Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2110/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **LandCorp (WA Lands Authority)**

1.3. Property details

Property:
ROAD RESERVE (DENMARK 6333)
ROAD RESERVE (DENMARK 6333)
ROAD RESERVE (DENMARK 6333)
LOT 888 ON PLAN 205944 (DENMARK 6333)
LOT 300 ON PLAN 45916 (DENMARK 6333)
LOT 890 ON PLAN 205944 (House No. 67 PATERSON DENMARK 6333)
LOT 889 ON PLAN 205944 (House No. 69 PATERSON DENMARK 6333)
LOT 892 ON PLAN 205944 (House No. 63 PATERSON DENMARK 6333)
LOT 891 ON PLAN 205944 (House No. 65 PATERSON DENMARK 6333)
LOT 894 ON PLAN 205944 (House No. 59 PATERSON DENMARK 6333)
LOT 893 ON PLAN 205944 (House No. 61 PATERSON DENMARK 6333)
LOT 896 ON PLAN 205944 (House No. 55 PATERSON DENMARK 6333)
LOT 895 ON PLAN 205944 (House No. 57 PATERSON DENMARK 6333)
LOT 898 ON PLAN 205944 (House No. 51 PATERSON DENMARK 6333)
LOT 897 ON PLAN 205944 (House No. 53 PATERSON DENMARK 6333)
LOT 900 ON PLAN 205944 (House No. 47 PATERSON DENMARK 6333)
LOT 899 ON PLAN 205944 (House No. 49 PATERSON DENMARK 6333)
LOT 902 ON PLAN 205944 (House No. 43 PATERSON DENMARK 6333)
LOT 901 ON PLAN 205944 (House No. 45 PATERSON DENMARK 6333)
LOT 904 ON PLAN 205944 (House No. 39 PATERSON DENMARK 6333)
LOT 903 ON PLAN 205944 (House No. 41 PATERSON DENMARK 6333)

Local Government Area: Shire Of Denmark

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.7		Mechanical Removal	Infrastructure 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
The vegetation proposed to be cleared is largely made up of Mattiske vegetation complex Trent (TR1). Approximately 0.03ha is Mattiske vegetation complex Owingup (OW). Trent vegetation complex is described as a woodland of Allocasuarina fraseriana, Eucalyptus marginata subsp. marginate, Banksia grandis with some Corymbia calophylla on low rises of sedimentary	The vegetation under application is proposed to be cleared for the purpose of construction of service, roads and footpaths to eighteen existing residential blocks on the outskirts of the town of Denmark. The proposed clearing is for 1.7ha on the edge of a larger intact remnant. This remnant is approximately 180.3ha is size. The proposed clearing is relatively small and linear on the edge of the remnant.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	

rocks in the perhumid zone. Owingup vegetation complex is described as a mosaic of open woodland of Allocasuarina fraseriana, Banksia attenuate, Banksia ilicifolia, low open woodland of Melaleuca rhaphiophylla, Agonis juniperina, low open woodland of Melaleuca cuticularis and tall shrubland of Melaleuca densa on broad swamps and plains in the hyperhumid zone.	As the proposed clearing is on the outskirts of the town of Denmark, it is likely to have experienced some disturbance, such as weed and feral animal invasion. No site visit has been undertaken.

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposal is not likely to be at variance to this Principle

The vegetation under application is proposed to be cleared for the purpose of construction of service, roads and footpaths to eighteen existing residential blocks on the outskirts of the town of Denmark. The proposed clearing is for 1.7ha on the edge of a larger intact remnant. This remnant is approximately 180.3ha is size. The local area is fragmented.

The proposed clearing is unlikely to significantly impact on the remnant of which it is a part, as the area is relatively small and linear in shape on the edge of the remnant. As the proposed clearing is on the outskirts of the town of Denmark, it is likely to have experienced some disturbance, such as weed and feral animal invasion and human disturbance. The vegetation complexes that make up the vegetation proposed to be cleared are well represented in the State. The impacts on local flora and fauna are not likely to be significant.

Methodology

Mattiske Consulting (1998)
GIS Databases:
- Denmark 1m Orthomosaic - DOLA 01
- Mattiske Vegetation - CALM 23/3/98

(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 is not likely to be at variance to this Principle

The vegetation under application is proposed to be cleared for the purpose of construction of service, roads and footpaths to eighteen existing residential blocks on the outskirts of the town of Denmark. The proposed clearing is on the edge of a larger intact remnant. The local area is fragmented.

Within the local area (10km radius) fifteen Specially Protected (Templeman 2008) fauna species have been recorded. Twenty five records of these species have been made including five mammals, seven aves, one invertebrate and two fish species.

As the proposed clearing is on the outskirts of the town of Denmark, it is likely to have experienced some disturbance, such as weed and feral animal invasion and human disturbance. Additionally, the vegetation proposed to be cleared is a small area (1.7ha) and on the edge of a remnant. Therefore, it is unlikely to significantly compromise the larger remnant of which it is a part or the existence of local fauna.

Therefore, clearing of the vegetation proposed to be cleared is unlikely to be significant habitat for fauna indigenous to Western Australia.

Methodology

Templeman (2008)
GIS database:
- Denmark 1m Orthomosaic - DOLA 01
- SAC Biodatasets - accessed 4 March 08

(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

The vegetation under application is proposed to be cleared for the purpose of construction of service, roads and footpaths to eighteen existing residential blocks on the outskirts of the town of Denmark. The proposed clearing is on the edge of a larger intact remnant. The local area is fragmented.

Within the local area (10km radius) there are one hundred and twenty four Declared Rare (DRF) and Priority listed flora specimens recorded. This includes two DRF, one Priority 1, eight Priority 2, eleven Priority 3 and eleven Priority 4 flora species.

The soil type for the vegetation proposed to be cleared is CB41, described as low-lying wet plains with swamps and lakes, some estuarine areas: chief soils are leached sands, some of which have thin peaty surface horizons. Associated are a variety of peat and other soils in the swamps and depressions; some other leached sands on slopes; diatomaceous earths (unclassified); some granitic tors on slopes; and other undescribed soils. As mapped, areas of the ironstone gravelly soils of the adjacent units are included (Northcote et al. 1968).

The vegetation proposed to be cleared is mapped as Mattiske Trent (TR1) and Owingup (OW) vegetation complexes. Trent vegetation complex is described as a woodland of Allocasuarina fraseriana, Eucalyptus marginata subsp. marginate, Banksia grandis with some Corymbia calophylla on low rises of sedimentary rocks in the perhumid zone. Owingup vegetation complex is described as a mosaic of open woodland of Allocasuarina fraseriana, Banksia attenuate, Banksia ilicifolia, low open woodland of Melaleuca rhaphiophylla, Agonis juniperina, low open woodland of Melaleuca cuticularis and tall shrubland of Melaleuca densa on broad swamps and plains in the hyperhumid zone.

There are three species found on both the same vegetation complex and soil type as the vegetation proposed to be cleared. They are:
Billardiera drummondii P4 Habitat: coastal soils, Eucalypt woodland
Selliera radicans P2 Habitat: Saline mud, Estuarine areas
Xanthosia eichleri P3 Habitat: Grey sand over granite, sandy loam. Granite outcrops, jarrah/marri woodland.

As the vegetation proposed to be cleared in on the edge of the remnant and is adjoining the Denmark townsite, it is likely to have been impacted by disturbances such as weed invasion and human disturbance. The clearing of 1.7ha that has been subject to these disturbances is unlikely to provide suitable conditions for the above mentioned flora species.

Methodology
Florabase (2008)
Mattiske Consulting (1998)
Northcote et al. (1968)
GIS database:
- Denmark 1m Orthomosaic - DOLA 01
- Mattiske Vegetation - CALM 24/03/98
- SAC Biodatasets - accessed 4 March 08
- Soils, Statewide DA 11/99

(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 Threatened Ecological communities mapped within the local area (10km radius), however, there is a buffer to a TEC 9.9km from the vegetation under application. Due to the distance from the TEC the proposed clearing is unlikely to have an impact on this TEC.

Methodology
GIS database:
- SAC Biodatasets - accessed 29 Feb 08

(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 proposed to be cleared is for road reserves and residential blocks on the outskirts of the town of Denmark. The proposed clearing is on the edge of a larger intact remnant. The remnant the vegetation is part of is ~ 182 ha in size. If the proposed clearing was granted, this would reduce the remnant to ~ 180.3 ha.

The local area (10km radius) is highly fragmented with ~ 30% of vegetation remaining. This area has been identified as an area of the State that has been highly cleared as part of the EPA Position Statement No. 2.

As the proposed clearing is on the outskirts of the town of Denmark, it is likely to have experienced some disturbance, such as weed and feral animal invasion and human disturbance. Additionally, the vegetation proposed to be cleared is a small area (1.7ha) and as it is on the edge of the remnant. It is, therefore, unlikely to significantly compromise the larger remnant of which it is a part.

	Pre-European (ha)	Current extent (ha)	Remaining (%)

IBRA Bioregions***			
Warren^	833 981	663 141	79.5
Shire*			
Denmark	190 142	145 216	74.4
Mattiske Vegetation Complex**			
TR1 Trent			
OW Owingup	63 041	52 406	83.1
Beard Vegetation Complex***			
14	94 609	70 601	74.6

* (Shepherd et al. 2006)
** (Mattiske Consulting 1998)
*** (Shepherd et al. 2001)
^ Area within Intensive Land Use Zone

As the vegetation proposed to be cleared has well represented vegetation complexes and is unlikely to significantly compromise the remnant of which it is part, it is unlikely to be at variance to this Principle.

Methodology EPA (2000)
Hopkins et al. (2001)
Mattiske Consulting (1998)
Shepard (2006)
Shepherd et al (2001)
GIS Databases:
- Denmark 1m Orthomosaic - DOLA 01
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00
- Local Government Authorities - DLI 8/07/04
- Mattiske Vegetation - CALM 23/3/98
- 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 likely to be at variance to this Principle

Part of the vegetation proposed to be cleared is 53m north of a second order minor perennial watercourse that flows for just over a kilometre into Wilson Inlet.

The vegetation close to this watercourse has been mapped as Owingup vegetation complex. This complex is described as a mosaic of open woodland of Allocasuarina fraseriana, Banksia attenuate, Banksia ilicifolia, low open woodland of Melaleuca rhaphiophylla, Agonis juniperina, low open woodland of Melaleuca cuticularis and tall shrubland of Melaleuca densa on broad swamps and plains in the hyperhumid zone.

The vegetation proposed to be cleared near this watercourse of this vegetation complex is minor (~0.03ha) and part of the proposed road. Aerial mapping suggests that this vegetation is not directly associated with the watercourse.

The majority of vegetation proposed to be cleared is ~ 240m away, separated by a vegetated area and is part of a vegetation complex (TR1) that is not associated with watercourses or wetlands.

Methodology Mattiske Consulting (1998)
GIS Databases:
- Denmark 1m Orthomosaic - DOLA 01
- Hydrography linear - DOW 13/7/06
- Mattiske Vegetation - CALM 23/3/98

(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 vegetation proposed to be cleared is situated on a medium (15 - 20 m AHD over ~108 m) relief slope near the coast. The proposed clearing is for 1.7ha within a ~180.3ha remnant for the purpose of roads, footpaths and services for a subdivision.

Some of the vegetation proposed to be cleared is mapped as being associated with swamp areas (Mattiske vegetation complex Owingup). This area is small (~0.03ha) and impacts such as waterlogging are likely to be minor (if at all) as this part of the proposed clearing is for a road reserve which incorporates drainage as part of the design.

The vegetation proposed to cleared and a nearby watercourse are in a low salinity risk sub-catchment.

The soil type for the vegetation proposed to be cleared is CB41, described as low-lying wet plains with swamps and lakes, some estuarine areas: chief soils are leached sands, some of which have thin peaty surface horizons. Associated are a variety of peat and other soils in the swamps and depressions; some other leached sands on slopes; diatomaceous earths (unclassified); some granitic tors on slopes; and other undescribed soils. As mapped, areas of the ironstone gravelly soils of the adjacent units are included (Northcote et al. 1968).

Peaty soils and swampy areas are typically associated with Acid Sulfate Soils (ASS). Vegetation mapping suggests that the majority of the vegetation proposed to be cleared is Mattiske Trent (TR1) which is described as a woodland of Allocasuarina fraseriana, Eucalyptus marginata subsp. marginate, Banksia grandis with some Corymbia calophylla on low rises of sedimentary rocks in the perhumid zone. This vegetation complex is not associated with swampy areas.

Approximately 0.03ha of vegetation within the proposed area to be cleared is mapped as vegetation associated with swampy areas (Owingup), however, aerial photography suggests this vegetation is not directly associated with the nearby watercourse (or swampy areas). Additionally, the risk of ASS associated with clearing is low as only the soil profile close to the surface is disturbed (i.e. not in the profile in which ASS generally occurs). Therefore, the proposed clearing is unlikely to disturb ASS.

The proposed clearing is not likely to cause appreciable land degradation.

Methodology

Mattiske Consulting (1998)
Northcote et al. (1968)
GIS database:
- Denmark 1m Orthomosaic - DOLA 01
- Hydrographic catchments, subcatchments - DoW 01/06/07
- Mattiske Vegetation - CALM 23/3/98
- Hydrography, linear - DOW 13/7/06
- Salinity Risk LM 25m - DOLA 00
- Topographic contours statewide - DOLA and ARMY 12/09/02
- 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

There is one National Park, one State Forest and five Nature Reserves within the local area (10km radius). Of these Nature Reserves two are part of the Register of National Estates. There is an additional reserve, for the purpose of a Priority species, that is part of the Register of National Estates.

One of the Nature Reserves is connected to the vegetation proposed to be cleared via largely continuous remnant (separated by a watercourse).

As the proposed clearing is on the edge of the remnant and it is relatively small (1.7ha) it is unlikely to significantly compromise the functioning of this remnant and the associated Nature Reserve.

Methodology

GIS Databases:
- Denmark 1m Orthomosaic - DOLA 01
- CALM Managed Lands and Waters - CALM 01/06/05
- Register of National Estate - Environment Australia, Australian and world heritage division 12 Mar 02

(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

Part of the vegetation proposed to be cleared is 53m north of a second order minor perennial watercourse that flows into Wilson Inlet (1km away).

The vegetation proposed to be cleared near this watercourse of the Owingup vegetation complex is minor (~0.03ha). The Owingup vegetation complex has some association with swamp areas. Aerial mapping suggests that this vegetation is not directly associated with the watercourse. Impacts on the watercourse, if any, such as sedimentation and turbidity are likely to be limited as the clearing is minor and there will be some

remaining vegetation between the vegetation proposed to be cleared and the watercourse.

The majority of vegetation proposed to be cleared is ~ 240m away, separated by a vegetated area, which is likely to buffer impacts on the watercourse, if any, such as sedimentation and turbidity.

The vegetation proposed to cleared and the nearby watercourse are in a low salinity risk sub-catchment.

Methodology Mattiske Consulting (1998)
GIS database:
- Denmark 1m Orthomosaic - DOLA 01
- Hydrographic catchments, subcatchments - DoW 01/06/07
- Hydrography, linear - DOW 13/7/06
- Mattiske Vegetation - CALM 23/3/98
- 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**
The vegetation proposed to be cleared is for 1.7ha within an 182ha remnant. It is unlikely to cause or significantly exacerbate the incidence or intensity of flooding due to the small scale of the clearing and the amount of vegetation remaining.

Methodology GIS database:
- Denmark 1m Orthomosaic - DOLA 01

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

Comments

The Shire has given approval for the proponent to undertake the proposed works within Shire road reserves (DOC34043).

There is a Native Title Claim over the area under application. The Department of Environment and Conservation's advertising of the application in the West Australian newspaper constitutes legal notification of the native title representative body for the purpose of the future act procedures under the Native Title Act 1993. No response was received from the representative body.

Additionally, the vegetation proposed to clear for road reserves and services are vested as such. As the purpose for the clearing is consistent with the zoning of the land, Native Title requirements do not apply. The vegetation proposed to be cleared associated with the services for houses are within cadastres zoned as residential. They are freehold and therefore extinguished from Native Title requirements.

Methodology GIS database:
- Cadaster - Landgate Dec 07
- Native Title Claims - LA 2/5/07
- Town Planning Scheme Zones - MFP 31/08/98

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Infrastructure Maintenance	Mechanical Removal	1.7	The assessable criteria have been addressed and the clearing as proposed may be at variance to Principle (c) and is not likely to be at variance to Principle (a), (b), (d), (e), (f), (g), (h), (i) and (j).

5. References

Department of Environment and Conservation, Florabase (2008) http://florabase.dec.wa.gov.au/browse/profile/13619. (Retrieved 04 03 2008).

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.

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.

Mattiske Consulting (1998) Mapping of vegetation complexes in the South West forest region of Western Australia, CALM.

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 (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.
Templeman, D. (2008). Wildlife Conservation (Specially Protected Fauna) Notice 2008. Wildlife Conservation Act 1950

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)