintain and upgrade roads, the proposed clearing will be carried out in accordance with a condition imposed on the permit requiring that clearing of vegetation be avoided, and where this is not possible, minimised. In addition, to address the loss of vegetation within a highly cleared landscape, a condition has been imposed to offset the values of the areas to be cleared.

	Pre-European (ha)	Current (ha)	Remaining %	Conservation status***	% in reserves
Avon Wheatbelt	9,578,995	1,536,296	16.0*	Vulnerable	
Shire of Cunderdin	188,696	3,312	1.8*	Endangered	
Beard vegetation associations			*		
694	403,915	68,872	17.1	Vulnerable	52.5
352	874,652	133,255	15.2	Vulnerable	3.0
1049	759,623	23,779	3.1	Endangered	12.0

* (Shepherd et al. 2001)

** (EPA, 2003)

*** (Department of Natural Resources and Environment 2002)

Methodology

DEC Site visit 18/9/06

Department of Natural Resources and Environment (2002)

EPA (2000)

Shepherd et al. (2001)

GIS Databases:

Cunderdin 1.4m Orthomosaic - DOLA 00

Pre-European Vegetation - DA 01/01

(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 not likely to be at variance to this Principle

Within the local area (5km radius) Mortlock River is located 3km north of the intersection of Cunderdin-Quairading Road and Great Eastern Highway, and Kelkering Creek is located 9.2km west of Cunderdin-Quairading Road.

Cunderdin-Quairading Road dissects Tomalockin Creek 4.3km south of Great Eastern Highway and Youndgin Creek 2.9km north of the Shire of Quairading boundary. The vegetation under application on this road is limited to 20 mature *Eucalyptus loxophleba* (York gum) which is not considered to be wetland dependent.

Due to the distance to the nearest watercourse, the proposed clearing on Quellington Road, Doodenanning Road and the intersection of Coleman/Bulgin/Fleay Road is not likely to impact vegetation that is growing in or in association with a watercourse or wetland.

In addition, the vegetation under application on Cunderdin-Quairading Road is limited to *E. loxophleba* and is not considered likely to include vegetation growing in or in association with a watercourse or wetland.

Methodology

DEC Site visit 18/9/06

GIS Databases:

Hydrography, linear (hierarchy) - DOW

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

Comments Proposal may be at variance to this Principle

The following soils have been identified within the areas under application:

- Quellington Road - yellow mottled soils with gravels
- Intersection of Coleman/Bulgin/Fleay Road - hard alkaline, yellow mottled and hard alkaline red soils
- Doodenanning Road - sandy yellow earths with gravels, and yellow mottled soils
- Cunderdin-Quairading Road - combination of hard alkaline yellow mottled soils, shallow and stony sands, and hard neutral red soils.

These soil types are associated with a high risk of water erosion, however the areas under application are adjacent to existing roads, which already include road side infrastructure, such as table drains and culverts, to prevent land degradation in the form of water erosion associated with these roads. It is therefore not considered likely that the proposal would result in water erosion causing appreciable land degradation.

The majority of the applied area has a low to nil risk of salinity, however there is a high risk of salinity in areas associated with watercourses and low-lying areas on Quellington Road, Doodenanning Road and Cunderdin-Quairading Road.

Given the high risk of salinity in the lower areas under application, any further clearing may result in a further increase in salinity causing appreciable land degradation.

A condition will be placed on the permit requiring a minimum offset at a 1:1 ratio in order to minimise the potential salinity impacts as a result of the proposed clearing.

Methodology DEC site visit 18/9/06
GIS Databases:
Salinity Risk LM 25m DOLA 00
Soils, Statewide DA 11/99

(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

The following conservation reserves are located within a 10km radius of the applied areas combined:

- Bulgin Nature Reserve - located 7.3km northwest of the intersection of Coleman Road, Bulgin Road and Fleay Road
- Mortlock Nature Reserve - located 6.3km northwest of Quellington Road
- Meenaar Nature Reserve - located 9.8km northwest of Quellington Road.

Given the distance from the applied areas to the nearest conservation reserve, and the limited extent of the proposed clearing, it is not considered likely that the conservation values of any conservation reserve would be impacted.

Methodology DEC site visit 18/9/06
Shepherd et al. (2002)
GIS Database: CALM Managed Lands and Waters - CALM 1/07/05

(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 may be at variance to this Principle

The soils identified within the applied areas are associated with a high risk of water erosion, however the areas under application are adjacent to existing roads, which already include road side infrastructure, such as table drains and culverts, to prevent water erosion associated with these roads. It is therefore not considered likely that the proposal would result in water erosion causing a deterioration in surface water quality.

Watercourses in the local area (5km radius) include Tomalockin Creek and Youndgin Creek, both of which are dissected by Cunderdin-Quairading Road. Areas associated with these watercourses have a high risk of salinity, and the proposed clearing may result in a local increase in salinity.

Given the high risk of salinity in the lower areas under application, it is considered that the proposed clearing may result in an increase in salinity, causing deterioration in the quality of groundwater.

A condition will be placed on the permit requiring a minimum offset at a 1:1 ratio in order to minimise the potential salinity impacts as a result of the proposed clearing.

Methodology DEC Site visit 18/9/06
GIS Databases:
Acid Sulphate Soil Risk Map, SCP - DOE 04/11/04
Groundwater Salinity, Statewide - 22/02/00
Hydrography, linear (hierarchy) - DOW

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

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

Flooding impacts are not likely to occur as a result of the proposed clearing due to the low density of the applied vegetation over approximately 37km of road. The proposed clearing is contained within existing road reserves at an elevation of between 190m and 330m. Watercourses in the area include the Tomalockin Creek and Youndgin Creek, both of which dissect Cunderdin-Quairading Road.

Given that the vegetation under application comprises 3.7ha distributed over a long, thin area, it is not considered likely that the proposed clearing would have an impact on peak flood height or duration.

Methodology DEC site visit 18/9/06
GIS Databases:

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

The areas under application are located within a Native Title Claim area. The vegetation under application is contained within existing road reserves that are vested in the Shire of Cunderdin. Therefore the clearing as proposed should not fall under the future acts process under the Native Title Act 1993.

No other statutory approvals are required by the Department of Environment and Conservation or the Department of Water.

Methodology GIS Database: Native Title Claims - DLI 7/11/05

4. Assessor's comments

Purpose	Method	Applied area (ha)	Comment
Road construction maintenance	Mechanical Removal	3.5 20	The assessable criteria have been addressed, and the proposed clearing is considered to be seriously at variance to Principle e, at variance to Principle a and b, and may be at variance to Principles c, g and i.

The assessing officer therefore recommends that the permit be granted with conditions addressing the minimisation of clearing, offsets, weed and dieback prevention, fauna and flora surveys and avoidance, and recording and reporting.

5. References

Clearing Assessment Unit's Biodiversity advice for land clearing application. Advice to Director General, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC12331.

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

EPA (2006) Guidance for the Assessment of Environmental Factors -level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Site Visit 18/9/2006, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC5312.

6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)