



1. Application details

1.1. Permit application details

Permit application No.: 51/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: MR Terance Ernest James Streeter

1.3. Property details

Property: LOT 528 ON PLAN 231420 (LENNARD BROOK 6503)
Local Government Area: Shire Of Gingin
Colloquial name: Swan Location 528

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3		Mechanical Removal	Horticulture

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 999: Medium Woodland Marri (Hopkins et al. 2001; Shepherd et al. 2001).	The proposed clearing is for the purpose of cultivating mango and avocado trees, over 3 hectares of the subject property.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	Vegetation clearing description based on information obtained during a site inspection undertaken on 3 May 2007 (TRIM Ref:DOC24031).
Hedde Vegetation: Gingin Complex: Open woodland of <i>E. calophylla</i> with second storey of <i>B. grandis</i> and <i>Nuytsia floribunda</i> . Fringing woodland of <i>E. rudis</i> - <i>M. raphiophylla</i> along streams.	This proposal has been amended to 3 hectares from the originally applied area of 6.5 hectares.		
Coonambidgee Complex: Vegetation ranges from a low open forest and low woodland of <i>E. todtiana</i> - <i>B. attenuata</i> - <i>B. menziesii</i> - <i>B. illicifolia</i> with localised admixtures of <i>B. prionotes</i> to an open woodland of <i>E. calophylla</i> - <i>Banksia</i> species (Hedde et al. 1980).	The property is located approximately 3.5km south of Gingin. The land parcel has been bisected by Cockram Road, and the area under application occurs on the property to the east of this road. The area to the west of Cockram road is bounded on the western periphery by Lennard Brook.		
	The vegetation under application represents an open woodland to woodland of <i>Banksia</i> sp. (typical for the area), with midstorey absent from much of the applied area. Understorey vegetation is relatively uniform of the entire property, consisting of <i>Acacia pulchella</i> , <i>Macrozamia riedlei</i> , and grassy weeds.		

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**

A site inspection (2007) of the area under application identified vegetation within the area as an open woodland to woodland of primarily Banksia species, with midstorey absent from much of the applied area. Understorey vegetation is relatively uniform of the entire property, consisting of Acacia pulchella, Macrozamia riedlei, and grassy weeds. Vegetation condition was rated primarily as good, but with sections of severe disturbance with extensive weed invasion.

Given the condition of the vegetation, level of weed invasion, and reduced diversity of understorey species, it is considered unlikely that the area under application represents an area of high biological diversity.

Methodology Reference:

- Site inspection (2007) (TRIM Ref: DOC24031)

(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 may be at variance to this Principle**

CALM (2004) advised that four species of Threatened and Priority fauna have been recorded in the local area (10km radius). These are S1 (rare or is likely to become extinct): chuditch (*Dasyurus geoffroii*), and three species of Priority 4 fauna: Hooded Plover (*Charadrius rubricollis*) Western brush wallaby (*Macropus irma*) and Western Mud Minnow (*Galaxiella munda*). The area under application is also possible habitat for the Carnaby's black-cockatoo (*Calyptorhynchus latirostris*), a S1 species.

CALM (2005) report that the chuditch and hooded plover are not likely to be impacted by this clearing, As there are no watercourses or wetlands within the area under application, it is not likely that the Western Mud Minnow would be threatened by the proposed clearing.

Notwithstanding, the area may be possible habitat for Carnaby's black-cockatoo and a significant wildlife corridor for other local native fauna.

Methodology References:

- CALM (2004) (TRIM Ref: DOC12061)

- CALM (2005) (TRIM Ref: DOC12058)

GIS database:

- Threatened and Priority Fauna Database - CALM (CALM 2004)

(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**

There are 13 known Threatened and Priority Flora populations located in the local area, defined as a 10 km radius surrounding the area under application (CALM 2004). These include seven populations of Declared Rare Flora (DRF); six populations of *Chamaelucium lullfitzii* and one population of *Eleocharis keigheryi*. None of these populations occurs within the same vegetation type as that proposed to be cleared.

The Herbarium Specimen Collection Database also indicates that there are 31 specimens of Threatened and Priority Flora collected from the local area (CALM 2004). However, none of these were collected within the same vegetation type as that proposed to be cleared.

CALM (2005) indicates that *Grevillea curviloba* (DRF) is also known from the general area, however the soil type, as evidenced by the site inspection photographs, is different to the heavy soils preferred by this species.

Therefore, the clearing as proposed is unlikely to be at variance with this principle.

Methodology References:

- CALM (2004) (TRIM Ref: DOC12061)

- CALM (2005) (TRIM Ref: DOC12058)

GIS databases:

- Declared Rare and Priority Flora List - CALM 13/08/03.

(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**

CALM (2004) advise that there are nine known occurrences of TEC in the local area. The TEC occurrences are of type SCP07 Herb rich saline shrublands in clay pans (Category of Threat: Vulnerable), SCP15 Forests and woodlands of deep seasonal wetlands of the Swan Coastal Plain (Category of Threat: Vulnerable), and

CTHIRON Perth to Gingin Ironstone Association (Category of Threat: Critically Endangered).

CALM (2005) advise that the vegetation has reached a level of degradation whereby it is no longer considered to be an 'extant' example of an ecological community. Therefore, it is unlikely that the area under application is likely to comprise whole, or part of, or is necessary for the maintenance of a significant ecological community.

Methodology References:
 - CALM (2004) (TRIM Ref: DOC12061)
 - CALM (2005) (TRIM Ref: DOC12058)

(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

Vegetation mapping of the area under application identifies vegetation as components of Heddle vegetation complexes 'Gingin Complex' and 'Coonambidgee Complex', and Beard Vegetation Association 999. These vegetation types are recognised as having current representation of 13%, 45.1% and 13.1% respectively. A site inspection on 3 May 2007 by DEC staff confirmed that the vegetation that is proposed to be cleared has been subject to impacts from past land use and it exhibits indicators of Phytophthora infection.

The State Government is committed to the National Objectives Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment, 2002).

reserves/CALM	Pre-European (ha)	Current extent (ha)	Remaining (%)	Conservation*** status	% In managed land
IBRA Bioregion					
- Swan Coastal Plain*	1,498,297***	626,512***	41.8	Depleted	
Shire of Gingin*	315,560	177,688	56.3	Least Concern	
Vegetation type:					
Beard: Unit 999**	115,712	15,161	13.1	Vulnerable	2.5
Heddle:					
Gingin Complex****	7,114	922	13	Vulnerable	3.8
Coonambidgee Complex****	6,272	2,830	45.1	Depleted	20.8

* Shepherd et al. (2001)

** (Adapted from: Shepherd et al. 2001)

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

**** EPA (2006)

Both Beard vegetation association 999 and Heddle Vegetation Complex 'Gingin Complex' are below the recommended 30% threshold, namely 13.1% and 13%, however the vegetation that is proposed to be cleared has been changed to a degree that its original composition is no longer discernable.

The area under application is located within the intensive Land-use Zone (Shepherd et al. 2001).

The application was amended to exclude the area mapped as Gingin Complex, however a site inspection (2007) failed to delineate the two vegetation complexes.

Methodology References:
 - Site inspection (2007) (TRIM Ref: DOC24031)
 - Adapted from: Shepherd et al. (2001)
 - EPA (2006)
 - Heddle et al (1980)
 - Hopkins et al (2001)
 - Shepherd et al. (2001)
 GIS Databases:
 - Pre-European Vegetation - DA 01/01
 - Heddle Vegetation Complexes - DEP 21/06/95
 - 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 at variance to this Principle

Lennard Brook (a Conservation Category Wetland 'CCW': Palusplain wetland) is situated approximately 80

metres to 190 metres west of the area of vegetation under application. CCWs are wetlands with high ecological values, are the highest priority wetlands for protection, and are recognised under objective one of the Wetlands Conservation Policy for Western Australia as 'valuable'. (Government of Western Australia 1997). Their protection also requires the retention of an adequate buffer of up to 200m in highly transmissive soils (Water and Rivers Commission, 2001)

While the area under application lies east of the environmentally sensitive area associated with this wetland (approximately 50m from the northern boundary and 140m from the southern boundary) it is located within 200 m of the wetland, and the description of the soils (DAWA 2004) suggests characteristics of transmissivity.

Whilst the description of the vegetation under application indicates that it is not wetland dependant, given the close proximity of the area under application to the wetlands it is considered that the vegetation under application is growing in an environment associated with wetlands.

- Methodology** References:
- DAWA (2004) (TRIM Ref: DOC12159)
 - Government of Western Australia (1997)
 - Water and Rivers Commission (2001).
- GIS databases:
- Hydrography, linear - DOE 01/02/04.
 - Geomorphic wetlands - 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 may be at variance to this Principle

DAWA (2004) identifies the area under application as containing two soil landscapes, being 'Gingin subsystem phase 2' and 'Coonambidgee 2', with a field inspection conducted by DAWA confirming that pale deep sands were the dominant soil type over most of the area under application

The area under application falls within Class 3 risk of Acid Sulphate Soils (ASS), which is identified as having a low to nil risk of ASS occurring within 3m of natural surface that could be disturbed by most land development activities.

DAWA (2004) advises that the proposed clearing has a low risk of water erosion, waterlogging, salinity and eutrophication. It is however acknowledged that there is a high risk of wind erosion due to the exposure of sandy soil and the disturbance associated with clearing (DAWA, 2004). The Commissioner for Soil and Land Conservation (CSLC) identifies a potential risk of land degradation from wind erosion (DAFWA, 2007).

DoE (2004) recognises that while the proposed clearing will increase recharge to groundwater, this is unlikely to cause dryland salinisation.

Due to the risk of wind erosion associated with the proposed clearing, it is considered that this proposal may be at variance with this Principle.

- Methodology** References:
- DAWA (2004) (TRIM Ref: DOC12159)
 - DAFWA (2007) (TRIM Ref: DOC14635)
 - DoE (2004) (TRIM Ref: DOC 12363)
- GIS databases:
- 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 may be at variance to this Principle

The local area, defined as a 10 kilometre radius surrounding the applied area, contains four DEC managed Nature Reserves, being Yearl Nature Reserve (6.3km), Bampanup Nature Reserve (4.7km), and two unnamed reserves (2km and 9.8km).

Aerial photography indicates much of the local area is cleared of vegetation, with relatively large pockets of remnant vegetation to the west and east, which are linked by the riparian vegetation of Lennard Brook. Within this fragmented landscape, it is considered that the vegetation under application may contribute to the connectivity between existing remnant stands.

Furthermore, Beard vegetation association 999 and Hedde's Gingin Complex currently have representations of 2.5% and 3.8% respectively within conservation reserves. As such, it is considered that the vegetation in the area under application may provide habitat not well represented on conservation land.

It is therefore considered that the proposed clearing may be at variance to this Principle.

Methodology GIS database:
- CALM Managed Lands and Water - CALM 1/07/05
- Gingin 1m Orthomosaic - DLI 03
- NLWRA, Current Extent of Native Vegetation - DA 30/01/01

(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**

Lot 528 Cockram Road, Gingin is not located within any Public Drinking Water Source Areas (PDWSA), with the nearest being the Gnangara Underground Water Pollution Control Area approximately 7.4km to the southwest.

Hydrological advice provided by the DoE (2004) identifies that the shallowest groundwater aquifer is formed primarily of sand, and thus is characterised by high groundwater recharge and low salt storage due to the sandy nature of the regolith material. Groundwater quality within the region is considered fresh, having a Total Dissolved Solids (TDS) of less than 500mg/L. DoE (2004) identifies that the proposed clearing will increase recharge to the groundwater, however this is unlikely to cause dryland salinisation, and is not expected to adversely impact on the groundwater resources on or off-site.

In addition to this, DAWA (2004) identifies a low risk of increased eutrophication and increased salinity as a result of the proposed clearing activities.

It is therefore considered that the proposed clearing is unlikely to be at variance to this Principle.

Methodology Reference:
- DAWA (2004) (TRIM Ref: DOC12159)
GIS databases:
- Salinity Risk LM 25m - DOLA 001
- Public Drinking Water Source Areas (PDWSA) - DOE 07/02/06

(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**

With an average annual rainfall of 700mm to 800mm and an annual evaporation rate of 2,000mm there is little surface flow during normal seasonal rains. It is only during major rainfall events that there is a likelihood of flooding. Given the transmissive nature of the sandy soils at the site (DAWA 2004), clearing is unlikely to cause or exacerbate the incidence of flooding.

Methodology Reference:
- DAWA (2004) (TRIM Ref DOC12159)
GIS Databases:
- Evaporation Isopleths - BOM 09/98
- Isohyets - BOM 09/98
- Hydrography, linear - DOE 01/02/04

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

Comments

Water and Rivers Commission (2001) provides recommended buffer distances for particular land uses from CCWs, with the minimum distance being 200 metres in highly transmissive soils, such as those on site. Given the area under application is below the recommended minimum buffer distance, the clearing as proposed is considered at variance to this Principle.

The Shire of Gingin have advised that the Council conditionally supports the proposed clearing, on the grounds that the proposal be modified to achieve a more sustainable and equitable balance between cleared land and vegetated land, and that land clearing not being undertaken until Planning Consent for Irrigated Horticulture has been obtained (TRIM Ref: IN16506)

Two public submissions have been received, objecting to the proposed clearing on the grounds that:

- Native vegetation within the surrounding area have been extensively cleared,
- The area under application contains an impressive stand of Eucalyptus calophylla,
- The area under application forms part of an important wildlife corridor which links with Lennard Brook,
- The area under application contains evidence of use by Black Cockatoos; and
- Nutrient levels of the adjacent Brook are already high, and further development within the sandy soils present will exacerbate this issue.

(TRIM Ref: IN16469 and IN16470)

The area under application occurs within the Yued Native Title Claim Area. As the subject property is privately owned, the Native Title has been extinguished under the Native Title Act. Therefore the clearing as proposed does not fall under the future acts process of the Native Title Act 1993.

A Ground Water Licence was issued on 1 March 2007 for 12 months (pending clearing permit) for 6.7 ha horticulture.

Methodology

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Horticulture	Mechanical Removal	3	Assessment against the Principles of Clearing, as listed in Schedule 5 of the Environmental Protection Act 1986, has been undertaken, and the proposed clearing was found not likely to be at variance to Principles (a),(c),(d),(e),(f),(i),(j), may be at variance to Principles (b), (g), and (h) and is at variance to principle (f).

5. References

- 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
- CALM (2004) Clearing Assessment Unit's biodiversity advice for land clearing application. Advice to the Commissioner of Soil and Land Conservation, Department of Agriculture (DAWA), Western Australia. TRIM ref DOC12061
- CALM (2005) Clearing Assessment Unit's biodiversity advice for land clearing application. Advice to Director General, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC12058
- DAFWA (2007) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DoE TRIM ref DOC14635.
- DAWA (2004) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DoE TRIM ref DOC12159
- 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.
- DOE (2004) Hydrological advice. TRIM Ref: HD19094
- Government of Western Australia (1997) Wetlands Conservation Policy for Western Australia, Department of Conservation and Land Management and the Water and Rivers Commission, Perth WA.
- 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.
- 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.

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)