



1. Application details

1.1. Permit application details

Permit application No.: 1660/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: Water Corporation

1.3. Property details

Property: LOT 8278 ON PLAN 30778 (CRAIGIE 6025)

Local Government Area: City Of Joondalup

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.64		Mechanical Removal	Infrastructure 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 6: Medium woodland; Tuart and Jarrah (Shepherd et al. 2001, Hopkins et al. 2001).	The vegetation applied to be cleared is contained within the Beenyup Waste Water Treatment Plant (WWTP) site, which is located within Bush Forever site 303 (Whitfords Avenue Bushland, Craigie/Padbury). The vegetation proposed to be cleared includes 0.64ha of the Bush Forever site.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The condition of the vegetation was taken from the Beenyup Site Management Plan (2006).
Hedde Vegetation Complex - Karrakatta Complex - Central and South; predominately open forest of Eucalyptus gomphocephala - E. marginata - E. calophylla and woodland of E. marginata - Banksia species (Hedde et al. 1980).	The Beenyup Site Management Plan (2006) describes the vegetation in the southern portion of the Beenyup WWTP site as comprising occasional dense stands of Eucalyptus marginata subs. marginata and very scattered trees of Banksia attenuata with a herbland/weed understorey. The Plan identifies the area proposed for the digesters as being in a 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**
 The vegetation applied to be cleared is located within Bush Forever site 303 (Whitfords Avenue Bushland, Craigie/Padbury).

The vegetation proposed to be cleared is described in the Beenyup Site Management Plan (2006) as comprising occasional dense stands of Eucalyptus marginata subs. marginata and very scattered trees of Banksia attenuata with a herbland/weed understorey. The Plan identifies the area as being in a degraded condition.

While a species list of the proposed area indicates that there is a medium level of floral diversity within and surrounding the area applied to be cleared, the vegetation within this area is not considered to have a high diversity of indigenous terrestrial plant or fauna species, particularly in relation to the remaining native vegetation of that ecological community in the local area. Therefore, the clearing as proposed is not likely to be at variance to this Principle.

Methodology Beenyup Site Management Plan (2006) (TRIM Ref. DOC12037)
GIS database:
- Swan Coastal Plain North 1m Orthomosaic - DLI 01/04

(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 vegetation applied to be cleared is located within Bush Forever site 303 (Whitfords Avenue Bushland, Craigie/Padbury).

A fauna survey undertaken in 2005 identified 11 bird and one mammal species during a site inspection of the Bush Forever site within the Beenyup WWTP site (Beenyup Site Management Plan, 2006). However, vegetation within the proposed area is in a degraded condition and is not considered likely to provide significant habitat for fauna species in the local area.

Furthermore, other vegetated areas within the Beenyup WWTP and Bush Forever site comprise a higher level of biodiversity, are in a better condition and maintain ecological linkages with other vegetated areas.

Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology Beenyup Site Management Plan (2006) (TRIM Ref. DOC12037)
GIS database:
- Swan Coastal Plain North 1m Orthomosaic - DLI 01/04

(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

The vegetation applied to be cleared is contained within Bush Forever site 303 (Whitfords Avenue Bushland, Craigie/Padbury). There are two Priority Flora associated with this Bush Forever site. These are:
- *Sarcozona bicarinata* (Priority 3); and
- *Jacksonia sericea* (Priority 4).

There are a further six known *Jacksonia sericea* (Priority 4) populations within a 5km radius. The closest of which is approximately 1.6kms NNW of the area proposed to be cleared. There are no Declared Rare Flora within close proximity to the proposed area.

No DRF or Priority species were observed during a flora survey undertaken in 2005 (Beenyup Site Management Plan, 2006). Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology Beenyup Site Management Plan (2006) (TRIM Ref. DOC12037)
GIS databases:
- Declared Rare and Priority Flora List - CALM 01/07/05
- Threatened Plant Communities - DEP 06/95

(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 or within a 5km radius of this area, the closest being 5.7kms east of the subject area.

Bush Forever (Government of Western Australia, 2000) identifies Floristic Community Types (FCT) present within Bush Forever Site 303 as:

FCT 24: Northern Spearwood shrublands and woodlands,
FCT26b: Woodlands and mallees on limestone,
FCT28: Spearwood *Banksia attenuata* or *Banksia attenuata* - Eucalyptus woodlands; and
FCT29a: Coastal shrublands on shallow sands.

These FCT are not identified as Threatened Ecological Communities.

Therefore, the clearing as proposed is not likely to be at variance to this Principle.

Methodology Government of Western Australia (2000)
 GIS database:
 - Threatened Ecological Communities - CALM 12/4/05

(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 may be at variance to this Principle

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).

The vegetation under application is a component of Beard Vegetation Association 6 (Hopkins et al. 2001) and Heddle: Karrakatta Complex - Central and South (Heddle et al. 1980) of which 36.6% and 29.5% of Pre European extent remain respectively (Shepherd et al. 2001).

Beard Vegetation Association 6 can be described as medium woodland with Tuart and Jarrah (Hopkins et al. 2001). Heddle: Karrakatta Complex - Central and South can be described predominately as open forest of *Eucalyptus gomphocephala* - *E. marginata* - *E. calophylla* and woodland *E. marginata* - *Banksia* species (Heddle et al. 1980).

reserves/CALM	Pre-European (ha)*	Current extent (ha)*	Remaining (%)*	Conservation** status	% In managed land
IBRA Bioregions					
Swan Coastal Plain	1 498 297	626 512	41.8	Depleted	
City of Joondalup	10,332	1,605	15.5	Vulnerable	
Vegetation type:					
Beard: 6	67725.003	24558.624	36.3	Depleted	22.1
Heddle:					
Karrakatta Complex - Central and South	49,912	14,729	29.5	Vulnerable	2.5

* (Shepherd et al. 2001)

** (Department of Natural Resources and Environment 2002)

The vegetation proposed to be cleared is described in the Beenup Site Management Plan (2006) as comprising occasional dense stands of *Eucalyptus marginata* subs. *marginata* and very scattered trees of *Banksia attenuata* with a herbland/weed understorey. The Plan identifies the area as being in a degraded condition.

The City of Joondalup has only 15.5% of Pre-European vegetation extent remaining. Heddle: Karrakatta Complex - Central and South representation is below the State Government's National Objectives and Targets for Biodiversity Conservation, at only 29.5%. Below the 30% target, species extinction is believed to occur at an exponential rate and any further clearing may have irreversible consequences for the conservation of biodiversity.

Furthermore, the current representation of Heddle: Karrakatta Complex - Central and South in secure tenure is well below (2.5%) the 15% pre-1750 distribution of each vegetation ecosystem that should be protected in a comprehensive, adequate and representative reserve system (JANIS Forests Criteria, 1997).

As such and despite the relatively small extent and degraded condition of the proposed area, the proposed clearing is as variance to this Principle.

Methodology Shepherd et al. (2001)
 Hopkins et al. (2001)
 Department of Natural Resources and Environment (2002)
 Beenup Site Management Plan (2006) (TRIM Ref. DOC12037)
 JANIS Forests Criteria (1997)
 GIS databases:
 - Heddle Vegetation Complexes - DEP 21/06/95
 - Pre-European Vegetation - DA 01/01
 - 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 likely to be at variance to this Principle

There are four Conservation Category Wetlands (CCW) within a 5km radius, being Lake Joondalup (approximately 1.7kms north west), Beenyup Swamp (approximately 1.7kms east), Wallubuenup Swamp (approximately 2.1kms east) and Lake Goolelai (approximately 3.4kms south east). No wetlands have been mapped within the boundaries of Bush Forever Site 303 (Government of Western Australia, 2000).

The Beenyup Site Management Plan (2006) identifies the vegetation communities as being upland vegetation communities with no wetland vegetation species identified on the site. Therefore, the clearing as proposed for the digesters is not likely to be at variance to this Principle.

Methodology Beenup Site Management Plan (2006) (TRIM Ref. DOC12037)
Government of Western Australia (2000)
GIS databases:
- ANCA, Wetlands - CALM 08/01
- EPP, Areas - DEP 06/95
- EPP, Lakes - DEP 1/12/92
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
- RAMSAR, Wetlands - CALM 14/02/03

(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 applied to be cleared lies within soil unit JK9. This soil unit is associated with a dune landscape with brown and siliceous sands and underlying deep aeolianite deposits. Leached sands also occur within this soil complex (Department of Agriculture Western Australia, Date accessed 20/12/06).

The vegetation applied to be cleared occurs within a Class 3 Acid Sulphate Soil risk area. This Class is described as having no known risk of ASS occurring within 3m of natural surface (or deeper) that could be disturbed by most land development activities.

These soils can be prone to wind erosion. However, it is considered that the removal of 0.64ha of degraded native vegetation is unlikely to lead to appreciable land degradation on or off site. Therefore the proposed clearing is considered unlikely to be at variance to this Principle.

Methodology DAFWA (2004) Soil-landscape mapping, Department of Agriculture Western Australia, Date accessed 20/12/06.
GIS databases:
- Soils, Statewide - DA 11/99
- Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC

(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

There are two DEC managed areas within a 5km radius of the area applied to be cleared; being Marmion Marine Park, located approximately 4.1kms to the west and Lake Joondalup Nature Reserve, located approximately 1.9kms to the north east.

The proposed area is located within Bush Forever site 303 (Whitfords Avenue Bushland, Craigie/Padbury); a reserve recognised for its conservation significance due to its representation of ecological communities, diversity, rarity, and scientific or evolutionary importance (Government of Western Australia, 2000). This site is also identified as being an Environmentally Sensitive Area under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

The Bush Forever office (TRIM Ref. DOC12773) has commented on the Beenyup Site Management Plan and advised that there is no objection in principle to the proposal.

Notwithstanding, as the vegetation to be cleared is located within a conservation area, the clearing of vegetation is considered at variance to this Principle.

Methodology Beenyup Site Management Plan (2006) (TRIM Ref. DOC12037)
Government of Western Australia (2000)
GIS databases:
- Bushforever - MFP 07/01
- Clearing Regulations - Environmentally Sensitive Areas - DOE 30/5/05
- 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 area under application is not located within a Public Drinking Water Source Area (PDWSA).

The vegetation applied to be cleared lies within an area receiving an annual rainfall of approx. 800mm, with an annual evaporation of approx. 2000mm. Therefore, the clearing is not considered likely to significantly alter water tables and result in a deterioration of water quality.

Given this and the existing degraded nature of the vegetation applied to be cleared, the proposed clearing is unlikely to be at variance to this Principle.

Methodology Department of Environment (2004) Perth Groundwater Atlas 2nd Edition

GIS database:

- Public Drinking Water Source Areas (PDWSAs) - DOE 07/02/06
- Rainfall, Mean Annual - BOM 30/09/01
- Evaporation Isopleths - BOM 09/98

(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 vegetation applied to be cleared lies within an area receiving an annual rainfall of approx. 800mm, with an annual evaporation of approx. 2000mm. The proposed clearing of approx. 0.64ha is not considered likely to lead to an incremental increase in peak flood height or duration.

Therefore, the proposed clearing is considered not likely to be at variance to this Principle.

Methodology GIS databases:

- Rainfall, Mean Annual - BOM 30/09/01
- Evaporation Isopleths - BOM 09/98

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

Comments

There are no Aboriginal Sites of Significance within the area applied to be cleared, and the vegetation is not within a Native Title Claim area. Therefore, the clearing as proposed does not fall under the future acts process of the Native Title Act 1993.

The proposed clearing is within a Bush Forever site. Bush Forever office has commented on the Beenyup Site Management Plan and advised that there is no objection in principle to the proposal (TRIM Ref. DOC12773). However, as the clearing is within a conservation area it is recommended that the applicant undertakes 2:1 rehabilitation within the Bush Forever area adjacent to the proposed clearing.

The Water Corporation has sought and been granted Development Approval (DA) for this development by the Western Australian Planning Commission (WAPC) (TRIM Ref. DOC15302). This DA is subject to conditions which includes:

- preparation and implementation of the Beenyup Site Management Plan (2006) to the specification of the City of Joondalup and the Department of Environment and Conservation;
- provision of uniform fencing that is compatible with the natural environment along the boundaries of the development site abutting Bush Forever Site No. 303.

In regards to these conditions, the WAPC advise that the Beenyup Site Management Plan (2006) should address the removal of vegetation by an offset package, which includes rehabilitation of 2ha of currently degraded bushland, weed management and erosion control. The WAPC also advise that the Bush Forever Office advise that the fencing should consist of post and wire or post and rail.

Methodology GIS databases:

- Native Title Claims - DLI 7/11/05
- Aboriginal Sites of Significance - DIA

4. Assessor's comments

Purpose	Method Applied	area (ha)/ trees	Comment
Infrastructure Maintenance	Mechanical Removal	0.64	The clearing is required for the construction of two digesters at the Beenyup Waste Water Treatment Plant.
			The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986 and is at variance to Principles (e) and (h).

Specifically:

- Principle (e) Heddle: Karrakatta Complex - Central and South representation (29.5%) is below the State Government's National Objectives and Targets for Biodiversity Conservation of 30%, and is below the 15% pre-1750 distribution of each vegetation ecosystem that should be protected in a comprehensive, adequate and representative reserve system (2.5%) (JANIS Forests Criteria, 1997).

- Principle (h) - the proposed clearing is within a Bush Forever site (Whitfords Avenue Bushland, Craigie/Padbury).

Given that the vegetation proposed to be cleared is located within a Bush Forever site, it is recommended that the proponent undertakes revegetation to mitigate the impacts of the clearing. The Bush Forever office recommends the use of a 2:1 offset to clearing ratio.

The proponent has identified rehabilitation as part of the management of the site within the Beenyup Site Management Plan, with areas for rehabilitation marked across the site. One area located in the SE corner of the Beenyup WWTP site (known as Area 1) is located adjacent to the proposed clearing and has been identified as the initial area for rehabilitation activities on the site.

Therefore, the assessing officer recommends that the clearing as proposed be granted with conditions.

5. References

- ANCA (1996) A Directory of Important Wetlands in Australia. Second Edition. Australian Nature Conservation Agency, Canberra
- Bennett, E (2006) Beenyup Site Management Plan. August 2006. Water Corporation. Western Australia.
- 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.
- EPA (2006) Environmental Offsets. Position Statement No. 9. January 2006. Environmental Protection Authority. Western Australia.
- Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.
- 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.
- 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.
- 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)

