



1. Application details

1.1. Permit application details

Permit application No.: 824/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Shire of Mundaring

1.3. Property details

Property: AVON LOCATION 28654
AVON LOCATION 29087
Local Government Area: Shire Of Mundaring
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
2.25		Mechanical Removal	Extractive Industry

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 3003: Medium forest; jarrah & marri on laterite with wandoo in valleys, sandy swamps with teatree and Banksia. (Shepherd et al 2001. Hopkins et al 2001)	The area under application consists of a 2.25ha area of native vegetation that lies within Crown Reserve 36125 known as the Beechina Gravel pit. Beechina is a live pit that has been operational since the 1970s. The reason for clearing is to provide the Shire of Mundaring with a reliable source of base course gravel for construction of local roads. The area to be cleared is adjacent to the current gravel pit approximately 14ha in size.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The information obtained was sourced from supporting documentation submitted with the proponent's application and information taken from the GIS viewer. (Mundaring 1m Orthomosaic DOLA 01\00)
Hedde vegetation Association 345: Yalanbee and Dwellingup Complex\In Low Rainfall (Hedde et al 1980)	The vegetation is made up of a mixture of open forest of blue-leaved jarrah/marri/wandoo on lateritic uplands. (CALM 2005)		The vegetation condition of very good has been given under the premise that the area under application has been partially affected by edge effects and access tracks traversing throughout Crown Reserve 36125. This has been caused by existing gravel extraction operations in the area immediately adjacent to the area under application. (Brown et al 2005)
Mattiske Vegetation Association Yalanbee Y5: Mixture of open forest of Eucalyptus marginata subsp. thalassica-Corymbia calophylla and woodland of Eucalyptus wandoo on lateritic uplands in semiarid to perarid zones. (Mattiske Consulting 1998)			

3. Assessment of application against clearing principles

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

Comments **Proposal is not likely to be at variance to this Principle**
The area under application is a 2.25ha portion of the 128ha Crown Reserve 36125, which is vested in the Shire of Mundaring. Crown Reserve 36125 is gazetted for the purposes of gravel. It is known as the Beechina gravel pit and has been operational since the 1970s.

Gravel extraction has been previously carried out in the western region of Crown Reserve 36125 and areas have been sequentially rehabilitated. The area immediately west and south of the area under application consists of a 14ha gravel pit currently being worked (Williams et al 2005). The proposed area is likely to have been affected by edge effects caused by the existing gravel extraction operations, is to become part of the expansion of the Beechina gravel pit and has several access tracks traversing through it (Williams et al 2005). Crown Reserve 36125 is surrounded by large tracts of intact vegetation, particularly to the north and east of the area applied to be cleared.

Given the small area (2.25ha) proposed to be cleared, the likelihood of some disturbance from adjacent operations including access tracks and weed invasion, it is not likely that the area proposed to be cleared comprises a higher level of biodiversity than that of the surrounding areas. Therefore, the clearing as proposed is not likely to be at variance this Principle.

Methodology Williams et al 2005 Information provided by the proponent (DoE Trim ref:IN23094)

(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 immediately adjacent to existing gravel operations that have been carried out within Crown Reserve 36125 since the 1970s. There are large tracts of intact native vegetation (>1170ha) located within close proximity to the area under proposal. The native vegetation surrounding the proposed area collectively forms effective corridors allowing fauna to move freely over large surrounding areas of native vegetation.

Given the area under application is relatively small (2.25ha) and is located immediately adjacent to the active Beechina gravel pit, it is unlikely that the clearing as proposed is at variance with this Principle.

Methodology CALM (2006) TRIM Ref: EI5135
Williams et al 2005 Information provided by the proponent (DoE Trim ref:IN23094)
GIS databases:
- Mundaring 1m Orthomosaic DOLA 01\00

(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**

No Declared Rare Flora (DRF) are mapped within the local area (<10km). The closest DRF is located 19km east of the area under application in a different vegetation type.

Several priority 3 species occur within the local area. However, all are mapped within a different vegetation type to that of the area under application.

Therefore clearing as proposed is unlikely to be at variance to this Principle.

Methodology CALM (2006) TRIM Ref: EI5135
GIS databases:
- Declared Rare and Priority Flora List - CALM 13/08/03.
- Clearing Regulations Environmentally Sensitive Areas DOE 8/03/05
- Matiske Vegetation - CALM 24/03/98

(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**

No Threatened Ecological Communities (TEC) are known to occur within a 10km radius of the area under application. The nearest is approximately 27km west from the area applied to be cleared. Therefore clearing as proposed is unlikely to be at variance to this Principle.

Methodology CALM (2006) TRIM Ref: EI5135
GIS databases:
- Threatened Ecological Communities CALM 15/7/03

(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 contained within the area under application consists of Beard vegetation association 3003, (Shepherd et al 2001, Hopkins et al 2001), Matiske Vegetation association Y5 (Matiske Consulting 1998) and Heddle vegetation Yalanbee and Dwellingup complex (Heddle et al 1980). The Beard vegetation association has 43,220ha (65.1%) of its pre-European vegetation extent remaining (Shepherd et al 2001, Hopkins et al 2001) and the Matiske vegetation complex has approximately 852,364ha (68.5%) remaining. Information pertaining to the extent of the Heddle vegetation complex was not available.

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which outlines 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, EPA 2000). Since both vegetation complexes are over the 30% pre-European target it is unlikely that the proposed clearing is at variance with this

Principle.

Methodology CALM (2006) TRIM Ref: EI5135
Shepherd et al (2001)
Hopkins et al (2001)
Mattiske Consulting (1998)
Heddle et al (1980)
Department of Natural Resources and Environment (2002)
EPA (2000)
GIS databases:
- Pre-European Vegetation - DA 01/01.
- Heddle Vegetation Complexes - DEP 21/06/95.
- Mattiske Vegetation - CALM 24/03/98

(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 or watercourses located within the area under application. A minor non perennial watercourse forms part of a catchment area that serves as a drain for the Beechina gravel pit. However, it is considered that the vegetation under application is not associated with a watercourse or wetland, and the proposed clearing is therefore not at variance to this Principle.

Methodology Williams et al 2005 Information provided by the proponent (DoE Trim ref:IN23094)
GIS databases:
- Hydrography, linear - DOE 01/02/04.
- Geomorphic wetlands (Classification) - Swan Coastal Plain - DOE 15/09/04.
- EPP, Areas DEP 06/95.
- EPP, Lakes DEP 28/07/03.
- EPP, Wetlands (draft) - DEP 21/07/04.
- ANCA wetlands - CALM 08/01.
- Clearing Regulations Environmentally Sensitive Areas DOE 8/03/05
- Topographic Contours, Statewide - DOLA 12/09/02

(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

DAWA (2005) advice for the area contained within Crown Reserve 36125 described 3 soil landscape units. Yalanbee phase 1 (253WnYA1) is the soil landscape unit represented in the area under application and is the most represented within Crown Reserve 36125. DAWA (2005) advised that there is a low risk of land degradation associated with this soil landscape unit.
Therefore clearing as proposed is unlikely to be at variance to this Principle.

Methodology DAWA (2005) Land Degradation Advice (DoE Trim ref:IN 24127)

(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 area under application is located in Crown Reserve 36125, which is designated and being used for gravel extraction by the Shire of Mundaring.
Several conservation areas exist within close proximity to the area under application, namely the A class Mundaring state forest located 1.7km to the south west and the C class Beechina Nature Reserve located 2.5km to the west. Large tracts of native vegetation exist within the local area serving as effective ecological linkages for the surrounding conservation areas. It is considered that these tracts would be able to compensate for the relatively small amount of vegetation proposed to be cleared.

Methodology CALM (2006) TRIM Ref: EI5135
Williams et al 2005 Information provided by the proponent (DoE Trim ref:IN23094)
GIS databases:
- CALM Managed Lands and Waters - CALM 1/07/05
- Mundaring 1m Orthomosaic - DOLA 01\00

(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

Coffey Geosciences (cited in Williams et al 2005) conducted a study of the Beechina gravel pit and hypothesised that the operations of the quarry have contributed to the reduced quality of nearby Shabani bore. Shabani bore is located on Shabani farm adjacent to Crown Reserve 36125 on the northern boundary. The study showed that the bore drew water from two different aquifers; a deeper, saltier aquifer and a shallower, freshwater aquifer. The bore is screened through both aquifers, which has potential for mixing to occur. The groundwater in the area is between 1000-3000mg/L. Coffey Geosciences (cited in Williams et al 2005) suggested that the Beechina gravel pit operations may have affected the balance between the two aquifers and caused a reduction in the harvestable quantity of freshwater. However after discussion with Natti Hundi (pers. comm. SGA regional hydrologist) it was established that Coffey Geosciences suggestion is unlikely to be the reason for a reduction in Shabani bores water quality and is more likely to be a result of the over pumping of the bore. The regional salinity creep caused by land clearing in the surrounding catchment and a reduced average annual rainfall in recent years have also attributed to the reduced water quality of Shabani bore.

The proponent has indicated that a series of retention basins have been constructed near the discharge point of the north east catchment of Crown Reserve 36125 to address surface water issues within the quarry. (pers. comm. Laurie Bresland) The functionality of the basin is as follows

1. Capture and contain surface water runoff on site.
2. Promote infiltration and hence groundwater recharge of the shallower freshwater aquifer.
3. Trap sediment and permit settling of fine particles to reduce turbidity.
4. Provide a water source for on site use (e.g. rehabilitation and dust suppression).

The retention basin is likely to have a positive effect on the water quality of the nearby Shabani bore. Given the above and the relatively small area applied to be cleared, it is unlikely that the proposed clearing is at variance with this Principle.

Methodology Williams et al (2005) Information provided by the proponent (DoE Trim ref:IN23094)
GIS databases:
- Groundwater Salinity, Statewide - 22/02/00

(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

While a significant rain event may momentarily cause flooding within the gravel pit itself, it is not likely to impact upon the surrounding areas as drainage is directed into a minor non-perennial watercourse that flows north of the quarry. Further, the Shire of Mundaring has constructed 3 retention basins to capture and contain surface water on site to allow for greater groundwater recharge and for on site works (pers comm. Laurie Bresland). Thus the clearing as proposed is not likely to cause or exacerbate the incidence or intensity of flooding in the area.

Methodology Williams et al (2005) Information provided by the proponent (DoE Trim ref:IN23094)
GIS databases:
-Hydrography, linear - DOE 01/02/04.
-Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

There is no Native title claims, RIWI Act Licence, Works Approval or EP Act Licence that will affect the area that has been applied to clear.

The instance of dieback *Phytophthora cinnamomi* has been confirmed within Crown Reserve 36125. A report conducted by qualified personnel from Glevan Consulting (cited in Brown et al 2005) with assistance from appropriate CALM personnel for the Shire of Mundaring sampled 17 soil and tissue samples where taken from the site. One sample taken from an old rehabilitated gravel pit within the western portion of Crown Reserve 36125 indicated the presence of *Phytophthora cinnamomi*. However *P. cinnamomi* is considered to be widespread throughout Crown Reserve 36125 with approximately half of the western portion infected. The infected area does not include the area under application (Brown et al 2005). It is the Department's understanding that in order to stop the spread of the disease a current management plan is being completed by MPA Williams and Associates. The plan is being designed so as to be consistent with the Department of Conservation and Land Management standards for the effective protection against *Phytophthora cinnamomi* within the reserve (pers. com. Laurie Bresland).

Methodology pers. comm. Laurie Bresland
Brown et al (2005)

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Extractive Industry	Mechanical Removal	2.25	Grant	The application has been assessed and the clearing as proposed is not likely to be at variance with any of the clearing principles. The assessing officer therefore recommends that a clearing permit be granted. In granting this permit, the Department endorses the proponents Draft Beechina Gravel Pit Management Plan.

5. References

- Brown, E., Clapperton, G. and Van de Sande, A. July 2005 Assessment Results and Management recommendations - *Phytophthora cinnamomi* Glevan Consulting for Shire of Mundaring Trim reference No. EI5004
- CALM (2006) Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref EI5135.
- DAWA (2005) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref IN 24127.
- 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.
- Hedde, 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.
- 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.
- Williams, P., Seddon, K. and Osborne, T. June 2005, Beechina Gravel Pit and Management Plan Prepared for the Shire of Mundaring MPA Williams and Associates Trim Ref: IN23094

6. Glossary

Term	Meaning
CALM	Department of Conservation and Land Management
DAWA	Department of Agriculture
DEP	Department of Environmental Protection (now DoE)
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 DoE)