



1. Application details

1.1. Permit application details

Permit application No.: 1974/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: City of Wanneroo

1.3. Property details

Property: LOT 12835 ON PLAN 21310 (House No. 46 FORESHORE YANCHEP 6035)
LOT 612 ON PLAN 10292 (Lot No. 612 HORNPIPE YANCHEP 6035)
Local Government Area: City Of Wanneroo
Colloquial name: Pathway (boardwalk) construction

1.4. Application

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

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: No vegetation association mapped (Shepherd et al. 2001).	The proposed clearing consists of 0.064 hectares of native vegetation, divided between Portions A and B, to be cleared for the construction of a coastal pathway on primary dune swales.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Description and condition of the vegetation under application was determined from the Site Inspection (2007). Vegetation ranges in condition from 'completely degraded' to 'very good' with an average condition rating of 'degraded'.
Hedde Vegetation Complex: Quindalup Complex - 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. lanceolata</i> - <i>Callitris preissii</i> and the closed scrub of <i>Acacia rostellifera</i> (Hedde et al. 1980)	Portion B under application to the south is approximately 0.006 ha and is within Bush Forever site 397. Vegetation in this area has a condition rating of 'very good'. Vegetation present in portion B includes <i>Acacia cochlearis</i> , <i>Acanthocarpus preissii</i> , <i>Conostylis candicans</i> , <i>Hardenbergia comptoniana</i> , <i>Scaevola crassifolia</i> , <i>Tetragonia decumbens</i> , <i>Olearia axillaris</i> , <i>Acacia littorea</i> , <i>Myoporum insulare</i> and <i>Santalum acuminatum</i> . A major infestation of the weed species <i>Pelargonium capitatum</i> occurs at the southern extremity of portion B. The only other weed recorded within portion B is scattered <i>Trachyandra divaricata</i> . Portion A under application runs along the road reserve of Compass Circle, vegetation in this area ranges in condition from		

'completely degraded' in the northern half to 'good' in the southern half. The northern half of Portion A is approximately 0.058 ha and heavily weed infested and the majority of its length has been mowed. The southern half has an unsealed access path to the beach and patches of aggressive weed invasion.

Native vegetation present within Portion A includes *Acacia cochlearis*, *Acanthocarpus preisii*, *Hardenbergia comptoniana*, *Scaevola crassifolia*, *Tetragonia decumbens*, *Olearia axillaris* and *Lepidosperma gladiatum*. Weeds species include *Arctotheca calendula*, *Arctotis stoechadifolia*, *Gazania linearis*, *Trachyandra divaricata*, *Lupinus angustifolius*, *Pelargonium capitatum* and Buffalo grass (*Buchloe dactyloides*).

Approximately 0.006 ha of vegetation is in 'very good' condition.

As above

Approximately 0.042 ha is in 'good' condition.

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)

As above

As above

Approximately 0.016 ha is in 'completely degraded' condition.

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)

As above

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

To the east of the areas under application lands support heavy urbanisation and native vegetation exists mainly in a linear strip along the primary coastal dune swales.

During Site Inspection (2007) Portion A of the area under application along Compass Circle was observed to range in condition from 'completely degraded' to 'good' condition with and with the majority in 'good' condition. This Portion has aggressive invasion by several weeds species, with native vegetation having been cleared and mowed in some areas with replacement of native vegetation by weeds and two unsealed beach access paths along its length. Given this, Portion A is considered to represent poor quality habitat for fauna and supports low floristic diversity.

Portion B south of Compass Circle is in 'very good' condition with a high floristic diversity and is considered to represent suitable habitat for fauna. This area however, covers only 0.006 ha and the proposed clearing of spot holes for the boardwalk posts and of swale crests for the boardwalk itself is unlikely to significantly impact on the floristic diversity and fauna habitat of this area.

Considering the heavy weed invasion and other forms of disturbance across the majority of the area under application, and the limited clearing of vegetation in 'very good' condition clearing is not considered likely to be at variance to this principle.

Methodology

References:

- Site Inspection (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 is not likely to be at variance to this Principle

Five indigenous fauna species of conservation significance have been recorded within a 10 km radius of the area under application. These include the following Schedule 1 species:

- Leatherback Turtle (*Dermochelys coriacea*) (vulnerable)
- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (endangered)
- Crystal Cave Crangonyctoid (*Hurley* sp.) (critically endangered)

Priority species:

- Quenda (*Isoodon obesulus* subsp. *fusciventer*) P5

and Specially Protected fauna the South West Carpet Python (*Morelia spilota* subsp. *imbricata*).

During Site Inspection (2007) the area under application was observed to support coastal heath on primary dune swales. Considering this, the area under application is unlikely to provide suitable habitat for Carnaby's Black Cockatoo and the Crystal Cave Crangonyctoid. Given the position of the area under application within the primary dune swales and proximity to the urban area, the area under application is unlikely to provide suitable nesting sites for the Leatherback Turtle.

However, during Site Inspection (2007) the vegetation in Portion B was found to be structurally intact and supporting dense vegetation will little weed invasion. The area under application therefore may support suitable habitat for the Southern Brown Bandicoot (*Isoodon obesulus* subsp. *fusciventer*) and South West Carpet Python. However, given the size of the area under application, being 0.006 ha the area is not likely to be significant habitat for these two species.

Given that the area under application is not likely to support significant habitat for fauna indigenous to Western Australia clearing is not likely to be at variance to this principle.

Methodology References:

- Site Inspection (2007)
- DEC fauna habitat notes. February 2007

GIS Databases:

- SAC Bio datasets 08/08/2007

(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 is one species of Declared Rare Flora (DRF), one species of Priority 2 flora, six taxa of Priority 3 flora and two species of Priority 4 flora located within a 10 km radius of the area under application. The nearest DRF, *Eucalyptus argutifolia*, is approximately 950 m east of the area under application and the nearest Priority flora, *Stylidium maritimum*, is located approximately 2 km south of the area under application.

During Site Inspection (2007) the area under application was observed to support coastal heath on white sands of the primary dune system.

The vegetation complex, topography and soil type present on site (Site Inspection 2007) is considered to be inconsistent with the habitat requirements of the nearby recorded flora of conservation significance (Western Australian Herbarium 1998). Given this the area under application is not considered necessary for the continued existence of rare or priority flora and is not likely to be at variance to this principle.

Methodology References:

- Western Australian Herbarium (1998-)
- Site Inspection (2007)

GIS Databases:

- SAC Bio datasets 20/04/2007

(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

Within a 10 km radius of the area under application there are three occurrences of Threatened Ecological Communities (TECs). These TECs are:

- SCP 26a: *Melaleuca huegelii* - *M. acerosa* shrublands of limestone ridges
- SCP 19b: Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain, and;
- Aquatic root mat community No.1 of caves of the Swan Coastal Plain.

During Site Inspection (2007) the area under application was observed to support coastal heath on white sands of the primary dune system.

Based on Site Inspection (2007) the floristic composition, soil and landform types observed within the area under application are inconsistent with those representing the above listed TECs (Gibson et al. 1994).

Given the area under application is not likely to comprise or be necessary for the maintenance of a TEC clearing as proposed is considered not likely to be at variance to this principle.

- Methodology** References:
- Site Inspection (2007) (TRIM Ref. DOC32064)
 - Government of Western Australia (2000)
 - Gibson et al. (1994)
- GIS Databases:
- SAC Bio datasets 20/04/2007

(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 State government is committed to the National Objective Targets for Biodiversity Conservation, which includes targets that prevent the clearing of ecological communities with an extent below 30% of that present pre-1750 (Commonwealth of Australia 2001).

The City of Wanneroo (57.6% remaining) and greater Swan Coastal Plain (38.1% remaining) both have greater than the recommended minimum of 30% vegetation remaining.

Hedde Vegetation Complex, Quindalup Complex also has greater than the recommended 30% minimum of Pre-European extent remaining (49.5% remaining) however Heddles Quindalup Complex incorporates more than just vegetation of the primary dune system. When a 20 km stretch of the primary dune system extending north and south of the area under application (covering approximately 851 ha) is examined approximately 39% of native vegetation remains.

Given the size of the area under application (being 0.064 ha) and the level of vegetation representation remaining, the proposed clearing is considered unlikely to be at variance to this principle.

	Pre-European area (ha)	Current extent (ha)	Remaining %	% in reserves/DEC- managed land
Local coastal veg. (20 km x 400m)		851	519	39
Swan Coastal Plain*	1501457	571759	38.1	-
City of Wanneroo**	78,809	45,361	57.6	-
Hedde vegetation complex*				
Quindalup Complex	36,013	17,820	49.5	5.3
Beard vegetation associations				
No association mapped	-	-	-	-

* (EPA, 2006)

** (Shepherd 2001)

- Methodology** References:
- Commonwealth of Australia (2001)
 - EPA (2006)
 - Shepherd (2001)
- GIS Databases:
- Pre-European Vegetation - DA 01/01
 - Hedde Vegetation Complexes - DEP 21/06/95
 - 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**
 The nearest wetland to the area under application is a Conservation Category Wetland (CCW), which is also an Environmental Protection Policy lake, located 4.5 km east of the application site. No watercourses are located in the local area.

During Site Inspection (2007) the area under application was observed to be coastal heath on primary dunes with no wetland dependent vegetation present.

Given the area under application does not support wetland dependant vegetation or vegetation growing in association with a wetland the proposed clearing is not considered likely to be at variance to this principle.

- Methodology** **References:**
- Site Inspection (2007)
- GIS Databases:**
- Geomorphic wetlands (Mgt Categories) - Swan Coastal Plain - DOE 15/09/04
 - EPP, Lakes - DEP 1/12/92
 - Hydrography, linear - DOE 1/2/04
 - 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

The vegetation under application lies within soils associated with coastal dune formations with chief soils being calcareous sands on the dunes (Northcote et al. 1960-68).

During Site Inspection (2007) the area under application was observed to support white sands of the primary coastal dune formation. Considering the sandy nature of the soils and the location of the area under application, the proposed clearing has the potential to cause wind erosion of soils.

Given the risk of wind erosion associated with the removal of vegetation from sandy soils clearing as proposed may be at variance to this principle.

Development Approval from the Western Australian Planning Commission has been given for the proposal with conditions which require disturbed areas to be stabilised on completion of construction and thereafter maintained and for a 150 mm thick layer of mulch to be placed over the disturbed areas and the site rehabilitated (Western Australian Planning Commission 2008).

- Methodology** **References:**
- Site Inspection (2007)
 - Northcote et al. (1960-68)
 - Western Australian Planning Commission (2008)
- GIS Databases:**
- Soils, Statewide - DA 11/99
 - Acid Sulphate 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

Portion B under application is located within Bush Forever site 397 south of Compass Circle and Portion A borders Bush Forever site 397.

During Site Inspection (2007) Portion A was observed to range in condition from 'completely degraded' to 'good' with the majority in 'good' condition and Portion B is considered to be in 'very good' condition.

The proposal involves clearing of vegetation within Bush Forever site 397 and within the fragile fore dune environment. Clearing also has the potential to indirectly impact the environmental values of Bush Forever site 397 through the spread and/or introduction of weed species, by machinery. There are serious consequences associated with the spread of exotic species into areas of coastal native vegetation, including the potential decline or local extinction of species and the destabilisation of the fore dune system.

Despite the area under application being 0.064 ha, Portion B is within Bush Forever site 397 and clearing of vegetation in both Portion A and B of the proposal risks the introduction and/or spread of weeds. Given this, clearing as proposed is likely to impact on the environmental values of an area of conservation significance and is considered to be at variance to this principle.

To mitigate clearing within Bush Forever site 397 the Western Australian Planning Commission has requested rehabilitation of the whole site area from Compass Circle to Tarwhine Turn at a ratio of 2:1. Conditions also include minimising the area of vegetation cleared and stabilisation and mulching of disturbed areas (Western Australian Planning Commission 2008).

To mitigate the impact of disturbance in the spread of weeds a condition will be placed on this permit for weed

control.

As the application area is within Bush Forever site 397 an offset condition will be placed on this permit.

Methodology References:
- Site Inspection (2007)
- Western Australian Planning Commission (2008)
GIS Databases:
- Bushforever - MFP 07/01

(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 nearest wetland to the area under application is located 4.5 km east of the application site and no watercourses are located in the local area. The area is within 150m of the ocean and groundwaters are considered saline.

During Site Inspection (2007) the area under application was observed to be located on the primary coastal dune swales with sandy soils of the Quindalup dune system and supporting deep rooted perennial vegetation

Soils of the Quindalup system generally have a high risk of phosphorus export (State of Western Australia 2005). Removal of deep-rooted perennial vegetation has the potential to result in an increase in nutrients being discharged from the soil and associated deterioration in the quality of local ground and surface waters.

Soils of the Quindalup system generally also have high infiltration rates therefore the likelihood of water erosion of soils with associated deterioration in surface water quality through sedimentation is low.

Given the area under application is 0.064 ha in size it is considered unlikely that clearing will cause an appreciable increase in the release of phosphorous from the soil. Given this clearing is not considered likely to be at variance to this principle.

Methodology References:
- Site Inspection (2007)
- State of Western Australia (2005)
GIS Databases:
- Groundwater Salinity, Statewide - 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**
Site Inspection (2007) shows the area under application is situated on primary coastal dune swales supporting sandy soils. These swales are associated with the Quindalup dune system on which soils are generally considered to have high infiltration rates.

The nearest wetland to the area under application is located 4.5 km east of the application site and no watercourses are located in the local area.

Considering the high infiltration rates of soils within the area under application and distance from wetlands and watercourses, the area under application is not considered likely to cause or exacerbate the incidence or intensity of flooding in the immediate or surrounding area.

Methodology References:
- Site Inspection (2007)
GIS Databases:
- Hydrography, linear - DOE 1/2/04
- Hydrography, linear (hierarchy) - DOW
- Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC

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

Comments
A Development Approval with conditions has been granted from the Western Australian Planning Commission for the proposed boardwalk. Conditions include:
- The scope of the application is to be limited to the proposed boardwalk, lookout and fencing;
- Uniform fencing, constructed of either post and rail or post and wire materials,

is to be installed along the proposed boardwalk and lookout prior to the commencement of any works;
 - Disturbed areas are to be stabilised and maintained;
 - Mulch to a thickness of 150 mm is to be placed over disturbed areas, and the area from Compass circle to Tarwhine Turn rehabilitated with locally endemic native vegetation at a ratio of 2:1;
 - Searches are to be conducted for unexploded ordinances;
 - Construction is to be limited to the hours of 0700-1700 hours, Monday the Friday and 0730-1700 hours on Saturday, with no work on Sundays.

Bush Forever (2007) have provided advice on the proposed clearing. Bush Forever have no objection to the clearing of Portion A (area under application to the north along the road reserve of Compass Circle) however it is recommended:

the boundary of the
 essential for the proposed
 removal of mature remnant vegetation;
 with minimal disturbance
 duration of the works;
 accordance with EPA Position

1. There is to be no vegetation, earth spoil or other debris disposed of, within adjoining Bush Forever site 397;
2. The removal of vegetation should be minimal and restricted to that development works, and where possible shall minimise the
3. All construction works is to be done in an environmentally sensitive manner to the natural vegetation. Temporary fencing should be constructed for the
4. A mitigation package for any clearing, based on a ratio of 2:1, in Statement No.9, where 'like for like, or better' is recommended.

Bush Forever (2007) recommended that the pathway constituting Portion B be modified, so two pathways go in an east to west direction, instead of north to south to minimise the need for clearing where the proposed Portion B is. As such, the requirement for clearing approval for this section may be premature. The current proposed walk path location has too steep a gradient, and is not conducive to the natural environment, and therefore is not supported by Strategic Biodiversity Planning.

The City of Wanneroo (2007) have submitted a project proposal for the coastal pathway and Site Inspection (2007) provided additional information in which Portion B (covering 0.006 ha) will constitute a raised boardwalk of varying height to reduce gradient where topography is too steep and will involve minimal vegetation clearing. The boardwalk will require clearing only for the struts that hold up the boardwalk as well as on points where the topography and gradient requires the boardwalk to be resting on the dune surface, for example on the apex of dunes swales and at the far southern section of Portion B where the boardwalk starts. For aesthetic reasons the City of Wanneroo aims to keep vegetation clearing for Portion B minimal.

Site Inspection (2007) reveals the area under application receives frequent pedestrian traffic which is unmanaged and is causing degradation of the dune vegetation. Construction of a boardwalk is likely to reduce the formation of these damaging paths by restricting traffic to designated areas.

In order to reduce the impact of the development on local biodiversity the City of Wanneroo (2007) propose:
 Care volunteers and local
 projects within City-managed nature
 delineate the construction site
 pathway installation;
 the batters, and;
 rehabilitation projects.

1. Collection of seed/cuttings and salvage of various plants by local Coast bush regeneration contractors for use in bushland rehabilitation conservation reserves;
2. A temporary construction fence be erected prior to clearing, in order to from the nature conservation area;
3. A permanent coastal foreshore fence be installed in conjunction with the
4. Suitable topsoil will be stripped and stockpiled on site for respreading on
5. Cleared vegetation will be used as brush for nearby coastal dune

Part of portion B under application occurs within a Registered Site of Aboriginal Significance.

The area under application is located on soils with a Class 3 Acid Sulphate Soil (ASS) Risk. These soils are defined as having no known risk of ASS occurring within 3 m of the natural soil surface that could be disturbed by the proposed development activities.

There is no required RIWI Act Licence or EPA Act Licence that affects the areas under application.

Methodology

References:

- Bush Forever (2007)
 - City of Wanneroo (2007)
 - Site Inspection (2007)
 - Department of Indigenous Affairs (2007)
 - Western Australian Planning Commission (2008)
- GIS Databases:
- Acid Sulfate Soil Risk Map, Swan Coastal Plain

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing is at variance to principle (h) and may be at variance to principle (g).

5. References

- City of Wanneroo. (2007). Compass Circle, Yanchep - Foreshore pathway construction: Project Proposal. (TRIM Ref. DOC32554).
- Department of Indigenous Affairs. (2007). Aboriginal Heritage Inquiry System. Perth, Western Australia. <http://www.dia.wa.gov.au/Heritage/Inquiry/>. Accessed 29 August 2007. TRIM Ref. DOC32618.
- 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) Guidance for the Assessment of Environmental Factors -level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.
- Gibson, N., Keighery, B., Keighery, G., Burbidge, A. and Lyons, M. (1994). A Floristic Survey of the southern Swan Coastal Plain. Department of Conservation and Land Management. Perth, Western Australia. Unpublished report for the Australian Heritage Commission.
- 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.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Shepherd, D.P. (2006). 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.
- Site Inspection. (2007). Site Inspection Report, Department of Environment and Conservation (DEC). Perth, Western Australia. TRIM Ref. DOC32064.
- State of Western Australia. (2005). Agmaps Land Manager CD ROM.
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 27 August 2007).
- Western Australian Planning Commission. (2008). Approval to Commence Development of proposed pathway and viewing platform. TRIM Ref. DOC53026.

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)