



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose permit number:	CPS 2914/1
Permit holder:	City of Swan
Duration of permit:	28 June 2009 – 28 June 2011

The permit holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

- 1. Purpose for which clearing may be done**
Clearing for the purpose of road construction.
- 2. Land on which clearing is to be done**
Hepburn Avenue road reserve
- 3. Area of Clearing**
The permit holder must not clear more than 3.5 hectares of native vegetation within the area hatched yellow on attached Plan 2914/1.
- 4. Application**
This Permit allows the permit holder to authorise persons, including employees, contractors and agents of the permit holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.
- 5. Type of clearing authorised**
This Permit authorises the permit holder to clear native vegetation for activities to the extent that the permit holder has the power to clear native vegetation for those activities under the *Local Government Act 1995* or any other written law.
- 6. Compliance with Assessment Sequence and Management Procedures**
Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the permit holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

- 7. Avoid, minimise etc clearing**
In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:
 - (a) avoid the clearing of native vegetation;
 - (b) minimise the amount of native vegetation to be cleared; and
 - (c) reduce the impact of clearing on any environmental value.

8. Vegetation management

- (a) Prior to commencing clearing, the Permit Holder shall construct a fence along the northern boundary of the area hatched yellow on attached Plan 2914/1.
- (b) Within one (1) month of installing the fence the Permit Holder shall notify the CEO in writing that the fence has been completed.

9. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) shall not move soils in wet conditions;
- (c) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (d) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

10. Offsets

- (a) Determination of *offsets*:

- (i) if part or all of the clearing to be done is or may be at variance with one or more of the clearing principles, then the Permit Holder must implement an *offset* in accordance with conditions 10(a) and 10(b) of this Permit with respect to that native vegetation;
- (ii) in determining the *offset* to be implemented with respect to a particular area of native vegetation proposed to be cleared under this Permit, the Permit Holder must have regard to the *offset* principles contained in condition 10(b) of this Permit;
- (iii) once the Permit Holder has developed an *offset proposal*, the Permit Holder must provide that *offset proposal* to the CEO for the CEO's approval prior to undertaking any clearing to which the *offset* relates, and prior to implementing the *offset*;
- (iv) clearing may not commence until and unless the CEO has approved the *offset proposal*;
- (v) the Permit Holder shall implement the *offset proposal* approved under condition 10(a)(iii); and
- (vi) each *offset proposal* shall include a *direct offset*, timing for implementation of the *offset proposal* and may additionally include *contributing offsets*.

- (b) For the purpose of this condition, the *offset* principles are as follows:

- (i) *direct offsets* should directly counterbalance the loss of the native vegetation;
- (ii) *contributing offsets* should complement and enhance the *direct offset*;
- (iii) *offsets* are implemented only once all avenues to avoid, minimise, rectify or reduce environmental impacts have been exhausted;
- (iv) the environmental values, habitat, species, *ecological community*, physical area, ecosystem, landscape, and hydrology of the *offset* should be the same as, or better than, that of the area of native vegetation being *offset*;
- (v) a ratio greater than 1:1 should be applied to the size of the area of native vegetation that is offset to compensate for the risk that the *offset* may fail;
- (vi) *offsets* must entail a robust and consistent assessment process;
- (vii) in determining an appropriate *offset*, consideration should be given to ecosystem function, rarity and type of *ecological community*, vegetation *condition*, habitat quality and area of native vegetation cleared;
- (viii) the *offset* should either result in no net loss of native vegetation, or lead to a net gain in native vegetation and improve the *condition* of the natural environment;
- (ix) *offsets* must satisfy all statutory requirements;
- (x) *offsets* must be clearly defined, documented and audited;
- (xi) *offsets* must ensure a long-term (10-30 year) benefit; and
- (xii) an *environmental specialist* must be involved in the design, assessment and monitoring of *offsets*.

PART III - RECORD KEEPING AND REPORTING

11. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the species composition, structure and density of the cleared area;
 - (ii) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (iii) the date that the area was cleared; and
 - (iv) the size of the area cleared (in hectares).
- (b) In relation to the *offset* of areas pursuant to condition:
 - (i) the location of any area of *offsets* recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (ii) a description of the *offset* activities undertaken; and
 - (iii) the size of the *offset* area (in hectares).

12. Reporting

- (a) The Permit Holder must provide to the CEO, on or before 30 June of each year, a written report of records required under condition 11 of this Permit and activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.
- (b) Prior to 28 March 2011, the Permit Holder must provide to the CEO a written report of records required under condition 11 of this Permit where these records have not already been provided under condition 12(a) of this Permit.

Definitions

The following meanings are given to terms used in this Permit:

condition means the rating given to native vegetation using the *Keighery scale* and refers to the degree of change in the structure, density and species present in the particular vegetation in comparison to undisturbed vegetation of the same type;

contributing offset/s has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9: Environmental Offsets*, January 2006;

dieback means the effect of *Phytophthora* species on native vegetation;

direct offset/s has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9: Environmental Offsets*, January 2006;

ecological community/ies means a naturally occurring biological assemblage that occurs in a particular type of habitat (English and Blythe, 1997; 1999) – the scale at which ecological communities are defined will depend on the level of detail in the information source, therefore no particular scale is specified;

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fill means material used to increase the ground level, or fill a hollow;

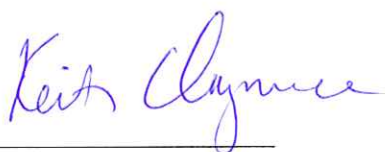
mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

offset proposal means an *offset* determined by the Permit Holder in accordance with condition 10 of this Permit;

offset/s means an offset required to be implemented under condition 10 of this Permit;

term means the duration of this Permit, including as amended or renewed;

weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*.

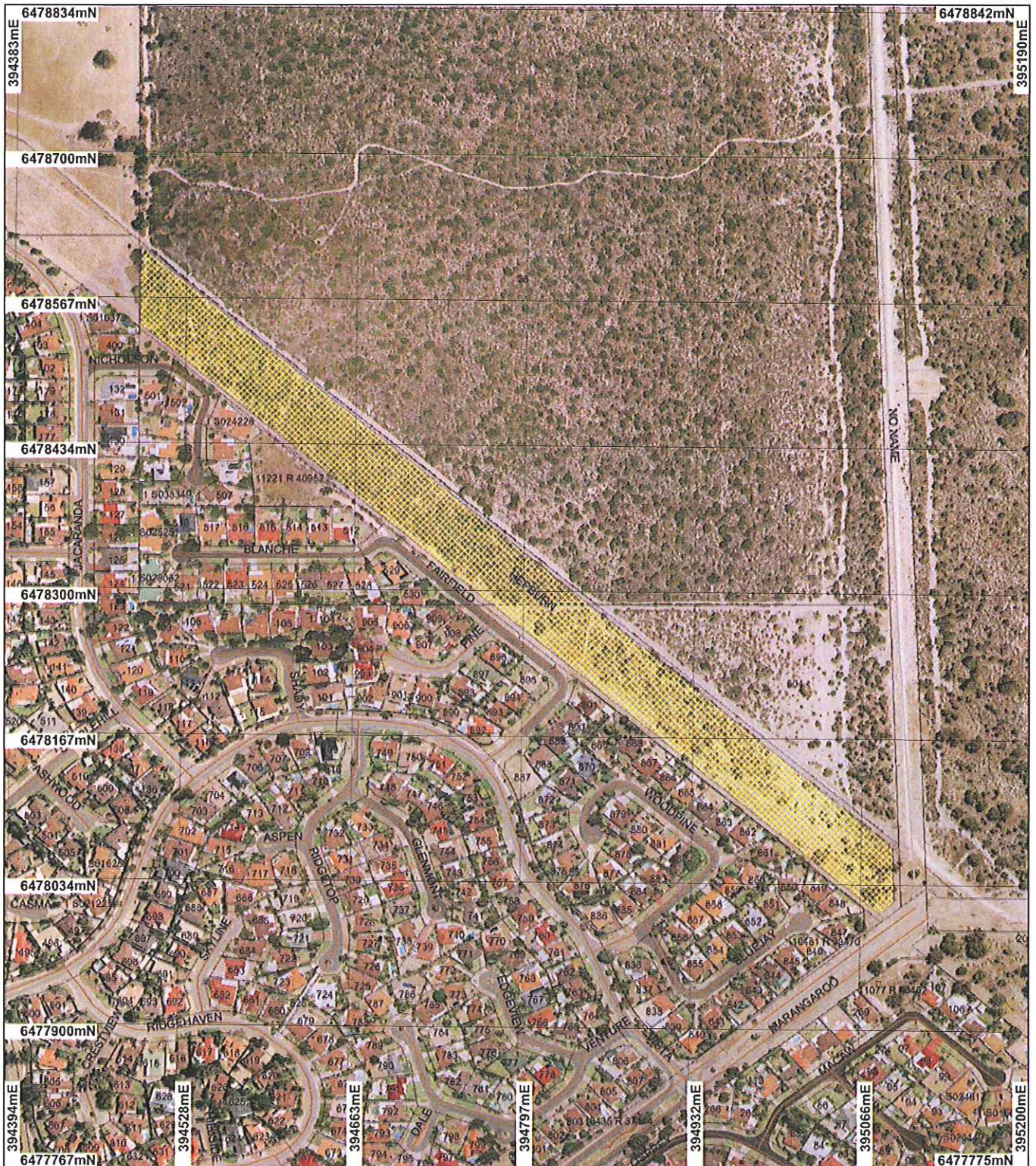


Keith Claymore
A/ ASSISTANT DIRECTOR
NATURE CONSERVATION DIVISION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

28 May 2009

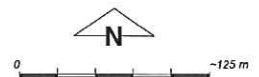
Plan 2914/1



LEGEND

- ☐ Cadastre for labelling
- ☐ Road Centrelines
- ☐ FW
- ☐ HY
- ☐ LRO (cont)
- ☐ LRS
- ☐ MR
- ☐ N
- ☐ TR
- ☐ Clearing Instruments
- ☐ Areas Approved to Clear

Perth Metropolitan Area
North 2002 Orthomosaic -
Landgate 2007



Scale 1:4722

(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

K. Claymore Date 28/5/09

K. Claymore

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



Department of
Environment and Conservation

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* Project Data is denoted by asterisk. This data has not been quality assured. Please contact map author for details.



1. Application details

1.1. Permit application details

Permit application No.: 2914/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: City of Swan

1.3. Property details

Property: ROAD RESERVE (CULLACABARDEE 6067)
ROAD RESERVE (BALLAJURA 6066)
Local Government Area: City Of Swan
Colloquial name: Hepburn Avenue between Marangaroo Rd and Alexander Drv.

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.5		Mechanical Removal	Road construction or 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
Heddl Vegetation Complex:	The proposal is to clear 3.5 ha within a 4.3ha area of Hepburn Ave road reserve for the purpose of road construction.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Vegetation clearing description based on a site Vegetation survey under taken during spring and summer of 2008 (Bennett Environmental Consulting 2008) and site visit conducted by DEC officers on 23 January 2009.
Southern River Complex - Open woodland of E. calophylla - E. marginata - Banksia species with fringing woodland of E. rudis - M. raphiophylla along creek beds.	The vegetation under application comprises of three communities including Low Woodland of Eucalyptus tottiana, Banksia attenuata and Banksia menziesii over low health of mixed species including Jacksonia sp., Acacia sp. Hibbertia sp. over low sedges of Alexgeorgea nitens in grey sand. 1.3ha occurs in Very Good condition and 1.2ha occurs in a Degraded condition.		
Bassendean Complex Central and South - Vegetation ranges from woodland of E. marginata - C. fraseriana - Banksia spp. to low woodland of Melaleuca species, and sedgelands on the moister sites. This area includes the transition of E. marginata to E. tottiana in the vicinity of Perth.			
Beard Vegetation Association 1001: Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina (Shepherd 2007, SAC Bio Datasets 22/01/2009)			
		Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	
	A wetland area of Low Woodland of Melaleuca preissiana over low heath of Hypocalymma angustifolium in grey sands occurs in the northern portion of the area under application and is a Good condition (0.7ha). Weeds including Briza maxima, Briza minor and Ehrharta sp. were observed in this area.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	
	Low woodland of Corymbia calophylla over low scrub of Xanthorrhoea preissii in grey sand. This community occurs in a Completely Degraded condition (0.3ha)	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	

Dumping of household rubbish was observed along the southern edge of the area under application. Soil disturbance and clearing for motorbike tracks was observed within the degraded vegetation occurring within the southern portion of the area under application.

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 at variance to this Principle

The vegetation under application comprises of three communities including low woodland of *Eucalyptus tottiana*, *Banksia attenuata* and *Banksia menziesii* over low heath of mixed species and low sedges grey sand with 1.3ha occurs in Very Good condition and 1.2ha occurs in a Degraded condition, a wetland area of Low woodland of *Melaleuca preissiana* over low heath of *Hypocalymma angustifolium* occurring in a Good condition (0.7ha) and low woodland of *Corymbia calophylla* over low scrub of *Xanthorrhoea preissii* in grey sands occurring in a Completely Degraded condition (0.3ha).

A flora and vegetation survey identified 82 native and 21 exotic flora species within the area under application during September and October 2008 (Bennett Environmental Consulting 2008). No rare flora were recoded during the survey.

The central portion of the area under application possibly represents the Threatened Ecological Community (TEC) 20a: *Banksia attenuata* woodland over species rich dense shrublands or the Priority Ecological Community (PEC) 23b: Northern *Banksia attenuata* - *B. menziesii* woodlands. The PEC 23b mostly occurs in the Bassendean system on the northern Swan Coastal Plain between Jandabup and Gingin. Its extent is not known however it is considered quite rare with the closest known location to the area under application being 8.3 km (DEC 2009b).

In addition, the northern portion of the area under application possibly represents the PEC 21c: Low lying *Banksia attenuata* woodlands or shrublands (Bennett Environmental Consulting 2008). This PEC is largely restricted to the Bassendean system between Gingin and Bunbury. The extent of this PEC is not known, however four occurrences occur within a 0.5 km radius to the area under application (DEC 2009b).

A fauna survey undertaken during May and October 2008 identified 9 lizard species, 2 snake species, 3 frog species and 1 mammal species in the area under application including the conservation significant Quenda (*Isodon obesulus fusciventer*) (City of Swan 2008). In addition, the area provides foraging habitat for the conservation significant Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*).

Given that the area under application may contain a portion of a TEC and a PEC, contains a high number of flora species, contains wetland dependent vegetation, provides habitat for conservation significant fauna and consists of three different vegetation community types it is considered likely for this proposed clearing to be at variance to this Principle. An offset condition will be placed on the permit to offset the lost of biodiversity.

Methodology

References

- DEC (2009b)
- Bennett Environmental Consulting (2008)
- City of Swan (2008)
- GIS Datasets
- SAC Bio Datasets 22/01/2009

(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

There are four fauna species of conservation significance recorded within the local area (5km radius) being Western Brush Wallaby (*Macropus irma*), Quenda (*Isodon obesulus fusciventer*), Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) and the Graceful Sunmoth (*Synemon gratiosa*). The closest recordings of these species are ~1.8 km southwest, ~670 m north, ~1.8 km southwest and ~1.9 km southwest of the area under application, respectively.

The Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*) is known to feed on a large variety of plants including Proteaceous species (e.g. *Banksia*, *dryandra* and *grevillea*) and marri nuts (*Corymbia calophylla*) and a range of introduced species, (Shah 2006). The area under application contains *Banksia* woodland in very good condition and marri trees and therefore it is likely for this area to provide feeding habitat for Carnaby's Black Cockatoo (DEC 2009a).

The vegetation survey identified portions of the vegetation under application as *Banksia* woodland with a

dense shrub layer, in a very good condition (Bennett Environmental Consulting 2008). Therefore, the vegetation under application may provide habitat for a range of ground dwelling fauna. A fauna survey undertaken during May and October 2008 identified 9 lizard species, two snake species, 3 frog species and 1 mammal species in the area under application including the conservation significant Quenda (City of Swan 2008).

Given that the area under application contains vegetation in a very good condition (1.3 ha), contains feeding and nesting habitat for ground dwelling fauna and fauna of conservation significance such as the Quenda and Carnaby's Black Cockatoo, it is considered likely that the proposed clearing maybe at variance to this Principle. An Offset condition will be placed on the permit to mitigate the impacts on Carnaby's Black Cockatoos.

Methodology References:
 -Bennett Environmental Consulting (2008)
 -City of Swan (2008)
 -DEC (2009a)
 -Shah (2006)
 GIS Databases
 -SAC Bio Datasets 22/01/2009

(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**
 One recording of the rare flora species, *Caladenia huegelli*, has been recorded in the local area (~5km radius) occurring 4.7 km north of the area under application.

This species is a tuberous perennial herb that grows between 0.25-0.6 m high and has green, cream and red flowers between September and October. It grows in grey or brown sand and clay loam (Western Australian Herbarium 1998-).

The vegetation survey under taken in September and October 2008 did not identify any rare flora within the area under application (Bennett Environmental Consulting 2008). Therefore, it is considered not likely for the proposed clearing to be at variance to this Principle.

Methodology References
 -Bennett Environmental Consulting (2008)
 GIS Datasets
 -SAC Bio Datasets 22/01/2009

(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 at variance to this Principle**
 Twenty Two recordings of the Threatened Ecological Community (TEC) 20a: *Banksia attenuata* woodlands over species rich dense shrublands was recorded in the local area (~5km radius). The nearest occurrence is 1.1 km northwest of the area under application.

One vegetation type identified during the vegetation survey (Bennett Environmental Consulting 2008), Low Woodland A of *Eucalyptus tottiana*, *Banksia attenuata* and *Banksia menziesii* over Low Heath C of mixed taxa over low sedges of *Alexgeorgea nitens* in grey sand, has been classed as either the TEC 20a or the Priority Ecological Community (PEC) 23b: Northern *Banksia attenuata* - *B. menziesii* woodlands.

Appropriate methods used for the flora survey have been applied to determine the Floristic Community Types (FCTs) and so this conclusion is valid (DEC 2009b). The known occurrences of FCT 20a cover 412 ha and occur within 32 discreet areas of bushland that are centred on the Perth area, from Neerabup in the north to Orange Grove in the south. There is a high concentration of FCT 20a within the local area of the area under application. The average size of occurrences of this FCT is ~ 7.7 ha (DEC 2009b).

Therefore, given the area under application is considered to contain either a TEC or PEC and given the conservation value of these FCTs it is considered at variance to this Principle. An offset condition will be placed on the permit to offset for the direct and indirect impacts this proposal will have on the TEC or PEC.

Methodology References
 -Bennett Environmental Consulting (2008)
 -DEC (2009b)
 GIS Datasets
 -SAC Bio Datasets 22/01/2009

(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

Hedde et al. (1980) defines the majority (~3ha) of the vegetation under application as Bassendean Complex Central and South, of which there is 27.0% of pre-European extent remaining (EPA 2006). The remainder of the applied vegetation has been defined as Southern River Complex of which there is 19.8% of pre-European extent remaining (EPA 2006). The vegetation under application is also described as Beard vegetation association 1001, of which there is 25.34% of pre-European extent remaining (Shepherd 2007).

The area under application is located within the City of Swan, within which there is 52.7% of pre-European extent remaining; however there is approximately 18% of pre-European vegetation remaining in the local area (~5km radius), which has been extensively cleared for agriculture and urban development.

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents the clearance of ecological communities with an extent below 30% of that present Pre-European settlement (Commonwealth of Australia, 2001).

Although the vegetation complexes identified on site have less than the recommended 30% threshold remaining the applied area is considered to be within a constrained area. The EPA (2006) recognises the Perth Metropolitan Region as a 'constrained area', providing for the variation of the minimum % of vegetation complexes remaining to 10% of the pre-European extent.

In addition, the area under application is not a significant remnant in the local area as it is a relatively small linear strip of vegetation (3.5 ha) connected to a very large bushland remnant to the north. Therefore, the proposal is not considered likely to be at variance to this Principle.

	Pre-European (ha)	Current extent (ha)	Remaining %
Swan Coastal Plain	1,501,208	583,141	38.84**
City of Swan	103,944	54,792	52.7*
Local Area (~5km radius)	7850	~1470	~18
Hedde vegetation complex			
Bassendean Complex Central and South	87,477	23,624***	27.0
Southern River Complex	57,979	11,501	19.8
Beard vegetation association 1001	57,410	14,546	25.34**

* (Shepherd et al. 2001)

** (Shepherd 2007)

*** (EPA, 2006)

Methodology

References

-Commonwealth of Australia (2001)
 -EPA (2006)
 -Hedde et al. (1980)
 -Shepherd et al. (2001)
 -Shepherd (2007)
 GIS Databases:
 -Hedde Vegetation Complexes
 -NLWRA, Current Extent of Native Vegetation
 -Pre-European Vegetation

(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

There are numerous wetlands located in the local area (5km radius) of the area under application. Approximately 1.0ha of the area under application (northern portion) is mapped as a Multiple Use Wetland (MUW). The closest water course is Bennett Brook located 2.5 km northeast of the area under application.

A MUW has few remaining important wetland attributes and functions. The protection of these wetlands is the lowest priority (DEC 2008). However, The site inspection (DEC 2009a) and the vegetation survey (Bennett Environmental Consulting 2008) identified wetland dependent vegetation occurring within this area in a Good condition.

It is considered that the wetland area contains values more consistent with a Resource Enhancement Wetland (REW). These wetlands are considered priority wetlands which may have been partially modified but still

retain attributes and functions, with potential for restoration towards Conservation Category. While they are not classed as critical assets REWs should be retained and management where possible (DEC 2008).

A minimum wetland buffer of 50 m is required for all proposed developments to protect wetland values and functions (Water and Rivers Commission 2001).

As the area under application contains 1ha of wetland dependent vegetation and 0.3ha growing in the associated buffer, it is considered likely for the proposed clearing to be at variance to this Principle. An offset condition will be placed on the permit to offset the direct loss of wetland dependent vegetation.

- Methodology** **References**
- Bennett Environmental Consulting (2008)
 - DEC (2008)
 - DEC(2009a)
 - GIS Databases
 - Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
 - Hydrography, linear

(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 soils within the area under application are part of the Bassendean Dune System and comprise leached sands (Northcote et al. 1960-68). There is a high risk of wind erosion of these soils (Department of Agriculture 2005) following the clearing of native vegetation on this site.

The high erosion potential is due to the sandy nature of the topsoil and without appropriate ground cover, windbreaks or adequate dust suppression on exposed surfaces the proposal would be likely to cause land degradation. Therefore, it is considered that the proposed clearing may be at variance to this Principle.

- Methodology** **References**
- Department of Agriculture (2005)
 - Northcote et al. (1960-68)
 - GIS Databases
 - Soils, Statewide

(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**
- The area under application occurs within the Bush Forever site 198: Beechboro Road Bushland, Cullacabardee/ Ballajura. In addition, the conservation area, Gngangara - Moore state Forest, occurs 3.4km north of the area under application.

Approximately 90% of the area under application is located within Bush Forever site 198. The vegetation under application contained within the Bush Forever site is considered to be in very good to degraded condition.

The proposed clearing will have a direct impact on the environmental values of Bush Forever Site 198 through the removal of vegetation. A Dieback Interpretation Report (NPC Consulting 2008) mapped a dieback infested area of 2 ha occurring within the Banksia woodland portion of the area under application. Therefore, the proposed clearing is also likely to indirectly impact Bush Forever site 198 by the spread of dieback and also weeds by machinery and vehicles.

The spread of weeds and dieback into areas reserved for conservation can have the potential to cause local extinction of species. A weed and dieback condition will be placed on the permit to mitigate the impacts on the conservation area.

Given the area under application occurs within Bush Forever Site 198, the proposed clearing will have direct and indirect impacts on the environmental values of this conservation reserve and therefore the proposal is considered to be at variance to this principle. An offset and fencing condition will be placed on the permit to offset for the impacts this proposal will have on Bush Forever site 198.

- Methodology** **References**
- NPC Consulting (2008)
 - GIS Databases
 - Bushforever
 - DEC Managed Lands and Waters

(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 numerous wetlands located in the local area (5km radius) of the area under application. Approximately 1.0ha of the area under application (northern portion) is mapped as a Multiple Use Wetland (MUW). The closest water course is Bennett Brook located 2.5 km northeast of the area under application.

A minimum wetland buffer of 50 m is required for all proposed developments to protect wetland values and functions (Water and Rivers Commission 2001).

According to wetland mapping, 1 ha of the MUW occurs within the area under application. The rest of the wetland is in a degraded condition and is nearly cleared of vegetation therefore it is considered unlikely for proposed clearing of the remaining vegetated area (1ha) will cause deterioration of surface or groundwater quality.

Methodology References

- Water and Rivers Commission (2001)

GIS Databases:

-Geomorphic Wetlands (Classification), Swan Coastal Plain

-Hydrography, linear (hierarchy)

(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

There are numerous wetlands located in the local area (5km radius). Approximately 1.0ha of the area under application (northern portion) is mapped as a Multiple Use Wetland (MUW). The closest water course is Bennett Brook located 2.5 km northeast of the area under application.

The majority of the wetland mapped within the northern portion of the area under application occurs outside of the area under application (41 ha) and most of it (39 ha) is completely cleared of vegetation. It is considered unlikely for the proposed clearing of an additional 1 ha of this wetland will exacerbate or increase the intensity or occurrence of flooding in the local area. Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Databases:

- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain

- Hydrography, linear

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

Comments

The area under application is zoned as Other Regional Roads in the Metropolitan Regional Scheme.

The proposal is for the Hepburn Avenue extension from Alexander Drive to Marshall Road. The City of Swan applied for a clearing permit initially to clear 19.73 ha. This was later amended to 14.34 ha after DEC raised conservations about the Bush forever site and a wetland area. This site was removed from the clearing permit application and is now subject to this assessment. The clearing permit for the rest of Hepburn Avenue extension was granted in July 2008 (CPS 2371/1).

The Strategic Biodiversity Planning section, DPI has no objections to the proposed clearing however provided that the following conditions are met:

1. Any regionally significant vegetation within Bushforever site 198 proposed to be cleared be offset at a ratio 2:1.
2. Temporary fencing be constructed, prior to the commencement of any works, along the north edge of Hepburn Avenue road reserve abutting Bush Forever site 198 (DPI 2009).

Western Australian Planning Commission (WAPC) planning approval has been granted on the 12 May 2009 and is valid for two years.

Methodology References

-DPI (2009)

GIS Databases

-Metropolitan Regional Scheme Zones

4. Assessor's comments

Comment

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

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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)