Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2147/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Water Corporation**

1.3. Property details

Property: LOT 51 ON DIAGRAM 9953 (WAROONA 6215)
LOT 50 ON PLAN 42695 (WAROONA 6215)
LOT 32 ON PLAN 38054 (WAROONA 6215)
LOT 32 ON PLAN 38054 (WAROONA 6215)

Local Government Area: Shire Of Waroona

Colloquial name: Remedial works Drakesbrook Dam.

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.8		Mechanical Removal	Building or Structure

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
Mattiske Vegetation Complex: He 1 - Mosaic of open forest of Corymbia calophylla-Eucalyptus patens-Eucalyptus marginata subsp. marginata with some Eucalyptus rudis on the deeper soils ranging to closed heath and lithic complex on shallow soils associated with granite on steep slopes of valleys in humid and subhumid zones. Beard Vegetation Association: 4 - Medium woodland; marri and wandoo (CALM 1998) (Shepherd 2006)	The proposal is to clear 3.6 hectares of native vegetation for the purpose of undertaking remedial works to Drakes Brook Dam, including construction of a new spillway and associated earthworks. Maunsell (2007) has identified the following five vegetation communities within the area under application: W1: Low open woodland of Corymbia calophylla over a low shrubland of Xanthorrhoea preissii, Mesomelaena tetragona and introduced grasses on grey loamy clay. M1: Low open woodland of Melaleuca rhaphiophylla with occasional Eucalyptus rudis over an open sedgeland/herb land of Leptocarpus laxus, Alternanthera nodiflora and weeds on grey clay loam. W2: Woodland of Corymbia calophylla and scattered Eucalyptus rudis with occasional *Pinus pinaster over a tall open shrubland of Jacksonia sternbergiana, a low shrubland of Acacia	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 14 November 2007 and a Flora and Fauna Assessment undertaken by Maunsell Australia Pty Ltd in November 2007. The study area extends along the south-western side of Drakes Brook Dam, and includes more vegetation than is under application.

dentifera over introduced grasses on grey sandy loam with occasional granite outcrops.

W3: Woodland of Eucalyptus rudis with occasional Corymbia calophylla over a tall open shrubland of *Paraserianthes lophantha subsp. lophantha over weeds on loams.

W4: Woodland of Corymbia calophylla with occasional *Pinus pinaster and Agonis flexuosa over a low shrubland of Xanthorrhoea preissii over Mesomelaena tetragona and Lepidosperma tenue on gravely loam.

The vegetation ranges in condition from completely degraded to good, with the majority being 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 not likely to be at variance to this Principle

During a spring flora survey Maunsell (2007) recorded 98 flora species, including 39 weed species, to be present within the entire study area, with no Declared Rare Flora or Priority flora being recorded. The vegetation under application comprises a very open woodland of Corymbia calophylla, Eucalyptus rudis and Melaleuca rhaphiophylla, and the majority is in degraded condition.

There are 9 known populations of Priority listed flora within the local area (5km radius), the closest of which is Chamaescilla gibsonii (P3) located approximately 400m to the southwest of the applied area.

C. gibsonii is a clumped, tuberous herb with blue flowers in September, and is found in clay to sandy clay on winter-wet flats and shallow water-filled clay pans.

Maunsell (2007) identified soils within the applied area adjacent to Lake Moyanup to be grey clay loam and it is therefore considered that suitable habitat is present on site for the C. gibsonii. Maunsell (2007) did not observed any DRF or Priority listed flora during a flora survey conducted in November, however this is outside the flowering time for C. gibsonii.

Given the vegetation under application is considered to have a low species diversity and the majority is in degraded condition, the vegetation under application is not considered likely to consist of a high level of biodiversity.

Methodology

DEC site visit 14/11/07
Maunsell (2007)

(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

Within the local area (5km radius) there are 12 recorded occurrences of significant fauna with Maunsell (2007) identifying that the Quokka (Setonix brachyurus), the Water Rat (Hydromys chrysogaster) and the Western Brush Wallaby (Macropus irma) have the potential to occur within the area under application, however none of the above species were observed during a fauna survey.

The vegetation under application adjacent to Drakes Brook Dam includes some understorey that may provide suitable habitat for ground-dwelling fauna such as the Quenda, however is not considered likely be significant for this type of fauna given the State Forest and surrounding vegetation located 1km to the southeast.

Maunsell (2007) also advised that the vegetation under application surrounding the dam may be of significance for wetland birds, and is considered to be suitable habitat for Carnaby's Black Cockatoo, which are

known to utilise Jarrah, Marri and Tuart forests. During the site visit some hollows were observed in mature Eucalypt trees, which have the potential to be utilised as habitat by birds such as Black Cockatoos and other fauna such as the Western Brush Tailed Possum. Forest red-tailed Black Cockatoos were observed in Eucalypt trees to the south of the spillway and it is considered that this species may utilise the vegetation under application for feeding or nesting habitat.

Given the limited size of the area under application, and the nearby State Forest, it is not considered likely that the vegetation under application comprises significant habitat for fauna in general. However, given that the mature Eucalyptus trees under application may be utilised by species of conservation significance, it is considered that the vegetation under application may comprise significant habitat for these species.

To mitigate any loss of habitat within the area under application a condition requiring fauna management will be imposed.

Methodology DEC site visit 14/11/07
Maunsell (2007)
GIS Database:
SAC Bio datasets accessed 12/11/07

(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**
Within the local area (5km radius) there are no known populations of Declared Rare Flora (DRF), with the nearest known population of Tetraria australiensis being 7.5km to the southwest of the applied area.

During the spring flora survey Maunsell (2007) did not identify any DRF within the area under application. Therefore, it is not considered likely that the vegetation under application includes, or is necessary for the continued existence of, rare flora.

Methodology DEC site visit 14/11/07
Maunsell (2007)
Western Australian Herbarium (1998-)
GIS Database: SAC Bio datasets accessed 12/11/07

(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 the local area (5km). The closest known TEC is located 6km to the north west of the area under application and has been identified as Floristic Community Type 3a - Eucalyptus calophylla - Kingia australis woodlands on heavy soils (Swan Coastal Plain).

The vegetation under application comprises woodland of Eucalyptus calophylla, E. rudis over low shrubland including Xanthorrhoea preissii. The area under application occurs in the Jarrah Forest Bioregion and the vegetation is considered to be in degraded condition.

Given that the vegetation under application is in degraded condition, is located in the Jarrah Forest Region, and the nearest TEC is located on the Swan Coastal Plain; it is not considered likely that the vegetation under application comprises, or is necessary for the maintenance of, a TEC.

Methodology DEC site visit 14/11/07
Maunsell (2007)
GIS Database:
SAC Bio datasets accessed 12/11/07

(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 not likely to be at variance to this Principle**
The vegetation under application has been identified as vegetation complex 'He 1' as defined by Mattiske (CALM 1998), which has 80.4% of pre-European vegetation remaining. The vegetation under application has also been identified as Beard association 4, of which there is 24.1% of pre-European extent remaining in the Jarrah Forest Bioregion (Shepherd 2007).

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-1750 (Commonwealth of Australia 2001).

Although the identified Beard vegetation association has less than the recommended minimum of 30% pre-European extent remaining, the vegetation under application is in degraded condition and is located in a local area (~10km radius) that has approximately 58% of pre-European extent remaining. It is therefore not considered likely that the vegetation under application is significant as a remnant in an area that has been extensively cleared.

	Pre-European (ha)	Current (ha)	Remaining %	% in reserves
Jarrah Forest	4,506,655	2,440,940	54.16**	69.2
Shire of Waroona	83,508	50,761	60.8*	
Local Area (~10km radius)	31,400	18,200	~58	
Mattiske vegetation complex He 1	158,422	127424	80.4***	
Beard vegetation association 4 (Jarrah Forest)	1,054,279	254657	24.1**	25.4

* (Shepherd et al. 2001)
** (Shepherd 2007)
***(CALM 1998)

Methodology
CALM (1998)
Commonwealth of Australia (2001)
DEC site visit 14/11/07
Shepherd (2007)
GIS Databases:
Mattiske vegetation - CALM 24/3/98
NLWRA, Current Extent of Native Vegetation - DA 30/01/01
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 at variance to this Principle

The area under application is located directly adjacent to Drakes Brook and Drakes Brook Dam, and is approximately 500m east of a multiple use wetland. The vegetation under application includes an open woodland of Melaleuca rhaphiophylla and Eucalyptus rudis over sedges, which is generally considered to be a community associated with wetland habitats.

The portion of the vegetation under application fringing the Dam and the Brook is considered to provide a buffer to these water bodies by protecting from impacts such as weed invasion and increased nutrients, and to maintain ecological processes and functions within the water body.

Given that the vegetation under application is located directly adjacent to Drakes Brook and Drakes Brook Dam, and includes wetland dependent vegetation, it is therefore considered to be vegetation growing in association with a watercourse or wetland.

Methodology
DEC site visit 14/11/07
GIS Databases:
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
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

Soils within the southern portion of the area under application, below the spillway, have been identified as Forrestfield F4 Phase, which are deep acidic yellow soils and sandy brown earths. These soils have a high risk of phosphorus export and water erosion; and a moderate to high risk of water logging (State of Western Australia 2005).

Soils within the northern portion of the applied area have been identified as F2b phase, which comprises well drained moderately deep gravelly yellow soils and laterite, which have a low risk of all land degradation (State of Western Australia 2005).

The area under application is mapped as having no known acid sulphate soil risk, and a general low risk of salinity.

Given the high risk of water erosion associated with the soils identified below the spillway, it is considered that without adequate management the removal of vegetation may result in water erosion and the proposed clearing therefore may be at variance to this Principle.

Methodology State of Western Australia (2005)
GIS Databases:
Acid Sulphate Soil Risk Map, Swan Coastal Plain - DEC
Salinity Risk LM 25m - DOLA 00

(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 nearest conservation reserve to the area under application is Marrarup Nature Reserve located approximately 7km to the north. The vegetation under application has limited connectivity to surrounding vegetation, which has been previously cleared for agriculture, and therefore has limited value as an ecological corridor to facilitate fauna movement between reserves.

Given the distance to the nearest conservation reserve, it is not considered likely that the proposed clearing would have a direct impact on its environmental values. In addition, given that the vegetation under application has limited value as an ecological corridor, it is not considered likely that the proposed clearing would have any indirect impact on any conservation reserve.

Methodology DEC site visit 14/11/07
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 area under application is located directly adjacent to Drakes Brook Dam , and a portion is directly adjacent to Drakes Brook. The applied area is mapped as having no known acid sulphate soil risk, and a general low risk of salinity.

Although soils below the dam wall have a higher risk of salinity, the vegetation under application in this area comprises a Eucalyptus woodland with very sparse understorey, and it is not considered likely that the proposal would result in an increase in salinity on or off site.

Soils in the applied area generally have a low risk of land degradation, however soils below the spillway have a high risk of water erosion (State of Western Australia 2005) and removal of vegetation may result in sedimentation.

Given the high risk of water erosion associated with the soil type identified below the spillway, it is considered that without adequate management of runoff the proposed clearing may result in sedimentation causing a deterioration in surface water quality, including surface water in Drakes Brook.

Methodology State of Western Australia (2005)
GIS Databases:
Acid Sulphate Soil Risk Map, Swan Coastal Plain - DEC
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
Hydrography, linear (hierarchy) - DOW
Salinity Risk LM 25m - DOLA 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**
The area under application is located in the Scarp at an elevation of 60-75 metres, directly below the Drakes Brook Dam. The soils identified below the spillway site have moderate to high risk of water logging.

Given the elevated height and the gradient of the area under application, it is not considered likely that the removal of vegetation from site would have an impact on peak flood height or duration.

Methodology DEC site visit 14/11/07
State of Western Australia (2005)
GIS Database:

Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

Submission (2007) highlights that Drakesbrook Dam is the location of the first known recording of the WA's noisy scrub bird (Atrichonrnic clamosus) after it was thought to be extinct. A colony of this species was reintroduced to the dam by CALM, approximately 10 years ago. The submission highlighted the importance of the protection of this species and requested that DEC vigorously assess the application with a view to refusing any unnecessary clearing around the dam to further assist the protection of the noisy scrub bird.

Advice has been obtained from DEC South Coast Region in relation to the Noisy Scrub Birds in the local area and the reintroduction of the Noisy Scrub Bird in the vicinity of Samson Brook. This advised detailed that the populations know from the local area should not be affected by the clearing activities proposed for Drakes Brook Dam. TRIM ref: DOC58993.

Shire of Waroona (2007) (direct interest submission) stated that they have no objection to the clearing in three of the four area proposed subject to further detail being provided. The Shire strongly objects to the clearing proposed in the large area around the knoll. This has been proposed by Water Corporation in the event that they wish to source fill material from this area. The shire considered that there area more appropriate areas from which soil can be sourced without clearing an area that has significant remnant vegetation and a high landscape value. DEC has discussed at length the options for sourcing fill material with Water Corporation and it has been advised that the area under application is the only suitable location from which to obtain the required material.

Methodology

References
-Shire of Waroona (2007)
-Submission (2007)
GIS Database:
Native Title Claims - DLI

4. Assessor's comments

Comment

The assessable criteria have been addressed and the proposed clearing is at variance to Principle (f), and may be at variance to Principles (b), (g) and (i).

5. References

Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.

EPA (2006) Guidance for the Assessment of Environmental Factors - Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region. Guidance Statement No 10. Environmental Protection Authority, Western Australia.

Heddle, 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.

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, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.

Maunsell Australia Pty Ltd (2007) Drakes Brook Dam Remedial Works - Flora and Fauna Assessment - Water Corporation.

Shepherd, D.P. (2007). 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.

Shire of Waroona (2007) Direct Interest Submission. TRIM Ref. DOC41088

Site Visit 14/11/07, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC39774.

State of Western Australia (2005) Agmaps Land Manager CD Rom.

Submission (2007) Direct Interest Submission. TRIM Ref. DOC42017

Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. http://florabase.calm.wa.gov.au/ Accessed on Thursday 15 November 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)