



1. Application details

1.1. Permit application details

Permit application No.: 2013/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Shire of Brookton

1.3. Property details

Property:

Local Government Area: Shire Of Brookton
 Colloquial name: Corberding Road Reserve (2)

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.08	22	Mechanical Removal	Road construction or maintenance
0.05		Mechanical Removal	Road construction or maintenance
0.05		Mechanical Removal	Road construction or maintenance
1		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 Association: 352 - Medium woodland; York gum 946 - Medium woodland; wandoo 1023 - Medium woodland; York gum, wandoo & salmon gum (E. salmonophloia) 1147 - Shrublands; scrub-heath in the south-east Avon-Wheatbelt Region	The proposal is to clear 1.18 ha of native vegetation and 22 trees over a total of approximately 4.8 km road reserve for the reconstruction and maintenance of road reserves within the Shire of Brookton. The vegetation under application comprises Eucalyptus species over Allocasuarina spp. and Melaleuca spp. The majority of the vegetation under application has no understorey present, with ground cover comprising mainly non-native grasses, and ranges from completely degraded, to good condition, with a degraded condition average overall.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	Vegetation clearing description based on a site visit conducted by DEC Officers on 12 October 2007.
	Moorumbine - Brookton-Kweda Road intersection: Beard Vegetation Association: 1032		
	The proposed clearing includes the removal of vegetation within the north side of the road reserve, for		

the purpose of road widening. Vegetation within the northern portion of the road reserve consists of Eucalyptus wandoo, Acacia acuminata and Allocasuarina spp. This vegetation is considered to be in degraded condition, with the understorey comprising mainly non-native grasses.

Brookton - Kweda/Davis
Road Intersection:
Beard Vegetation
Association: 1023

The proposed clearing includes the removal of vegetation for the purpose of enabling safe passage of heavy transport vehicles around the bend. Vegetation within the road reserve consists of Eucalyptus spp, Acacia acuminata and Casuarina spp. This vegetation is considered to be in degraded condition, with an understorey comprising predominantly of non-native grasses.

Boyagarra - Qualandary
Road Intersection:
Beard Vegetation
Association: 1147

The proposed clearing includes the removal of vegetation for the purpose of restructuring the crossroads for the safe passage and merging of heavy transport vehicles through this intersection. Vegetation within the road reserve consists of Eucalyptus spp, Allocasuarina spp. and Melaleuca species, with some areas in a completely degraded condition which were confined to an access track transcending through the central portion of the area under application for a distance of approximately 150 metres. In contrast, a small area of vegetation in the southern portion was considered to be in good condition.

Corberding Road:
Beard Vegetation
Association: 352; 946

The proposed clearing includes the removal of one metre of vegetation on both sides of the road reserve for a distance of approximately 4km and includes 22 trees, for the

purpose of road widening.
Vegetation within the road reserve consists of individual Eucalyptus species and weed-choked understorey and is considered to be in a degraded to completely 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 may be at variance to this Principle**

The areas under application are located within a landscape that has been extensively cleared for agriculture. A site visit by DEC officers on the 12 October 2007 found the vegetation under application within the four road reserves in the Shire of Brookton, ranged from degraded to completely degraded condition, with a small area being in good condition. The vegetation within the applied areas comprises Eucalyptus wandoo, Eucalyptus spp, Melaleuca spp, Allocasuarina spp, and Acacia species over an understorey comprising non-native grass species.

The only known populations of the Declared Rare Flora (DRF) *Lasiopetalum rotundifolium* have been recorded near the towns of New Norcia and Brookton and this species is considered to be Critically Endangered (Brown et al, 1998). DEC (2007) advise that *L. rotundifolium* has previously been recorded in the vicinity of Corberding Road and recommend that a flora survey should be undertaken prior to the commencement of any clearing. In addition, the vegetation under application on Corberding Road may also provide suitable habitat for the DRF species *Hakea aculeata* (Endangered) which is known to grow in weed-choked road reserves (Brown et al, 1998).

Given that the vegetation under application on Corberding Road has the potential to provide suitable habitat for locally significant DRF flora species, it is considered that the vegetation under application may represent an area of high biological diversity.

Methodology DEC site visit 12/10/07
Brown et al (1998)
GIS Databases:
SAC BIO Datasets - accessed 31/10/07

(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 not likely to be at variance to this Principle**

Within the local area (10km radius) there have been there have been four recorded occurrences of significant fauna species including the following:

- Quenda (*Isoodon obesulus fusciventer*, P5)
- Red-tailed Phascogale (*Phascogale calura*, EN)
- Western Rosella inland spp. (*Platycercus icterotis xanthogenys*, VU)
- Malleefowl (*Leipoa ocellata*, VU)

The vegetation under application is in degraded condition and limited to 1.18 ha contained within road reserves in different locations throughout the Shire of Brookton. There is a lack of understorey within the areas under application which would limit the habitat potential in these localities for ground dwelling fauna species, such as the Quenda.

The areas under application are located within the distribution range of the Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*, (EPBC Act Endangered) which breed in the Wheatbelt, nesting in large hollows of Eucalyptus wandoo and other Eucalyptus species (Burbidge, 2004). During the DEC site visit no hollows were observed that could potentially be utilised as nesting habitat for the Carnaby's Black-Cockatoo, with the trees under application not considered to be of hollow bearing age.

Smaller hollows in Eucalyptus trees are used as shelter by the Red-tailed Phascogale (Burbidge, 2004) and as nesting sites by the Western Rosella (Simpson & Day, 2004). The only recorded sighting of the Western Rosella occurred in 1974, approximately 5km southeast of the Moorumbine - Brookton-Kweda Road intersection, with no further sightings of this species having been recorded within the local area. In addition, the only recorded sighting of the Red-tailed Phascogale has occurred in the Pingeculling Nature Reserve and the Weam Nature Reserve. Given the degraded condition of the vegetation under application and the small size (1.18ha) and linear nature of the road reserves located throughout the Shire of Brookton, it is not considered

likely that the vegetation under application would provide suitable habitat for these fauna species.

The only recorded sighting of the Malleefowl occurred in 2005 at Mount Gibson, approximately 8km northwest of the Brookton-Kweda/Davis Road intersection. These birds are confined to woodlands dominated by mallee eucalypts or acacia scrub on sandy soils that contain abundant leaf litter (Burbidge, 2004). Given the high weed infestation and the degraded condition of the vegetation within the road reserves, it is not considered likely to provide suitable habitat for the Malleefowl.

The vegetation under application is contained within a landscape that has been extensively cleared for agriculture. According to the Roadside Conservation Committee (2006) road reserves have habitat value for Western Australia's indigenous fauna because of the linkage provided between remnants in an otherwise cleared and highly fragmented Wheatbelt landscape. However, given the applied areas have been isolated from local conservation reserves, it is therefore not considered likely to provide a corridor linkage for movement of fauna to these reserves.

The proposed vegetation to be cleared is contained within small sections, in four different areas and is spread over a large area within the Shire of Brookton. Given the applied areas have been isolated from local conservation reserves, it is therefore not considered likely to provide a corridor linkage for movement of fauna to these reserves.

Whilst the vegetation under application may provide some habitat for fauna species in the local area, it is not considered likely to be significant, given the lack of hollows, the narrow, linear and limited size (1.18ha) of the road reserves and the lack of connectivity to surrounding vegetation.

Methodology DEC site visit - 12/10/07
Burbidge (2004)
DEC (2006)
Simpson and Day (2004)
GIS Databases:
SAC BIO datasets - accessed 31/10/2007

(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

Within a 10km radius of the areas under application there are 20 recorded populations of Declared Rare Flora (DRF) the closest of which are:

- Lasioptalum rotundifolium located 1.7km south of Corberding Road;
- Thomasia Montana located 2.2km south of Corberding Road;
- Caladenia williamsiae located 5.2km east of Moorumbine Road;
- Verticordia fimbriolepis subsp. fimbriolepis located 5.9km southeast of Moorumbine Road.
- Hakea aculeata located 6.4km northeast of Corberding Road;
- Dryandra ionthocarpa subsp. chrysophoenix located 7.2km east of Brookton-Kweda/ Davis Road intersection;
- Ptilotus fasciculatus located 9.7km northeast of Boyagarra-Qualandary Road intersection;
- Banksia cuneata located 5.3km southeast of Boyagarra-Qualandary Road intersection.

The DRF species T. Montana is found within a different vegetation complex and soil type to that found within all the areas under application and it is not considered likely that the vegetation under application would include habitat suitable for the identified DRF species.

L. rotundifolium has only been recorded near the towns of New Norcia and Brookton and this species is considered to be Critically Endangered (Brown et al, 1998). DEC (2007) advise that L. rotundifolium has previously been recorded in the vicinity of Corberding Road and recommend that a flora survey should be undertaken prior to the commencement of any clearing.

V. fimbriolepis subsp. fimbriolepis is generally found in heaths on degraded road reserves (Brown et al, 1998). Whilst this identified DRF species has the potential to occur within the roads under application, given the absence of a heath and shrub layer, it is not considered likely that the vegetation under application would provide suitable habitat for this DRF species.

C. williamsia, B. cuneata and D. ionthocarpa subsp. chrysophoenix are found within the same vegetation complex and are generally found within different soil types to that found within the areas under application (Western Australian Herbarium, 1998). In particular, C. williamsia and D. ionthocarpa subsp. Chrysohoenix are respectively found in red loamy soils and winter-damp sites. Given the above and that the areas under application are found at elevations between 240m and 270m, it is not considered likely that the vegetation under

application would provide suitable habitat for these DRF species.

The DRF species *Hakea aculeata* is known to grow in weed-choked road reserves (Brown et al. 1998) and has been identified within a 6km radius of Corberding Road and within the same vegetation complex and soil type as that found at the identified road reserve. Given the extent of the weed coverage within the Corberding Road reserve, it is therefore considered that the vegetation under application may provide suitable habitat for the identified DRF species.

In addition *P. fasciculatus* is associated with saline flats bordering swamps, rivers and salt lakes (Western Australian Herbarium, 1998) and given that no wetland dependant vegetation was observed during the DEC site visit, the vegetation under application is unlikely to provide suitable habitat for this DRF species.

There are also 2 known populations of Priority flora within 10km radius of the local area, with the closest being *Anigozanthus bicolor* subsp. *exstans* (P3) located approximately 2.9km southeast of Moorumbine Road.

Given that the vegetation under application on Corberding Road has the potential to provide habitat suitable for the locally significant DRF species *L. rotundifolium* and *H. aculeata*, it is therefore considered that the vegetation under application on the identified road may include, or be necessary for the maintenance of, rare flora.

To ensure DRF and priority species are identified prior to clearing and managed accordingly, a Flora Management condition will be placed on a permit if clearing is approved.

Methodology DEC site visit - 12/10/07
Brown et al (1998)
Western Australian Herbarium (1998)
GIS Databases:
SAC BIO Datasets - accessed 31/10/07

(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

There are no known occurrences of Threatened Ecological Communities (TEC) within a 10km radius of the areas under application. The closest TEC is located approximately 17km north of Corberding Road and is associated with a perched wetland with extensive stands of *Casuarina obesa*.

Given that the vegetation under application comprises mainly individual trees associated with ironstone gravel and sandy soils, and given the distance, it is not considered likely that the vegetation under application comprises, or is necessary for the maintenance of, a TEC.

Methodology DEC site visit - 12/10/07
GIS Databases:
SAC BIO Datasets - accessed on 29/10/07

(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 has been defined as Beard vegetation associations 352, 946, 1023 and 1147 which have below the minimum threshold of 30% pre-European extent remaining (Shepherd et al, 2001). The proposed clearing occurs within the Avon Wheatbelt IBRA Region, of which there is 16% of pre-European vegetation remaining. In addition, there is 15.6% of pre-European extent remaining in the Shire of Brookton (Shepherd et al, 2001) and approximately 18% of pre-European extent remaining in the local area.

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% of that present Pre-European settlement (Department of Natural Resources and Environment 2002).

All of the vegetation complexes under application are below the minimum threshold of 30% representation. In particular, Beard vegetation association 1023 and 1147 have 6.4% and 5.7% respectively of pre-European extent remaining. The proposal is therefore considered to be at variance to this Principle.

A condition to offset the values of the vegetation will be imposed on a permit if clearing is approved.

	Pre-European area (ha)	Current extent (ha)	Remaining %
Avon Wheatbelt	9,578,995	1,536,296	16%**
Shire of Brookton	161,283	25,207	15.6%*
Local Area (~24km radius ? 10km from each road)		180,800 33,800	~18%

Beard vegetation associations

352

724,296

119,957

16.6%**

1.7%

946

53,226

11,321

21.3%**

8.7%

1023

1,601,636

103,064

6.4%**

1.2%

1147

42,856

2,434

5.7%**

17.6%

* (Shepherd et al. 2001)

** (Shepherd 2006)

*** (EPA, 2006)

Methodology EPA (2006)
Shepherd et al. (2001)
Shepherd (2006)
GIS Databases:
NLWRA, Current Extent of Native Vegetation - DA 30/10/01
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

There are no wetlands recorded within a 5km radius of the area under application. The closest watercourses are Nalyaring Gully which is located approximately 500m northeast of the Brookton-Kweda / Davis Road intersection and the Avon River which is situated approximately 900m east of Corberding Road.

Given the distance to the nearest watercourses, and that no wetland dependant vegetation was observed during the site visit, the vegetation under application is not considered likely to include vegetation growing in, or in association with, an environment associated with a watercourse or wetland.

Methodology DEC site visit - 12/10/07
GIS Database:
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 is not likely to be at variance to this Principle

The areas of vegetation under application are identified as containing three main soil types. Moorumbine - Brookton-Kweda Road, Brookton - Kweda/Davis Road, Corberding Road and Boyagarra - Qualandary Road are all located on soils defined as sandy, yellow mottled soils containing ironstone gravels (Northcote et al, 1968), with the exception of the western portion of Corberding Road and the eastern portion of the Brookton-Kweda/Davis Road intersection.

The soils in the western portion of Corberding Road are described as hard red soils, with associated soils containing ironstone gravels (Northcote et al, 1968).

The soils in the eastern portion of Brookton-Kweda, Davis Road intersection are described as hard yellow soils underlain by lateritic clays (Northcote et al, 1968).

According to Agmaps (2005), the main land degradation risk associated with the removal of vegetation on gravelly soils is generally considered to be water erosion. However, given the vegetation under application is of low density, contained within narrow, linear road reserves and the limited size of the area of clearing (1.18ha) it is not considered likely that the proposed clearing would result in appreciable water erosion.

The majority of the applied roads are associated with a low salinity risk area, with the exception of some small sections on Corberding Road, which are associated with a high risk of salinity. Given the narrow, linear and limited size of the areas under application, which are located in four different localities over a large area within the Shire of Brookton, it is not considered likely that the proposal would have an appreciable impact on salinity on or off site.

Given the above, it is therefore not considered likely that the proposed clearing would result in appreciable land degradation.

Methodology Northcote et al (1968) in four different areas and is spread
State of Western Australia (2005)
GIS Databases:
Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC
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

There are numerous conservation reserves, being DEC managed lands, within a 10km of the areas under application, including Boyagin Nature Reserve, Kulyaling Nature Reserve, Home Nature Reserve, Pingeculling Nature Reserve, Weam Nature Reserve, Murmanyng Nature Reserve, Un-named Reserve (12397), Un-named Reserve (41180) and Yenyening Lakes Nature Reserve. The closest is Yenyening Lakes Nature Reserve which is located approximately 1.6km north of the Boyagarra ? Qualandary Road intersection.

The areas under application are situated in a landscape which has been extensively cleared for agriculture and have been isolated from local conservation reserves. The areas of vegetation within the areas under application, are thin and linear in nature, and are mainly in a completely degraded to degraded condition. Aerial photography of the Shire of Brookton indicates the road reserves under application are not likely to provide ecological linkages to or between nearby conservation reserves.

Given the distance and the lack of connectivity to these reserves, it is not considered likely that the proposed clearing would have a direct or indirect impact on the environmental values of any nearby conservation reserves.

Methodology GIS Databases:
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 is not likely to be at variance to this Principle

The closest watercourses are the Avon River which is located approximately 900m east of Corberding Road and the Nalyaring Gully which is located approximately 500m northeast of the Brookton-Kweda / Davis Road intersection. The areas under application are within the Swan Avon Catchment and the Avon River Management Area, but are not located within a Public Drinking Water Source Area.

The areas under application have a nil to low risk of salinity and acid sulphate soils, and it is not considered likely that the proposed clearing would cause salinity or acid sulphate soils resulting in the deterioration in the quality of underground water.

The removal of vegetation in the identified soils within the area under application, generally have a high risk of water erosion. This is likely to minimal given the proposed clearing is for road construction and maintenance, and is limited to thin linear sections of road reserves, it is not considered likely to result in water erosion causing deterioration in surface water quality.

Methodology DEC site visit - 12/10/07
GIS Databases:
Acid Sulphate Soil Risk Map, Swan Coastal Plain - DEC
Hydrographic Catchments - Catchments - DOW

Hydrography, linear (hierarchy) - DOW
 Public Drinking Water Source Areas (PDWAs) - DOW
 Salinity Mapping LM 25m - DOLA 00
 Waterways Conservation Act, Waterway Management Area - 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

The proposed clearing is contained within existing road reserves and adjacent to land cleared historically for agriculture, at elevations between 240m and 270m. Flooding impacts are not likely to occur as result of the proposed clearing due to the low density of the applied vegetation in sections over approximately 5km total length of road.

Given that the areas under application are distributed over narrow, linear area of road reserves, it is not considered likely that the proposed clearing would have an impact on peak flood height or duration.

Methodology DEC site visit - 12/10/07
 GIS Databases:
 Hydrography, linear (hierarchy) - DOW
 Topographic Contours, Statewide } DOLA 12/09/02

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

Comments

The areas under application are located within a Native Title Claim area. The applied areas are contained within existing road reserves that are managed by, or invested in the Shire of Brookton. Therefore the clearing as proposed should not fall under the future acts process under the Native Title Act 1993.

The Brookton-Kweda, Davis Road intersection is located within an Aboriginal Site of Significance (5718) which has been listed on the Permanent Register. Advice will be provided to the Shire of Brookton in the covering letter in regards to contacting the relevant parties.

Methodology GIS Databases:
 Aboriginal Sites of Significance - DIA_1
 Native Title Claims - DIA

4. Assessor's comments

Purpose	Method	Applied area (ha)	trees	Comment
Road construction or maintenance	Mechanical Removal	0.08	22	The assessable criteria have been addressed and the proposed clearing is at variance to principle (e); and may be at variance to principles (a) and (c).
Road construction or maintenance	Mechanical Removal	0.05		
Road construction or maintenance	Mechanical Removal	0.05		
Road construction or maintenance	Mechanical Removal	1		

5. References

Brown, A., Thomson-Dans, C. and Marchant, N. (1998). Western Australia's Threatened Flora. Department of Conservation and Land Management. Perth, Western Australia.
 Burbidge, A. (2004) Threatened Animals of Western Australia, Department of Conservation and Land Management, Perth, Western Australia.
 DEC (2006) Naturebase Fauna Species Profile, Carnaby's Black-Cockatoo http://www.naturebase.net/plants_animals/birds_cockatoo.html. accessed on 13/04/2007
 DEC (2007) Advice for land clearing application. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 15/10/07. Great Southern District, Department of Environment and Conservation, Western Australia (TRIM ref: DOC39675).
 EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority.
 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.

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.

Roadside Conservation Committee (2006) Advice provided to DEC Native Vegetation Protection for Clearing Permit CPS1471/1.

Shepherd (2006) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

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.

Simpson, K. & Day, N. (2004) Field Guide to the Birds of Australia, Penguin Group (Australia), Camberwell, Victoria. Site Visit 12/10/2007, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC 41190.

Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> Accessed on 31/10/2007.

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)

