Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2529/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: City of Swan

1.3. Property details

Property: LOT 120 ON DIAGRAM 79784 (Lot No. 120 LILYDALE GIDGEGANNUP 6083)

Local Government Area: City Of Swan

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4.5		Mechanical Removal	Extractive Industry

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 3003: Medium forest; jarrah & marri on laterite with wandoo in valleys, sandy swamps with teatree and Banksia (Shepherd 2006). Heddle Vegetation Complexes: - Murray and Bindoon Complex in Low to Medium Rainfall: no description available; and - Dwellingup Yalanbee and Hester Complex in Low to Medium Rainfall: no information available (Heddle et al. 1980). Mattiske Vegetation Complexes: - Dwellingup: Open forest to woodland of Eucalyptus marginata subsp. thalassica-Corymbia calophylla on lateritic uplands in semiarid and arid zones; and - Murray 2: Open forest of Eucalyptus marginata subsp. thalassica-Corymbia calophylla-Eucalyptus patens and woodland of Eucalyptus wandoo with some Eucalyptus accedens on valley slopes to woodland of Eucalyptus rudis-Melaleuca rhaphiophylla on the valley floors in semiarid and arid zones (Mattiske Consulting	The area of vegetation under application comprises Eucalyptus marginata (Jarrah) - Corymbia callophylla (Marri) open woodland, with a Banksia grandis - Banksia sessilis middle storey and a dense leaf litter layer. The understorey comprises low shrubs, herbs and sedges including, but not limited to, Hibbertia spp., Xanthorrhoea preissii, Drosera spp., Stylidium sp., Macrozamia riedlei and orchid species. Varieties of fungi were also observed within the applied area. Overall the vegetation under application is considered to be in very good condition, with a small portion of the applied area subject to disturbance and impacts (~0.5ha) considered to be in good condition. The area under application comprises a relatively mature vegetation structure with evidence of regeneration observed across the site (i.e. Banksia and Eucalypt seedlings). Several of the larger Eucalypts were observed to contain hollows suitable for nesting for small parrots, and the larger Black Cockatoos.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The vegetation clearing description is based on information obtained during a site inspection undertaken 9 July 2008 (DEC 2008).

1998).

The area under application also displays evidence of historic logging activities, with evidence of dieback observed at the eastern end of the applied area, and small, localised areas of clearing observed adjacent to the existing pit. Non-aggressive winter weed species were observed throughout the applied area in low densities.

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 area of vegetation under application comprises Eucalyptus marginata (Jarrah) - Corymbia callophylla (Marri) open woodland, with a Banksia grandis - Banksia sessilis middle storey and a shrub, herb and sedge under storey, in an overall very good condition (DEC 2008).

At the time of the site inspection the vegetation under application was observed to comprise a moderate level of floral diversity within the understorey, with orchid and fungi species observed within the applied area (DEC 2008). Non-invasive winter weeds were observed predominantly around the perimeter of the applied area and in areas of localised disturbance, with evidence of historic logging activities and dieback observed at the eastern end of the applied area (DEC 2008).

The area under application comprises suitable habitat for a number of local native fauna species. In particular, the applied area comprises a mature Jarrah-Marri overstorey, including several trees with hollows considered suitable for use by local native parrots and the larger, protected Black-Cockatoo species (DEC 2008). A dense leaf litter layer and the presence of hollow logs and basal tree hollows are also considered likely to provide habitat for ground-dwelling fauna such as Quenda.

In addition, the priority 4 listed orchid species, Cyanicula ixioides subsp. ixioides, is also known to occur within the local area (10km radius) within the same vegetation community and geology as the vegetation under application.

Therefore, given that the vegetation under application comprises suitable habitat for a number of local fauna species, including species of conservation significance, and also comprises suitable habitat for the above priority listed orchid species, the vegetation under application may comprise a high level of biological diversity.

Methodology

References:
- DEC (2007)
- DEC (2008)
- Western Australian Herbarium (1998-)

GIS Databases:
- Heddle Vegetation Complexes
- Mattiske Vegetation
- SAC Bio Datasets, Date accessed 20/08/2008
- Soils, Statewide
- Swan Coastal Plain North 20cm Orthomosaic - Landgate 2006

(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

The area of vegetation under application comprises Eucalyptus marginata (Jarrah) - Corymbia callophylla (Marri) open woodland, with a Banksia grandis - Banksia sessilis middle storey, a shrub, herb and sedge under storey, and a dense leaf litter layer (DEC 2008). Overall the vegetation under application is considered to be in very good condition (DEC 2008).

Fourteen fauna species of conservation significance have been recorded within the local area (10km radius), with the following eleven species considered to potentially inhabit or utilise the area of vegetation under application due to the presence of suitable habitat and foraging plants:
- Baudin's Black-Cockatoo (Calyptorhynchus baudinii) (Endangered);
- Carnaby's Black-Cockatoo (Calyptorhynchus latirostris) (Endangered);
- Chuditch (Dasyurus geoffroii) (Vulnerable);
- Forest Red-tailed Black-Cockatoo (Calyptorhynchus banksii naso) (Vulnerable);
- Numbat (Myrmecobius fasciatus) (Vulnerable);

- Western Ringtail Possum (Pseudocheirus occidentalis) (Vulnerable);
- Bush Stonecurlew (Burhinus grallarius) (Priority 4);
- Western Brush Wallaby (Macropus irma) (Priority 4);
- Western False Pipistrelle (bat) (Falsistrellus mackenziei) (Priority 4);
- Quenda (Isoodon obesulus fusciventer) (Priority 5); and
- Carpet Python (Morelia spilota imbricata) (Other Specially Protected Fauna).

In particular, Baudin's, Carnaby's and the Forest Red-tailed Black-Cockatoo species are known to inhabit jarrah-marri forests, feeding on Eucalypts and proteaceous plants (such as Banksia) and nesting in mature, hollow bearing trees (DEC 2007). The vegetation under application comprises a mature Jarrah-Marri overstorey, including several trees with hollows considered suitable for use by these species (DEC 2008).

The vegetation under application is also considered to comprise suitable habitat for ground-dwelling fauna such as the Numbat and Quenda due to the presence of a dense leaf litter layer, hollow logs and tree hollows (DEC 2008) which provide suitable foraging areas, and protection from predators.

In addition, the vegetation under application is linked to nearby conservation areas and surface water features through remnant vegetation corridors, and may therefore be utilised by fauna migrating across the landscape, with a number of passerine birds observed during the site inspection, as well as evidence of kangaroos (scats) (DEC 2008).

Whilst the area under application comprises suitable habitat for a number of local indigenous fauna species including species of conservation significance, the local area is considered to be well vegetated with 44.2% and 53.8% pre-European vegetation cover remaining within the City of Swan and Jarrah Forest Bioregion, respectively (Del Marco et al. 2004, Shepherd 2006). In addition, the applied area is located within a large local remnant of ~160ha, which appears on aerial imagery to be of similar composition, density and structure to the applied area. As such, the area under application is not considered likely to comprise significant habitat for local fauna species.

However, whilst the vegetation under application is surrounded by large areas of remnant vegetation nearby offering similar habitat, given the presence of large, mature hollow bearing trees suitable for Black-Cockatoos within the applied area, the proposal may be at variance to this Principle.

A fauna management condition requiring a survey for suitable habitat tree hollows and the presence of fauna within the hollows, is imposed on the clearing permit to reduce the impact of the proposed clearing on conservation significant fauna species.

Methodology

References:
- DEC (2008)
- DEC (2007)
- Del Marco et al. (2004)
- Shepherd (2006)

GIS Databases:
- Interim Biogeographic Regionalisation of Australia
- Local Government Authorities
- SAC Bio Datasets, Date accessed 20/08/2008
- Swan Coastal Plain North 20cm Orthomosaic - Landgate 2006

(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

Two rare flora species are known to occur within the local area (10km radius), being Grevillea flexuosa and Thelymitra dedmaniarum.

Grevillea flexuosa is known to inhabit areas of low heath on hilltops, slopes and gullies (Brown et al. 1998). Whilst this species is known to occur in similar soils as the vegetation under application (lateritic soils and gravels), the vegetation under application comprises open Eucalyptus woodland and is therefore not considered to comprise the vegetation habitat requirements of this species.

In addition, Thelymitra dedmaniarum is known to occur within a granite geology landscape (Western Australian Herbarium 1998-). As the area of vegetation under application was not observed to comprise granite geology, the vegetation under application is not considered likely to support populations of this species.

Given that the area of vegetation under application does not comprise suitable geological or vegetation habitats for the above species, the area under application is not considered likely to comprise, or be necessary for the continued existence of, rare flora.

Methodology

References:

- Brown et al. (1998)
- Western Australian Herbarium (1998-)

GIS Databases:
- Heddle Vegetation Complexes
- Mattiske Vegetation
- SAC Bio Datasets, Date accessed 21/08/2008
- Soils, Statewide

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

There are no known occurrences of Threatened Ecological Communities (TEC) within the local area (10km radius), with the closest known occurrence being Floristic Community Type 20c: Shrublands and woodlands of the eastern side of the Swan Coastal Plain located 18.3km from the area of vegetation under application.

The area under application comprises Eucalyptus marginata (Jarrah) - Corymbia callophylla (Marri) open woodland (DEC 2008), and is not considered to comprise a floral composition or structure representative of a TEC. In addition, Floristic Community Type 20c is known to occur within landforms on the Swan Coastal Plain, with the area under application being located on the Darling Scarp.

Given the distance to the closest known occurrence, and composition and structure of the vegetation under application and applied area's location within the Darling Sacrp, the area proposed to be cleared is not considered likely to comprise the whole or a part of, or be necessary for the maintenance of a threatened ecological community.

Methodology

Reference:
- DEC (2008)

GIS Database:
- SAC Bio Datasets, Date accessed 21/08/2008

(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 vegetation under application is mapped as a component of Beard Vegetation Association 3003 (Hopkins et al. 2001) and Mattiske Dwellingup 4 and Murray 2 vegetation complexes, which have 61.3%, 91.5% and 74.2% pre-European vegetation extent remaining respectively (Mattiske 1998, Shepherd 2006). The vegetation under application is also mapped as a component of two Heddle Vegetation complexes, of which no information is available.

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

The mapped Beard and Mattiske vegetation complexes associated with the vegetation under application are all above the State Governments 30% biodiversity conservation target and considered to be well represented with more that 60% vegetation extent remaining. In addition, the area under application is located within the Jarrah Forest Bioregion, which has 53.8% pre-European vegetation extent remaining (Shepherd 2006).

Given the high representation of the mapped vegetation communities and associated Bioregion, the vegetation under application is not considered to be a significant remnant in an extensively vegetated area.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	% In reserves/ CALM managed land
IBRA Bioregions				
Jarrah Forest**	4,506,674	2,426,079	53.8	
City of Swan*	104,220	46,043	44.2	
Beard Vegetation Association				
- 3003**	66,454	40,727	61.3	45.1
Mattiske Vegetation Complexes				
- Dwellingup 4	1,324,003	1,211,559	91.5	
- Murray 2	593,148	440,381	74.2	

Heddle Vegetation Complexes
- Murray and Bindoon Complex in Low to Medium Rainfall (no information available)

- Dwellingup Yalanbee and Hester Complex in Low to Medium Rainfall (no information available)

* (Del Marco et al. 2004)
** (Shepherd 2006)

Methodology

References:
- Commonwealth of Australia (2001)
- Del Marco et al. (2004)
- Hopkins et al (2001)
- Mattiske (1998)
- Shepherd (2006)

GIS Databases:
- DEC SAC Bio Datasets, Date accessed 21/08/2008
- Heddle Vegetation Complexes
- Interim Biogeographic Regionalisation of Australia
- Local Government Authorities
- Mattiske 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 not likely to be at variance to this Principle

The closest surface hydrological feature to the area of vegetation under application is Cookes Brook, located 632m west of the applied area. The area under application is located mid slope within the local landscape, with an elevation 25-95m higher than the Cookes Brook.

The vegetation under application comprises Eucalyptus marginata (Jarrah) - Corymbia callophylla (Marri) open woodland (DEC 2008), and is considered to represent an upland vegetation community.

Given the distance to the nearest surface hydrological feature, high elevation of the site and presence of upland vegetation community species, the vegetation under application is not considered to be growing in, or in association with, and environment associated with a watercourse or wetland.

Methodology

Reference:
- DEC (2008)

GIS Databases:
- Rivers
- Topographic Contours, Statewide

(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 area of vegetation under application is associated with an area of low hilly to hilly terrain (Northcote et al. 1960-68), with an onsite moderately inclined slope of 16-17%.

The area under application is also associated with chief soils of hard acidic yellow mottled soils along with sandy acidic yellow mottled soils, all of which contain moderate to large amounts of ironstone gravels in their surface horizons (Northcote et al. 1960-68). Ironstone gravels are also known to occur on the ridge crests and on the fine gravel deposits of the gently undulating parts of the unit, along with leached sands (Northcote et al. 1960-68).

The soils within the applied area are considered to have a moderate to high water erosion risk, due to the high resistance of the soils to structural breakdown by water, generally low infiltration of rainwater and inclined slope of the applied area (17%). In addition, water erosion gullies were observed on site within adjacent cleared areas (DEC 2008), indicating the high susceptibility of soils on the property to water erosion.

Given the moderate to high water erosion risk of the soils, and evidence of water erosion adjacent to the applied area, it is considered that the removal of 4.5ha of deep-rooted perennial vegetation may lead to onsite land degradation in the form of water erosion. Therefore, the proposal is considered to be may be at variance to this Principle.

A condition requiring staged clearing has been imposed on the clearing permit.

Methodology

References:
- DEC (2008)
- Northcote et al. (1960-68)
- Wells (1988)

GIS Databases:
- Soils, Statewide
- Topographic Contours, 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 not likely to be at variance to this Principle

The closest conservation area to the area of vegetation under application is the Karakamia Wildlife Sanctuary, located ~2.2km to the south. The vegetation under application is connected to Karakamia Wildlife Sanctuary through adjacent remnant vegetation to the west and south, and may therefore be used by fauna migrating through the local landscape.

However, the area of vegetation under application is located within a large area of remnant vegetation, totalling ~160ha. In addition, the local area is considered to be well vegetated, with 44.2% pre-European vegetation extent remaining within the City of Swan (Del Marco et al. 2004). Therefore, whilst the area under application provides connectivity and suitable habitat for fauna migrating in to, or out of, the Sanctuary, given the high extent of vegetation cover within the local area the applied area is not considered to provide exclusive opportunities for flora/fauna migration from this reserve.

Therefore, given the distance to the Sanctuary, presence of large areas of remnant vegetation within close proximity to the Sanctuary and applied area and relatively small area applied to be cleared (4.5ha), the proposed clearing is not considered likely to have an impact on the environmental values of any nearby conservation areas.

Methodology

Reference:
- Del Marco et al. (2004)

GIS Databases:
- Local Government Authorities
- SAC Bio Datasets, Date accessed 25/08/2008
- Swan Coastal Plain North 20cm Orthomosaic - Landgate 2006

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments

Proposal is not likely to be at variance to this Principle

The area of vegetation under application is associated with an area of low hilly to hilly terrain (Northcote et al. 1960-68), with an onsite moderately inclined slope of 16-17%.

The area under application is also associated with chief soils of hard acidic yellow mottled soils along with sandy acidic yellow mottled soils, all of which contain moderate to large amounts of ironstone gravels in their surface horizons (Northcote et al. 1960-68). Ironstone gravels are also known to occur on the ridge crests and on the fine gravel deposits of the gently undulating parts of the unit, along with leached sands (Northcote et al. 1960-68).

The closest surface hydrological feature to the area of vegetation under application is Cookes Brook, located 632m west of the applied area. The area under application is located mid slope within the local landscape, with an elevation 25-95m higher than the Cookes Brook, and drains in a south westerly direction towards the Brooke.

The soils within the applied area are considered to have a moderate to high water erosion risk, which may result in the sedimentation and turbidity of the Cookes Brook. However, given that drainage from the applied area to Cookes Brook intercepts a largely vegetated area, it is considered unlikely that sheet flow of surface runoff from the proposed clearing will result in the sedimentation or turbidity of the Brook. Therefore, the proposed clearing is not considered likely to cause deterioration in the quality of surface or underground water.

Methodology

References:
- Northcote et al. (1960-68)
- Wells (1988)

GIS Databases:
- Hydrography, linear (hierarchy)
- Soils, Statewide
- Swan Coastal Plain North 20cm Orthomosaic - Landgate 2006
- Topographic Contours, Statewide

(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 area of vegetation under application is associated with an area of low hilly to hilly terrain (Northcote et al.

1960-68), with an onsite moderately inclined slope of 16-17%.

The area under application is also associated with chief soils of hard acidic yellow mottled soils along with sandy acidic yellow mottled soils, all of which contain moderate to large amounts of ironstone gravels in their surface horizons (Northcote et al. 1960-68). Ironstone gravels are also known to occur on the ridge crests and on the fine gravel deposits of the gently undulating parts of the unit, along with leached sands (Northcote et al. 1960-68).

The soils within the applied area are considered to have a low waterlogging and flooding risk, due to the high resistance of the soils to structural breakdown by water, generally low infiltration of rainwater and inclined slope of the applied area (17%). Topographic contour mapping of the local area indicates that surface water drainage is in a south westerly direction towards Cookes Brooke.

Whilst the proposed clearing of 4.5ha on soils subject to water erosion may result in increased runoff causing flooding within local catchment areas, given the extensive vegetation cover remaining around the area under application and drainage catchment areas of Cookes Brook, the proposed clearing is not considered likely to cause, or exacerbate, the incidence or intensity of flooding.

Methodology

References:
- Northcote et al. (1960-68)
- Wells (1988)

GIS Databases:
- Hydrography, linear (hierarchy)
- Soils, Statewide
- Swan Coastal Plain North 20cm Orthomosaic - Landgate 2006
- Topographic Contours, Statewide

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

Comments

The proposal is to clear 4.5ha to extend an existing gravel pit on Lot 120 Lilydale Road, Gidgegannup. The proposal is being undertaken by the City of Swan on the local government's own property, therefore an Extractive Industries Licence is not required.

Lot 120 Lilydale Road is zoned 'Rural' under the Metropolitan Region Scheme. Western Australian Planning Commission (WAPC) (1997) Planning Bulletin Number 25: Development Control under the Metropolitan Region Scheme, states that any extractive industry proposal within an area zoned 'Rural' under the MRS, must be referred to the WAPC for determination. Therefore, as Lot 120 Lilydale Road, Gidgegannup is located within an area zoned Rural under the MRS, approval from the WAPC has been sought and issued for this development.

One submission (2008) was received regarding the proposed clearing. The submission advised that there were no objections to the proposal with the following recommendations being adopted:
- the proponent completes a survey for the presence of any trees that are nesting sites for Carnaby's Cockatoo or Red-tailed Black-Cockatoo, and that clearing does not include any identified nesting trees;
- the proponent undertakes a flora survey for priority flora known in the region in similar landscapes;
- the proponent implements a revegetation plan (approved prior to clearing by DEC) for the areas designated to be cleared post gravel extraction;
- the proponent conducts a vegetation quality assessment and avoids areas of vegetation in good to very good condition;
- the proponent sets aside an area of bushland at least equal in size and of the same or better condition as an environmental offset, and places this under a conservation covenant; and
- the proponent ensures that all species known to be invasive or environmentally damaging are not used in any landscaping or revegetation works.

In addition the submission (2008) advised that they would strongly support a recommendation from DEC that would require the proponent to fence off the gravel pit site from stock once it has been revegetated to a standard approved by DEC.

The DEC has considered the issues raised in the submission in the assessment of the application, and conditions have been imposed on the clearing permit to mitigate the impacts of the proposed clearing.

The soils within the applied area are considered to have a moderate to high water erosion risk, due to the high resistance of the soils to structural breakdown by water, generally low infiltration of rainwater and inclined slope of the applied area (17%). Water erosion gullies were also observed on site within adjacent cleared areas (DEC 2008), indicating the high susceptibility of soils on the property to water erosion. As the proposed land use of gravel extraction will increase the gradient on site, it is considered likely that further land degradation in the form of water erosion will result from the extractive activity.

There are no Aboriginal Sites of Significance or Native Title Claims associated with the area of vegetation under application.

Given that the extractive industry is a temporary land use, revegetation following the completion of the extractive activity has been placed as a condition on this permit.

Methodology

References:
- DEC (2008)
- Submission (2008)
- WAPC (1997)
- Wells (1988)

GIS Databases:
- Aboriginal Sites of Significance
- Cadastre
- Metropolitan Regional Scheme
- Native Title Claims
- Soils, Statewide
- Topographic Contours, Statewide

4. Assessor's comments

Comment

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

5. References

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Wells, M. (1988) A Method of Assessing Water Erosion Risk in Land Capability Studies - Swan Coastal Plain & Darling Range. Resource Management Technical Report No. 73. Department of Agriculture, Western Australia. ISSN 0729 - 3135.

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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)