



1. Application details

1.1. Permit application details

Permit application No.: 993/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Water Corporation

1.3. Property details

Property: LOT 101 ON PLAN 15760

LOT 102 ON PLAN 15760

Local Government Area: City Of Wanneroo

Colloquial name: Alkimos

1.4. Application

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

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
<p>Beard Vegetation Association 1026:</p> <p>Mosaic: Shrublands; <i>Acacia rostellifera</i>, <i>A. cyclops</i> (S) & <i>Melaleuca cardiophylla</i> (N) thicket/ Shrublands; <i>Acacia lasiocarpa</i> & <i>Melaleuca acerosa</i> heath (Hopkins et al. 2001, Shepherd et al. 2001).</p> <p>Hedde Vegetation Complex:</p> <p>Cottesloe Complex Central and South;</p> <p>Mosaic of woodland of <i>E. ucalyptus gomphocephala</i> and open forest of <i>E. gomphocephala</i> - <i>E. marginata</i> - <i>E. calophylla</i>; closed heath on the Limestone outcrops.</p> <p>Quindalup Complex:</p> <p>Coastal dune complex consisting mainly of two alliances - the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of <i>M. lanccolata</i> - <i>Callitris preissii</i> and the closed scrub of <i>Acacia rostellifera</i> (Hedde et al. 1980).</p>	<p>The area under application totals 6ha within a 98ha property: The proposed clearing is likely to occur in numerous small patches within the 98ha.</p> <p>Bamford et al (2005) reported that much of the area has been recently burnt and there was generally a high level of weed invasion by <i>Briza maxima</i>, geranium and other weeds (Bamford et al. 2005). It was also noted that near the coast and in broad valleys, the environment has been disturbed by off road vehicles and weed invasion.</p> <p>The vegetation in the area under application consists of near coastal localities which are dominated by heath with gullies of <i>Acacia</i> and <i>Scaevola</i>, and interior localities supporting <i>Banksia</i> and <i>Eucalyptus todtiana</i> woodland with dense heaths of <i>Dryandra sessilis</i> (Bamford et al. 2005).</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)</p>	<p>The vegetation in the area was assigned 'good condition' because of the damage to community structures following a recent fire, in addition to weed invasion and human disturbance. However, there is the potential for regeneration of vegetation following the fire (Bamford et al. 2005, Syrinx Environmental Planning 2005).</p>

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 within the area under application is generally of 'good condition' (Bamford et al 2005, Syrinx Environmental Planning 2005). However, due to the random selectivity of sites for borehole drilling of up to 6ha within the 98ha proposal area, disturbance is likely to be kept to a minimum (Water Corporation 2005) and it is unlikely that the clearing will impact on the level of biodiversity within these area.

Further, the area under application abuts Bush Forever site 397 on the western boundary and is less than 10

km from Yanchep National Park, Neerabup National Park, Neerabup Nature Reserve and Gnangara-Moore River State Forest 65. The biological diversity of these areas is likely to be higher than that in the area under application.

Syrinx Environmental Planning (2005) also reported that of the 190 taxa of vascular plants recorded in the Alkimos Study Area, at least 50 are alien weeds, thereby reducing the level of biological diversity within the site area.

Methodology Bamford et al. (2005) (DoE TRIM ref: EI 4806)
Syrinx Environmental Planning (2005) (DoE Trim ref: EI 5208)
Information provided by the proponent (DoE Trim ref: IN25017-01)
GIS Databases:- Bushforever - MFP 07/01
GIS Databases:
- 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 may be at variance to this Principle

Bamford et al. (2005) report advises that reptile species of conservation significance expected to occur within the local area include the Carpet Python (Level 1 species), Black-striped snake (Level 2 species), and the geckos *Diplodactylus polyophthalmus* and *Underwoodisaurus milii* (Barking Gecko). Conservation bird species of significance including Carnaby's Black - Cockatoo and the Peregrine Falcon are also known to occur in the local area. Other species of conservation significance with possible distribution in the local area include:-

Western Brush Wallaby
Quenda- White-tailed Dunnart
Honey Possum
Brush-tailed Possum
Chuditch
Moodit
Noodji

Bamford et al. (2005) conclude that 'there are some locations of particularly good quality habitat, including some rare habitats of special importance for fauna'.

CALM (2006) has concluded that the 6 ha for the proposed geotechnical surveys within the 98ha envelope contains at least one area of quality habitat for fauna. Habitat suitable for the Carpet Python and/or foraging habitat for the Endangered Carnaby's Black Cockatoo may also be impacted by the proposed clearing (CALM 2006).

In addition, vegetation within the subject area, particularly in western parts, acts as an important ecological linkage between coastal vegetation north and south of the area (Syrinx Environmental Planning, 2005). Therefore, the vegetation under application may serve an important function for faunal movement and habitat in the local area.

It is recognised that the potential impacts as described above have been reported generally for the entire study area of the proposed Alkimos Waste Water Treatment Plant (WWTP). While the assessing officer acknowledges potential habitat of significance for fauna within the local area, and understands that while the clearing of 6 ha within a 98 ha area may or may not be at variance to this Principle, the impact of the WWTP on the biodiversity of the area, as indicated above, will be addressed through the EPA assessment.

Methodology Bamford et al. (2005) (DoE TRIM ref: EI 4806)
Syrinx Environmental Planning (2005) (DoE Trim ref: EI 5208)
CALM (2006) (DoE TRIM ref: EI6287)
Environmental Protection Authority (2006) (DoE TRIM ref: EI6317)

(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) species were identified within the 98ha surveyed area (Syrinx Environmental Planning).

Five Priority 3 flora species - *Astroloma microcalyx*, *Conostylis pauciflora*, *Sarcozona bicarinata*, *Hibbertia spicata* subsp. *Leptotheca* and *Stylidium maritimum* were found within the surveyed area (Syrinx Environmental Planning, 2005). Given that the clearing will be in small scattered patches and that the proponent intends to rehabilitate the disturbed area, it is unlikely that the clearing will have a significant impact on these Priority flora species.

CALM (2006) advise that 9 records of Declared Rare taxon *Euclayptus argutifolia* and 17 records of 9 different

Priority flora species are known to occur within the local area. Eucalyptus argutifolia is known to occur on shallow soils over limestone and within slopes or gullies of limestone ridges and outcrops (CALM 2006). The closest record of this species is 7.6km north of the proposed area. CALM (2006) has concluded that provided the proponent minimises their disturbance on the slopes or gullies of limestone ridges and outcrops when undertaking the geotechnical investigations the proposal is not likely to be at variance to this Principle.

Methodology CALM (2006) (DoE TRIM ref: EI6287)
Syrinx Environmental Planning (2005) (DoE TRIM ref: EI 5208)
Pers comms Robecca Richardson - Water Corporation - (1/3/06) (DoE TRIM ref: EI 5113)
GIS Databases:- Declared Rare and Priority Flora List - CALM 13/08/03- Clearing Regulations
- Environmentally Sensitive Areas - DOE 8/03/05

(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 may be at variance to this Principle

The only ecological community in the study area that is listed on CALM's Threatened Ecological Community database is Floristic Community Type (FCT) 26a (Syrinx Environmental Planning 2005). The Water Corporation have stated in a letter of 25th November 2005 to the Department that clearing for this permit will not occur in the EPASU Recommended Regionally Significant Vegetation outlined in Appendix 4 of EPA Bulletin 1207 (DoE Folio No 6). CALM (2006) have indicated that the boundary of FCT 26a does occur within the EPASU Recommended Regionally Significant Vegetation. Therefore, it is unlikely that this TEC will be impacted by the current proposal (CALM 2006).

CALM (2006) advises that there are 3 floristic community types listed in the Syrinx Environmental Planning (2005) report that are Priority 3 communities, namely FCT 24, 29a and 29b that are possibly/likely to occur within the area under application. Given the uncertainty over where the boundaries of these FCTs actually occur in relation to the proposed clearing, CALM (2006) have advised that it is possible that the proposed clearing may potentially impact any one of these Priority 3 communities.

The assessing officer acknowledges that while the clearing of 6 ha within a 98 ha area may be at variance to this Principle, the full impact of the WWTP on the TEC's in the area will be addressed through the EPA assessment.

Methodology CALM (2006) (DoE TRIM ref: EI6287)
Environmental Protection Authority (2006) (DoE TRIM ref: EI6317)
Syrinx Environmental Planning (2005) (DoE TRIM ref: EI 5208)
GIS Databases:- Threatened Ecological Communities - CALM 12/4/05- Clearing Regulations
- Environmentally Sensitive Areas - DOE 8/03/05

(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 at variance to this Principle

The vegetation within the area under application is mapped as Beard vegetation association 1026, of which there is 68.1% remaining (Shepherd et al 2001, Hopkins et al 2001) which therefore has a conservation status of 'least concern' for biodiversity conservation (Department of Natural Resources and Environment 2001).

The vegetation has also been mapped as the Cottesloe Complex Central and South and Quindalup Heddle Vegetation Complexes, of which there is 41.1% and 49.5% of existing vegetation remaining, respectively (Heddle et al. 1980). These vegetation complexes have a conservation status of depleted (Department of Natural Resources and Environment 2001).

It is considered that the removal of small patches of vegetation in a dispersed fashion is unlikely to effect the representation of the vegetative complexes within the local area.

Methodology Department of Natural Resources and Environment (2001)
Hopkins et al. (2001)
Shepherd et al. (2001)
Heddle et al. (1980)
GIS Databases:- Bushforever - MFP 07/01- Pre-European Vegetation - DA 01/01-
Heddle Vegetation Complexes - DEP 21/06/95

(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 watercourses or wetlands within the area under application.

Beonaddy Swamp & Carabooda Lake, both resource enhancement wetlands, are located approximately 2.5km north north-east and 3.4km east of the area under application respectively. Also, Nowergup Lake (a conservation category wetland) is found 4.6km east south-east of the subject area.

As such, it is considered that there is no wetland dependent vegetation present within the area under application.

Methodology GIS Databases:
-Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DOE 15/9/04
-EPP Lakes - DEP 28/07/03

(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 subject area is located in a low salinity risk area (500-1000mg/l) and has a low to nil risk of developing Acid Sulphate Soils as a result of clearing.
Chief soils in the area are calcareous sands and therefore there may be a slight risk of land degradation resulting from clearing.

DAWA (2006) have identified a low potential for land degradation in the form of eutrophication, water and wind erosion that may occur under the intended land use. However, due to the fragmented nature of clearing involved it is unlikely to cause appreciable land degradation on or off site.

Methodology DAWA (2006) (DOE TRIM ref: IN25951)
GIS Databases:
-Acid Sulfate Soil Risk Map, SCP - DOE 04/11/04
-Groundwater Salinity, Statewide - 22/02/00
-Topographic Contours, Statewide - DOLA 12/09/02

(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**
Bush Forever site 397 lies adjacent to the western boundary of the proposal area. Yanchep National Park and Neerabup National Park are located approximately 2.5km north north-east and 2.7km east south-east of the area under application respectively. In addition, Neerabup Nature Reserve and Gngara-Moore River State Forest 65 occur 4km south east and 5.2km east north-east of the proposed clearing (CALM 2006).

Therefore, it is unlikely that the removal of small patches of vegetation in a dispersed fashion will impact on the environmental values of these conservation areas.

Bush Forever (2006) have recognised that the proposed activities will require the clearing of regionally significant bushland. However, Bush Forever Sites in this location will be amended in the future to reflect proposed changes to Parks and Recreation reserves as part of the Alkimos Eglinton MRS Amendment.

Methodology CALM (2006) (DoE TRIM ref: EI6287)
Bush Forever (2006)
GIS Databases:
-Bushforever - MFP 07/01
-System 6 Conservation Reserves - DEP 06/95
-CALM Managed Lands and Waters - CALM 01/08/04

(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**
An eastern portion of the area under application (of approximately 31ha) is located within a Priority 3 Public Drinking Water Source Area. For a large proportion of the area under application the water table is generally greater than 14m below ground level (pers comms DoE Hydrologist 13/6/06). It is expected that if the depth to the water table is greater than 6m to 10m below ground level, the vegetation is not dependent on groundwater. Therefore, the removal of vegetation that is not dependent on groundwater within the area under application is unlikely to cause deterioration in the quality of underground water.

The nearest surface water body is Beonaddy Swamp (a resource enhancement wetland) which lies 2.5km north north-east of the area.

Given the Beonaddy Swamp is sufficiently distanced from the proposed clearing, and the fragmented nature of clearing, it is unlikely that the clearing will have any major impacts on the quality of underground and surface water.

Methodology Pers comms Department of Environment Hydrologist - (13/6/06)
GIS Databases:

- Public Drinking Water Source Areas (PDWSAs) - DoE 29/11/04
- EPP, Areas - DEP 06/95
- Geomorphic Wetlands

(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 subject area is located in a high rainfall area (800mm per annum). However, the removal of small scattered amounts of vegetation over a large area (98ha) is unlikely to have any significant impact on the incidence or intensity of flooding within the local area.

Methodology GIS Databases:
- Rainfall, Mean Annual - BOM 30/09/01

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

Comments

The Alkimos WWTP was referred to the EPA and is currently being assessed. The Chairman of the EPA has advised that the EPA deems that the geotechnical investigations involves minor or preliminary work. Thus the clearing proposal is exempt from the EPA assessment and the clearing as applied in this application and may be addressed through the clearing provisions. There is no other RIWI Act Licence, Works Approval or EP Act Licence that will not be addressed in the formal EPA assessment currently being undertaken. From the supporting information it was indicated that 'no aboriginal archaeological sites or material were identified within the boundaries of the Wastewater Treatment Plant Project Area' (Macintyre Dobson & Associates 2005).

Methodology Macintyre Dobson & Associates (2005) (DoE TRIM ref: EI 4806)

4. Assessor's recommendations

Purpose	Method Applied	Decision	Comment / recommendation
Miscellaneous	Mechanical Removal	6 area (ha)/ trees	Grant
			<p>The assessing officer has completed the assessment of the proposed clearing against the ten clearing principles. The assessing officer has determined that the clearing may be at variance to Principles b) and d) and is not or not likely to be at variance to the remaining principles.</p> <p>It is recognised that the potential impacts of the proposed clearing, as discussed in comments of the assessment against the clearing principles, has been reported generally for the entire study area of the proposed Alkimos WWTP.</p> <p>For Principles b) and d), as the exact location of the clearing is yet to be determined, the impact of the proposed clearing cannot be fully determined.</p> <p>While the assessing officer acknowledges the minimal effects of the clearing of 6 ha within a 98 ha envelope, the full impact of the WWTP on the biodiversity of the area, will be addressed through the formal EPA assessment.</p>

5. References

Bamford, M.J. & Davis, R.A. Consulting Ecologists (2005) Alkimos Proposed Wastewater Treatment Plant: Fauna Assessment. (DoE TRIM ref: EI 4806).

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: EI6287

DAFWA (2006) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DoE TRIM ref: IN25951.

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.

Environmental Protection Authority (2006) EPA letter to Water Corporation. (DoE TRIM ref: EI 6317)

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.

Macintyre Dobson & Associates Pty Ltd Consulting Anthropologists & Thomas O'Reilly Consulting Archaeologist (2005). Report on an Ethnographic Survey of the proposed Wastewater Treatment Plant Project Area at Alkimos, City of Wanneroo, Western Australia. (DoE TRIM ref: EI 4806).

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status.

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)