



1. Application details

1.1. Permit application details

Permit application No.: 1538/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: City of Swan

1.3. Property details

Property:
Local Government Area: City Of Swan & Shire Of Chittering
Colloquial name: Jenkins Road Reserve.

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.71		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 3 - Medium forest; jarrah-marri (Shepherd et al. 2001, Hopkins et al. 2001)	The proposal includes clearing of 0.71ha for road construction. The clearing will take place within the Jenkins Road road reserve in a long linear shape following the existing road.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Kelghery 1994)	The condition of the vegetation was assessed by Bennett Environmental Consulting Pty Ltd (2004) and during a site inspection undertaken 04/09/2006 (TRIM Ref. DOC13196).
Mattiske Vegetation Complex - Mogumber (Mb) Open woodland of <i>Corymbia calophylla</i> with some mixture of <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> and a second storey of <i>Eucalyptus todtiana</i> - <i>Banksia attenuata</i> - <i>Banksia menziesii</i> - <i>Banksia ilicifolia</i> on sandy - gravels on the uplands in arid and perarid zones. (Mattiske Consulting, 1998).	The road currently is a one lane gravel access track. The proposed clearing of the road is to provide a dual access track for residents.		
Hedde Vegetation Complex: Mogumber Complex- South; Open woodland (Hedde et al. 1980).	Bennett Environmental Consulting Pty Ltd was contracted by the City of Swan to undertake a vegetation, flora and significant flora survey of the subject road reserve. The section surveyed is the unsealed sections of Jenkins Road and Morley Road, Bullsbrook.		
	The vegetation under application is in a very good to excellent condition, comprising of <i>Adenanthos</i> sp., <i>Eucalyptus</i> sp., <i>Corymbia calophylla</i> , <i>Casuarina</i> , <i>Dryandra sessilis</i> and <i>Banksia</i> . . The vegetation under application is located adjacent to Bush Forever sites 80 and 82 and crosses Bush Forever site 87.		

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**

A flora survey of the area under application identified relatively high biodiversity given the narrow linear shape of the area applied to be cleared (Bennett Environmental Consulting Pty Ltd, 2004). A total of 37 vascular plant families, 120 genera and 194 taxa were identified and also included some weed invasion.

Weeds recorded at the site were confined to the boundary of the road reserve adjacent to privately owned land, and small open areas, where people have dumped soil, white goods and building materials. The natural vegetation had very few weeds (Bennett Environmental Consulting Pty Ltd 2004). These findings were confirmed during a site inspection of the area under application (04/09/2006).

The flora survey identified vegetation condition as ranging predominately from very good to excellent, with limited areas of localised disturbance, being identified as degraded (Bennett Environmental Consulting, 2004).

Given the above, the area under application is considered to represent an area of high biological diversity. Weed invasion is evident along the fringing vegetation but has not significantly impacted the structure or diversity of remnant vegetation. It is therefore considered that the clearing as proposed is at variance to this principle.

Methodology Bennett Environmental Consulting Pty Ltd (2004)
Site Inspection (04/09/2006) (TRIM Ref. DOC13196)
GIS Database:
-Bushforever-MFP 07/01

(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**

The area under application is for the widening and construction of a dual access track. The application is for a small area of 0.71 ha over a distance of 2km. The proposed clearing will take place adjacent to the existing gravel track. It is possible that fauna species utilise the habitat as a wildlife corridor to the surrounding three Bush Forever sites located along Jenkins road.

However, as the proposed clearing is along an already established transport route and the surrounding Bush Forever sites have large tracts of remnant vegetation remaining, the vegetation under application is considered unlikely to be representative of significant fauna habitat within the local area.

Methodology GIS Database:
- Bushforever MFP 07/01

(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**

Five populations of Declared Rare Flora (DRF) *Acacia anomala* have been recorded within 2.6km of the proposed clearing. Florabase describes *Acacia anomala* as a slender, rush-like shrub, which flowers between August and September.

A spring flora survey of the Jenkins Road Reserve by Bennet Environmental Consulting Pty Ltd (2004) did not identify any *Acacia anomala* or any other DRF within the area under application.

The survey did identify a total of 37 vascular plant families, 120 genera and 194 taxa (species, subspecies and varieties). The dominant families were Epacridaceae with 6 genera and 11 species; Myrtaceae with 13 genera and 17 species; Papilionaceae with 12 genera and 21 species of which 3 are introduced and Proteaceae with 12 genera and 28 species.

Dominant vegetation species identified within the area under application include *Pericalymma ellipticum*, *Eucalyptus marginata* (Jarrah), *Corymbia calophylla* (Marri), *Dryandra sessilis*, *Banksia attenuata*, *Banksia menziesii*, *Banksia grandis*, and *Gastrolobium bilobum*.

Eight priority flora were identified within the area under application, including one P1, five P3 and 2 P4 species (Bennett Environmental Consulting Pty Ltd, 2004). *Hibbertia glomerata* subsp. *ginginensis* the P1 Flora was common in the sandier soils. Four of the five P3 Flora, *Lambertia multiflora* subsp. *darlingensis*, *Adenanthos cygnorum* subsp. *chamaephyton*, *Banksia micrantha* and *Verticordia serrata* subsp. *linearis* were scattered through the area but the fifth, *Persoonia rudis* was only recorded from one of the lateritic sites. One of the P4 Flora, *Baekkea* sp. *Chittering* (RJ Cranfield 1983) occurred as scattered plants through the area but *Calytrix sylvana* was only recorded from the sandier soils. In addition *Astroloma macrocalyx* is listed in Bush Forever

(Government of Western Australia, 2000) as being a significant species on the Dandaragan Plateau. All four of the priority flora listed for Jenkins Road were recorded from the survey site. *Lambertia multiflora* subsp. *darlingensis* occurred as distinct patches whereas the other three were scattered through a vegetation unit (Bennett Environmental Consulting Pty Ltd 2004).

If approved, this application may result in (an unknown number of) one Priority 1, five Priority 3 and 2 Priority 4 species being taken. Therefore, the clearing as proposed may be considered at variance to this Principle.

Methodology Bennett Environmental Consulting Pty Ltd (2004)
GIS Database:
- Declared Rare and Priority Flora List CALM 01/07/05

(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 within the area under application with the nearest TEC located 3.7km southwest of the proposed clearing. As the area under application is relatively small (0.71ha) it is unlikely that the clearing will impact on the TEC in the local area.

Bennett Environmental Consulting Pty Ltd (2004) infers two Floristic Community Types from the vegetation under application. These include:

- S18: *Eucalyptus marginata* / *E. calophylla* woodlands on laterites.
- 23a - Central *Banksia attenuata* - *Banksia menziesii* woodlands

In addition, Government of Western Australia (2000) infers additional Floristic Community Types within the adjacent Bush Forever Sites as:

- S8: *Eucalyptus wandoo* woodlands (Scarp),
- S9: *Banksia attenuata* woodlands over dense low shrublands,
- S10: *Calothamnus sanguineus* dense low shrublands on sandy laterites; and

These Floristic Communities Types are not identified as Threatened Ecological Communities (Government of Western Australia, 2000), and as such the proposed clearing is considered unlikely to be at variance to this Principle.

Methodology Bennett Environmental Consulting Pty Ltd (2004)
Government of Western Australia (2000)
GIS Database:
- Threatened Ecological Communities CALM 12/04/05

(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 not likely to be at variance to this Principle**
The vegetation under application is a component of Beard Vegetation Association 3 (Hopkins et al. 2001), Mattiske Vegetation Complex Mogumber (Mb) and Heddle Vegetation Complex Mogumber Complex-South (Heddle et al. 1980). These Vegetation communities are identified as having representations of 72.1%, 39.3%, and 39.9% respectively.

reserves/CALM-	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation status**	% in managed land
IBRA Bioregion					
- Jarrah Forest	4,544,335	2,624,301	58.3%	Least Concern	
City of Swan	103,944	54,792	52.7%	Least Concern	
Beard vegetation association					
- 3	3,046,385	2,197,837	72.1%	Least Concern	10.1%
Mattiske Vegetation Association					
- Mogumber (Mb)	115,406	45,408	39.3%	Depleted	
Heddle Vegetation Complex					
- Mogumber Complex - South	13,720	5,477	39.9%	Depleted	1.1%

* (Shepherd et al. 2001)

** (Department of Natural Resources and Environment 2002)

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents a clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment 2002, EPA 2000). These communities are above this targeted figure and occur within the Bush Forever study area.

Bush Forever study area's are considered as constrained in recognition of past land use planning decisions. Retention objectives in constrained areas are varied to at least 10 per cent.

Methodology Department of Natural Resources and Environment (2002)
EPA 2000
Hedde (1980)
Mattiske (1998)
GIS Databases:
-Pre-European Vegetation DA 01/01
-Hedde Vegetation Complexes DEP 06/95
-Mattiske Vegetation CALM 24/03/98
-Interim Biogeographic Regionalisation of Australia EA 18/10/00

(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 at variance to this Principle

There are no watercourses or wetlands present in the area under application. Wetland mapping of the local area identifies one Conservation Category Wetland 3km south west from the site and two Resource Enhancement areas within 2.5 km of the area under application. As the area under application does not contain vegetation growing in association with a watercourse or wetland, the proposal is considered not at variance to this principle.

Methodology GIS Database:
-Geomorphic wetlands (Mgt Categories)- Swan Coastal Plain DOE 15/09/04

(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 area under application is located on the Dandaragan Plateau of the Perth Metropolitan Region. This area lies to the west of the Darling Scarp, and is geologically part of the Swan Coastal Plain. It has a lower relief than the Darling Plateau. The soils are deep grey or pale brown sands with outcropping laterite, sometimes with the sands overlying the laterite (Bennett Environmental Consulting Pty Ltd 2004).

Acid sulphate soil (ASS) mapping of the applied area identifies a Class 3 risk of ASS, having no known risk of ASS disturbance at less than 3 metres from the surface. It is not expected that the proposed clearing activities would appreciably impact on ASS.

Given the limited extent and linear nature of the area under application (0.71ha extending over 2km), it is considered unlikely that the proposed clearing would lead to appreciable wind or water erosion. It is therefore considered that the proposed clearing is unlikely to be at variance to this Principle.

Methodology Bennett Environmental Consulting Pty Ltd (2004)
Site inspection (04/09/2006) (TRIM Ref. DOC13196).
GIS Database:
-Acid Sulphate Soil risk Map, SCP DOE 01/02/04

(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 at variance to this Principle

Melaleuca Park, Gnangara-Moore River State Forest, Twin Swamps Nature Reserve, Walyunga Nature Park, Darling Range, Chandala Nature Reserve, Julimar State Forest and an unnamed Nature Reserve occur within a 20km radius of the proposed clearing. The nearest occurrence of a DEC managed land is the Bullsbrook Nature Reserve which is located approximately 3km from the area under application.

The northern section of Jenkins Road abuts Bush Forever Sites 80 and 82. The proposed widening, while adjacent to these, will not result in the clearing of vegetation within these sites. Despite this, activities associated with disturbance have the potential to result in the encroachment of weeds and rubbish into these Bush Forever sites. The southern section of Jenkins Road intersects Bush Forever site 87 and the proposed widening will result in the clearing of regionally significant vegetation (Bush Forever 2006).

Due to the linear nature and relatively small area (0.71ha) under application, the clearing as proposed is not likely to have a significant impact on the environmental values of the local conservation areas. However it is recognised that removal of the vegetation under application will result in a reduced buffering effect on adjacent Bush Forever sites and will incur the removal of regionally significant vegetation in Bush Forever site 87. It is therefore considered that the proposed clearing is at variance to this Principle.

If granted, a condition relating to weed management will need to be considered.

Methodology Bush Forever Advice (2006) (TRIM Ref: DOC10084)
GIS Databases:
-CALM Managed Lands and Waters - CALM 01/07/05
-Bushforever- MSP 07/01

(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 area under application is situated 8.9km from a priority 1 Public Drinking Water Source Area. The groundwater salinity (Total Dissolved Solids) within the surrounding area varies from 1000 to 3000 mg/L. Given that the clearing as proposed is along an existing transport corridor and is relatively small (0.71ha over a length of 2km), the clearing as proposed is considered unlikely to significantly affect surface water and groundwater quality of the area.

Methodology GIS Databases:
-Groundwater Salinity, Statewide 22/02/00
-Public Drinking Water Source Area (PDWSAs) DOE 09/08/05

(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 at variance to this Principle**
The area is recorded as receiving an annual average rainfall of 800mm per annum, with an evaporation rate of approximately 2000mm. Given the relatively small size of the area under application (0.71ha), its linearity along a 2 km stretch of road, and the distance to major watercourses or wetlands, the proposed clearing is considered unlikely to cause, or exacerbate, the incidence or intensity of flooding.

Methodology GIS Databases:
- Rainfall, Mean Annual BOM 30/09/92
- Evaporation Isopleths - BOM 09/98
- Hydrography, linear - DOE 01/02/04

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

Comments
The area under application is associated with one Aboriginal Site of Significance (S02516). The area under application is not part of a Native Title Claim.

The Shire of Chittering has provided written endorsement for the City of Swan to obtain clearing permits for clearing on Jenkins Road on the section to be constructed by the City of Swan (TRIM Ref. DOC4739).

A submission from Bush Forever (2007) has proposed an offset package to incorporate the following conditions:
- Minimise the fragmentation of Bush Forever Site 87 to ensure suitable provision for wildlife linkages across Jenkins Road through the retention, revegetation/rehabilitation of vegetation within the road verges.
- The retention, revegetation/rehabilitation of vegetation within the road verge on the east of Jenkins Road which acts as a buffer between the road and Bush Forever sites 80 and 82
- The provision of ongoing maintenance and upkeep of this road verge to minimise the encroachment of weeds and rubbish into the adjoining Bush Forever Sites.

There is no other RIWI Act Licence, Works Approval or EP Act Licence that will affect the area under application.

Methodology Bushforever Advice (2006) (TRIM Ref. DOC10084)
GIS databases:
- Aboriginal Sites of Significance - DIA
- Native Title Claims - DLI 7/11/05

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Road construction or maintenance	Mechanical Removal	0.71	Assessment against the Principles of Clearing as listed in Schedule 5 of the Environmental Protection Act 1986 has been undertaken, and while it is recognised that the clearing is to provide for a wider, safer transport corridor, the clearing as proposed is at variance to Principles (a) and (h), and may be at variance to Principles (c) and (e).

The assessing officer recommends that the clearing permit be granted with conditions.

5. References

- Bennett Environment Consulting. (2004) Vegetation of Jenkins Road, Extension City of Swan. Bennett Environment Consulting Pty Ltd. Kalamunda, Western Australia (TRIM Ref. DOC4739).
- Bush Forever Advice (2006) (TRIM Ref. DOC10084).
- 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 (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.
- Heddl, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.
- JANIS Forests Criteria (1997) Nationally agreed criteria for the establishment of a comprehensive, Adequate and Representative reserve System for Forests in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Regional Forests Agreement process. Commonwealth of Australia, Canberra.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske Consulting (1998) Mapping of vegetation complexes in the South West forest region of Western Australia, CALM.
- 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.

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)