



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1064/2  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Water Corporation

### 1.3. Property details

Property: LOT 3 ON PLAN 9383 (Lot No. 3 MARMION ALKIMOS 6038)  
 Local Government Area: City Of Wanneroo  
 Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
23.5		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
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## 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 may be at variance to this Principle**

The proposed area to be cleared is within the Swan Coastal Plain bioregion, which is known as an area of constrained use. The vegetation type representation of 41.1% (Cottesloe complex) and 49.5% (Quindalup complex) are above the target figures of 10% for constrained use areas and also above the 30% target for areas outside of the constrained use areas (Government of Western Australia, 2000). The vegetation is considered to range from very good to excellent condition in the report by SMEC (2005) and aerial photography and report photo's concur with this assessment. (Keighery, 1994). The biodiversity found within the proposed area to be cleared is quite high.

In a flora and vegetation survey by SMEC (2005) 166 native species were identified and a possible three Floristic communities recognised. SMEC also provided a fauna report that stated 157 species of fauna were considered likely to be associated with the proposed clearing area. Some of the possible (conservation significant) fauna species include: \* Carnarby's Cockatoo \* SW Carpet Python \* Quenda \* Western Brush Wallaby \* Lerista lineata \* Neelaps calanotus.

The proposed clearing area and surrounding area is zoned urban with urban development to the south and east. Land directly to the north is involved with the proposed Alkimos waste water treatment plant. Land through which the proposed clearing passes is under EPA assessment for an urban development project. Given the surrounding land uses and above factors, it is considered that the vegetation under application has a high diversity of native plants and fauna and is significant as an ecological community in comparison to the remaining native vegetation in the local area.

**Methodology**      SMEC (2005)  
 Keighery, 1994  
 Government of Western Australia, 2000  
 GIS Databases:  
 - Hedde Vegetation Complexes - DEP 21/06/95  
 - Aerial Photography - Swan coastal plain 40cm orthomosaic 05  
 - Town Planning Scheme Zones - MFP 8/98

**(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**

A fauna assessment for the area proposed to be cleared identified the area as supporting a moderately rich diversity of species, some with conservation significance.

The carpet python (*Morelia spilota imbricata*) - listed as specially protected fauna within the Wildlife Conservation Act 1950 and listed on the IUCN Red List - is known to be widespread in the region. Threatening processes include loss of bushland habitat for land development (Naturebase, 2006)

The Carnaby's Cockatoo (*Calyptorhynchus latirostris*) - listed as Endangered on the IUCN Red List - is known to forage within the proposed clearing area. Threatening processes include clearing of heathland resulting in loss of food (Naturebase, 2006).

The proposed clearing is narrow and linear and while it may not represent fragmentation for some birds and mammals, it may provide a movement barrier to some reptile species. There is also a risk of mortality in animals that become trapped in open trenches. A condition has been placed for the management of trenches to assist in the prevention of this occurrence.

In order to minimise habitat loss, a condition will be placed on the permit to avoid and minimise clearing.

**Methodology** CALM - Naturebase 2006  
Consultants Report (2005)

**(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 no known Declared Rare Flora (DRF) within 5km of the proposed area to be cleared.

A flora survey conducted by SMEC (2005) identified Priority species, *Conostylis pauciflora* adjacent to the area to be cleared. Part of the proposed clearing area has also undergone three floristic surveys by RPS Bowman Bishaw Gorham (2006), one in June 2004, another in spring 2005 and a final survey in May 2006, all of which concur with the findings of the SME report. The SMEC report was undertaken in late October early November.

The RPS Bowman Bishaw Gorham report stated that *Conostylis pauciflora* subsp. *pauciflora* is known in the area around Dawesville. As the species is not limited to the area proposed to be cleared and there are no recorded DRF within this area the proposed clearing is not likely to be at variance to this principle.

**Methodology** SMEC (2005) (DoE Trim Ref IN25462-02)  
RPS Bowman Bishaw Gorham (2006)  
GIS Database:  
- Declared Rare and Priority Flora List - CALM 01/07/05

**(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 is not likely to be at variance to this Principle**

There are no TEC's identified within the proposed clearing area, however the proposed clearing area does fall within the buffer zone of SCP26a. This TEC is an inferred plot as the survey data is regarded as being incomplete (BCS, 2006).

Advice from BCS (2006) states that the change and separation in vegetation and geomorphology between the inferred occurrence of SCP26a and the proposed clearing area indicates the areas are not contiguous. Given this and the distance between SCP26a and the proposed clearing, it is unlikely that the clearing would be at variance to this principle.

**Methodology** BCS, 2006  
GIS databases:  
- Threatened Ecological Communities - CALM 12/04/05

**(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 likely to be at variance to this Principle**

Pre-European (ha)\* Current Extent Remaining Conservation Status\*\* % in  
Reserves/CALM managed land

(ha)\* (%)\*  
IBRA Bioregion:

Swan Coastal Plain	1,498,297	626,512	41.8	Depleted	
Shire: Wanneroo	78,809	45,361	57.6	Least concern	
Beard Unit 1948	81,022	17,315	21.4	Vulnerable	0
Beard Unit 1026	124,905	85,076	68.1	Least concern	46.3
Hedde Vegetation:					
(i)	Cottesloe Complex				
Central And\South	44,995	18,474	41.1	Depleted	8.8
(ii) Quindalup complex	36,013	17,820	49.5	Depleted	5.3

The area under application is located within the Swan Coastal Plain Bioregion, where 41.8% (Shepherd et al., 2001) of pre-European vegetation is left remaining within the intensive land-use zone (ILZ). In recognition of past land use planning decisions, the area under application is classified as a 'constrained area' (Government of Western Australia, 2000). In these areas the retention objective is more realistically placed at 'at least 10 percent'. Given that the proposed clearing area retains 40% of pre European vegetation it is unlikely that this proposal is at variance to this principle

**Methodology** Shepherd et al (2001)  
Hopkins (2001)  
Government of Western Australia, 2000  
Department of Natural Resources and Environment (2002)  
GIS Databases:  
- Hedde Vegetation Complexes - DEP 21/06/95  
- 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 not at variance to this Principle**  
There are no wetlands or watercourses present within or adjacent to the area under application (SMEC 2005). Therefore the vegetation under application is not considered to be wetland or watercourse dependent and is therefore not at variance to this Principle.

**Methodology** SMEC (2005) (DoE Trim Ref IN25462-02)  
GIS Databases:  
- Geomorphic Wetlands (Mgmt Categories) Swan Coastal Plain - DOE 15/09/004  
- Hydrography, Linear - DOE 01/02/04

**(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 soils within the area under application are chiefly siliceous and calcerous sands. As such, there may be some potential for wind erosion to occur. However, this risk is likely to be minimal due to the long and linear nature of the area under application and the vegetation that is to be retained within close proximity to the proposed clearing. The remaining vegetation would also decrease the potential for water erosion to occur and any surface water run-off would be dissipated by the remaining vegetation, rather than being sheet flow characteristic of larger bare areas.

**Methodology** GIS Databases:  
- Soils, Statewide - DA 11/99

**(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 following conservation areas are located within a 10km radius of the proposed clearing:

- Nerrabup National Park - 2.2km E
- Nerrabup Nature Reserve - 3.2km E
- Yanchep National Park - 3.5km N
- Gnaragara-Moore River State Forest - 6km NE

Additionally Bush Forever Site 397 is located approximately 550m to the west of the proposed clearing.

The shape of the proposed clearing is long and narrow. The positioning and shape of the proposal is such that it does not provide a buffer to nearby conservation areas and does not contribute to any ecological linkages.

Although the vegetation is in 'very good' to 'excellent' condition, the habitats and vegetation types within the

proposed clearing are well represented within the surrounding conservation areas. Therefore this proposal is not likely to be at variance to this principle.

**Methodology** Keighery, 1994  
 GIS Databases:  
 - CALM Managed Lands and Waters - CALM 01/07/05  
 - Bush Forever - MFP 01/07

**(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**  
 There are no wetlands, watercourses or any other hydrographic features within the area under application. The nearest waterbody is Lake Carabooda which is approximately 3km to the north-east of the area under application. There is unlikely to be any substantial increase in surface run-off due to the long linear nature of the proposed clearing and the porous nature of the soils.

Part of the area under application falls within the Priority 3 Area of the Perth Coastal Underground Water Pollution Control Area. However, the intended landuse (sewer main pipeline) is an acceptable landuse in this area.

The groundwater within the area under application is approximately 500-1000mg/L which is relatively fresh. However, it is considered that the long and linear nature of the proposed clearing would not have a significant impact on the groundwater quality.

**Methodology** GIS Databases:  
 - Hydrography, Linear - DOE 01/02/04  
 - Groundwater Salinity, Statewide - 22/02/00  
 - Public Drinking Water Source Areas (PDWSA) - DOE 09/05/05  
 - Soils, Statewide - DA 11/99

**(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**  
 Any excess surface run-off resulting from the proposed clearing is unlikely to lead to flooding due to the porous nature of the sandy soils and the long, linear shape of the proposed clearing. It is therefore unlikely that the clearing as proposed would be at variance with this Principle.

**Methodology** GIS Databases:  
 - Soils, Statewide - DA 11/99

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

**Comments**  
 The proposed clearing is directly related to the proposed Alkimos Waste Water Treatment Plant which was recently assessed by the EPA. The findings of the EPA supported the project with conditions. This has been presented to the Minister, however no final decision has yet been reached.  
 The proposed clearing area falls approx 200m inside the 2000m buffer area for TEC ALKIMOS01. However, it is noted, that the EPA, in Assessment Report 1529 to the Minister, has supported other development within this buffer area.

No RIWI Act, Works Approval or other EPA Act licence are required.

**Methodology** EPA Bulletin 1238 & 1239

**4. Assessor's comments**

Purpose	Method	Applied area (ha)/ trees	Comment
Building or Structure	Mechanical Removal	23.5	The assessable criteria have been addressed and the proposal maybe at variance to principles a and b.  Principle (a): The area is one of moderately high biodiversity with the surrounding land use being urban or zoned for urban development. A condition to avoid or minimise clearing should lessen the impact of the proposed clearing.  Principle (b): The area is known habitat and foraging area for many conservation significant species. Conditions within the permit to avoid and minimise clearing, and to manage open trenches will minimise the impact.

## 5. References

- Clearing Assessment Unit's biodiversity advice for land clearing application. Advice to Director General, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC 10107
- 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.
- Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.
- 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.
- Naturebase website, [http://www.naturebase.net/plants\\_animals/index.html](http://www.naturebase.net/plants_animals/index.html), last updated 24 July 2006.
- RPS Bowman Bishaw and Gorman, 2006, Lot 9 Marmion Avenue, Jindalee, Vegetation and Flora Survey TRIM ref DOC 8790
- 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.
- SMEC (2005a) Fauna Assessment for Quinns Main Sewer to Alkimos WWTP Report. Prepared for Water Corporation. DoE Trim Ref IN25462-02.
- SMEC (2005b) Rare Flora and TEC Survey for Quinns Main Sewer to Alkimos WWTP Report. Prepared for the Water Corporation. DoE Trim Ref IN25462-02

## 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)

