



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7357/1
Permit Holder:	West Australian Land Authority t/a LandCorp
Duration of Permit:	25 February 2017 to 25 February 2022

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 upgrades.

2. Land on which clearing is to be done

Lot 8027 on Deposited Plan 194711, Hay
Lot 556 on Deposited Plan 77512, Hay
East River Road reserve (PIN 11779128 and 11744189), Hay
McIntosh Road reserve (PIN 11744202), Hay
Sheoak Drive road reserve (PINs 1132136 and 11744404), Hay
Denmark Mount Barker Road (PIN 11744187), Scotsdale

3. Area of Clearing

The Permit Holder must not clear more than 13.83 hectares of native vegetation within the area hatched yellow on attached Plan 7357/1a.

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.

PART II – MANAGEMENT CONDITIONS

5. 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:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

6. 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) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

7. Fauna management

- (a) Prior to clearing, any *habitat trees* identified on Plan 7357/1b shall be inspected by a *fauna specialist* for the presence of the fauna species listed below:
 - (i) Carnaby's cockatoo (*Calyptorhynchus latirostris*);
 - (ii) Baudin's cockatoo (*Calyptorhynchus baudinii*);
 - (iii) Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*); and
 - (iv) Southern brush-tailed phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*).
- (b) Where fauna are identified in relation to condition 7(a) of this Permit, the Permit Holder shall ensure that no clearing of, or within 10 metres of, the identified *habitat tree* occurs, unless approved by the CEO.

DEFINITIONS

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

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

fauna specialist means a person with training and specific work experience in fauna identification or faunal assemblage surveys of Western Australian fauna;

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

habitat tree(s) means trees that have a diameter, measured at 1.5m above the ground, of 50cm or greater, healthy but with dead limbs and broken crowns that are likely to contain hollows and roosts suitable for native fauna, or where these are not present then healthy but with the potential to contain hollows and roosts;

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;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway
MANAGER
CLEARING REGULATION




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

27 January 2017

Plan 7357/1a



Legend

-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority

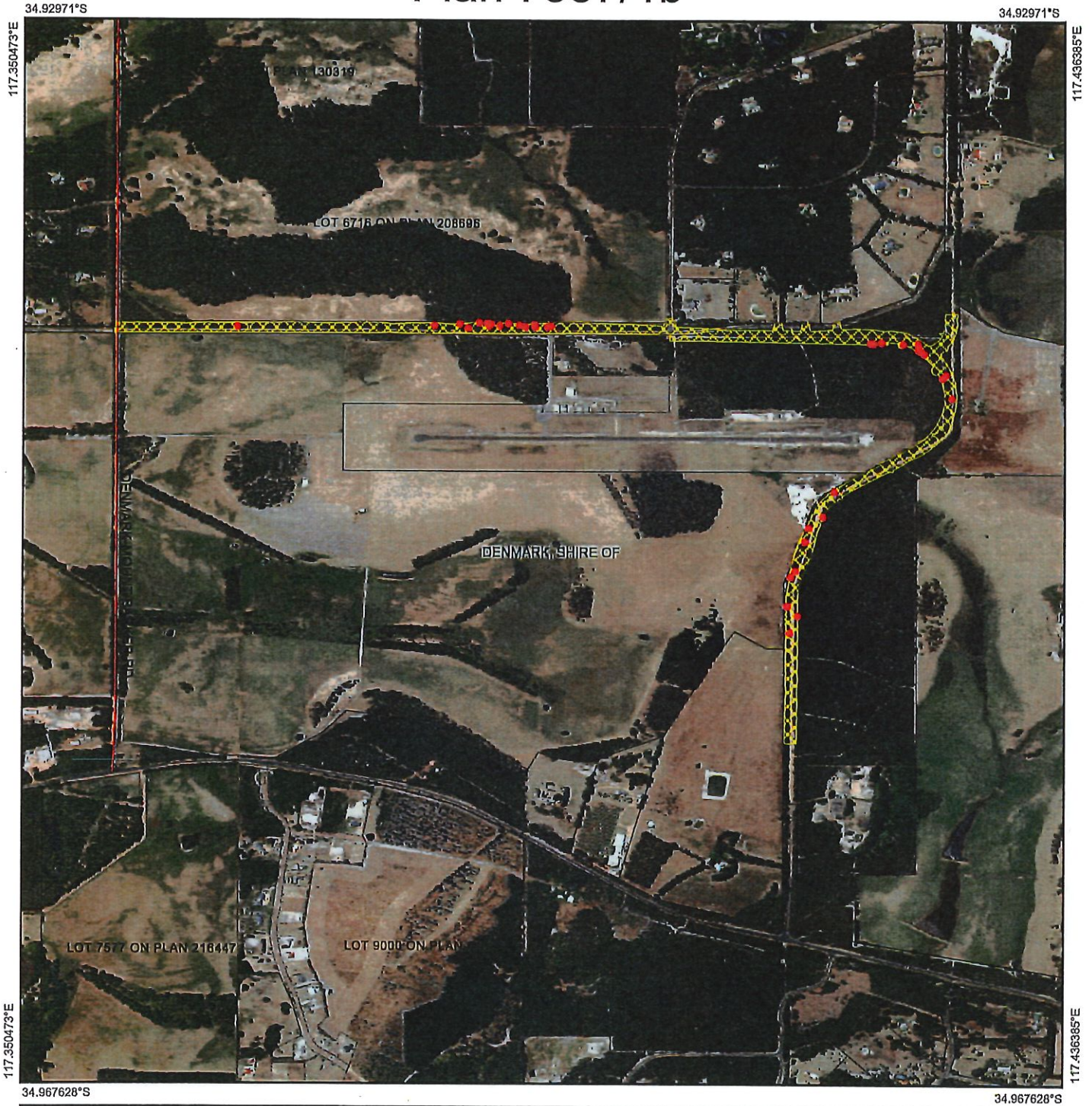


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(Approximate when reproduced at A4)
GDA 94 (Lat/Long)
Geocentric Datum of Australia 1994

Matthew Ginnaway Date 27/1/2017

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

Plan 7357/1b



Legend

-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority
-  Habitat trees



1:15,000

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

M. Gannaway Date 27/1/2017

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



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1. Application details

1.1. Permit application details

Permit application No.: 7357/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Western Australian Land Authority T/A LandCorp

1.3. Property details

Property: LOT 8027 ON DEPOSITED PLAN 194711, HAY
LOT 556 ON DEPOSITED PLAN 77512, HAY
EAST RIVER ROAD RESERVE - 11779128, HAY
MCINTOSH ROAD RESERVE - 11744202, HAY
SHEOAK DRIVE ROAD RESERVE - 1132136, HAY
SHEOAK DRIVE ROAD RESERVE - 11744404, HAY
DENMARK MOUNT BARKER ROAD RESERVE - 11744187, SCOTSDALE
EAST RIVER ROAD RESERVE - 11744189, HAY

Local Government Authority: DENMARK, SHIRE OF
DER Region: South Coast
DPaW District: FRANKLAND
Localities: HAY

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
13.83		Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Granted

Application:

Decision Date: 27 January 2017

Reasons for Decision: The clearing permit application was received on 11 November 2016, and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is at variance to principle (f), may be at variance to principles (b) and (h), and is not likely to be at variance to any of the remaining clearing principles.

Through assessment it has been determined that the proposed clearing may impact the environmental values of McIntosh Road Nature Reserve through the possible introduction or spread of weeds and dieback. Weed and dieback management measures will minimise impacts to Donnelly State Forest.

Through assessment it has been determined that the vegetation within the application area has the potential to provide nesting habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*), forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) and southern brush-tailed phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*). To mitigate the potential impact to these species a condition has been placed on the permit requiring the inspection of habitat trees prior to clearing and Chief Executive Officer approval to clear within 10 metres of habitat trees if fauna is identified.

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
Broad scale vegetation mapping classifies the application area as:	The application is to clear 13.83 hectares of native vegetation within Lot 556 on Deposited Plan 77512, Lot 8027 on Deposited Plan 194711, East River Road reserve, McIntosh Road	Degraded; Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	The applicant has engaged external consultants, GHD Group Pty Ltd (GHD) to complete: <ul style="list-style-type: none"> Level 2 Flora and Level 1 Fauna survey – GHD (2016) Landcorp, Denmark East Development Precinct. Eastern Section Flora and Fauna Survey
Beard vegetation associations 3: Medium forest; jarrah-marri (Shepherd et al., 2001).	To		

Mattiske vegetation complex Ds: Low woodland of *Eucalyptus marginata* subsp. *marginata* - *Corymbia calophylla* - *Eucalyptus staeri* on small hills of siltstone plateau in the perhumid zone.

Mattiske vegetation complex DcU: Open forest of *Eucalyptus marginata* subsp. *marginata* - *Banksia attenuata* - *Allocasuarina fraseriana* with *Eucalyptus staeri* on low hills formed by dissection of siltstone plateau in perhumid and humid zones.

Mattiske vegetation complex S7: Woodland of *Banksia attenuata*-*Banksia grandis*-*Allocasuarina fraseriana* on mild slopes with some *Eucalyptus staeri*, mixture of low woodland of *Melaleuca preissiana* and open heath of Myrtaceae-Proteaceae spp. on valley floors in perhumid and humid zones.

Mattiske vegetation complex F: Mixture of woodland of *Eucalyptus megacarpa*, woodland of *Eucalyptus patens*, tall shrubland of Myrtaceae spp. with some sedgeland of *Anarthria* spp. on broad plains in hyperhumid and perhumid zones.

(Mattiske and Havel, 1998)

reserve, Sheoak Drive Road reserve, Hay and Denmark Mount Barker Road reserve, Scotsdale, for the purpose of road upgrades and associated works.

Excellent; Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

- Clearing Permit Application - GHD (2016) – Denmark East Development Precinct – Eastern Section Clearing Permit Application.

A level 2 survey of flora and vegetation was undertaken on 27 – 29 July and 5 – 7 September 2016. A Level 1 fauna survey occurred on 27 – 28 July and 5 – 7 September 2016. A further targeted fauna night-time survey was undertaken over three nights from 4 – 6 October.

Approximately half of the survey area was considered in excellent to very good condition (survey area contains 25.34 hectares of native vegetation, of which 19.74 hectares was in excellent – good condition) (GHD, 2016).

Nine vegetation types were identified (not including highly disturbed areas), being (GHD, 2016):

VT2: *Eucalyptus marginata*, *Eucalyptus staeri* and *Allocasuarina fraseriana* woodland (approximately 14.81 hectares).

VT4: *Eucalyptus marginata*, *Allocasuarina fraseriana* and *Banksia grandis* under open forest (approximately 3.23 hectares).

VT5: *Melaleuca preissiana*, *Homalospermum firmum* and *Kunzea ericifolia* shrubland (approximately 1.77 hectares).

VT6: *Evandra aristata*, *Anarthria prolifera* and *Leptocarpus tenax* sedgeland (approximately 1.26 hectares)

VT7: *Eucalyptus marginata*, *Corymbia calophylla* and *Agonis flexuosa*/*Allocasuarina fraseriana* open forest (approximately 1.57 hectares).

VT8: *Eucalyptus marginata* and *Allocasuarina fraseriana* open forest (approximately 0.97 hectares).

VT9: *Tremulina tremula*, *Mesomelaena tetragona* and *Lepidosperma pubisquameum* sedgeland (approximately 1.29 hectares).

PT: planted trees – planted trees comprised mostly introduced species, *Eucalyptus diversicolor* was recorded alongside the northern part of McIntosh road (approximately 0.25 hectares).

SN: scattered natives – paddock and roadside areas (approximately 3.71 hectares).

HD: Highly disturbed (approximately 7.14 hectares).

3. Assessment of application against clearing principles

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

Comments

Proposed clearing is not likely to be at variance to this Principle

The application is to clear 13.83 hectares of native vegetation within Lot 556 on Deposited Plan 77512, Lot 8027 on Deposited Plan 194711, East River Road reserve, McIntosh Road reserve, Sheoak Drive Road reserve, Hay and Denmark Mount Barker Road reserve, Scotsdale, for the purpose of road upgrades and associated works.

A level 2 vegetation and flora survey and a level 1 fauna survey (including a targeted fauna night-time survey) was undertaken by GHD to identify and describe flora, vegetation and fauna within the survey area. The survey area covers approximately 36 hectares and fully encompasses and expands beyond the application area (GHD, 2016). The majority of the survey area is considered to be in excellent to good (Keighery, 1994) condition (survey area contains 25.34 hectares of native vegetation, of which 19.74 hectares is in good to excellent condition) (GHD, 2016).

A total of 253 plant taxa representing 56 families and 147 genera were recorded within the survey area. This total is comprised of 208 native species and 45 introduced species (GHD, 2016). No rare flora was identified within the survey area, however one priority listed species, *Laxmannia jamessii* (Priority 4), was recorded (adjacent to the application area) and has the potential to be impacted by the proposed clearing. Priority 4 species are considered to have been adequately surveyed and not in need of special protection, but could be if circumstances change. The proposed clearing of one individual within an extensively vegetated area (approximately 76 per cent native vegetation remaining in the local area (10 kilometre radius)) is unlikely to impact on the conservation status of this species.

Five fauna habitats were identified and are considered largely to be in a good to excellent condition (GHD, 2016), being:

- Jarrah, sheoak and *Banksia* woodland/forest
- Sedgelands
- Myrtaceous shrubland
- Planted trees / scattered native species
- Highly disturbed

The survey area has been identified as black cockatoo foraging, roosting and breeding habitat (GHD, 2016). The term black cockatoos collectively refer to Baudin's cockatoo (*Calyptorhynchus baudinii*), Carnaby's cockatoo (*Calyptorhynchus latirostris*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*). Forest red-tailed black cockatoo and Baudin's cockatoo were recorded foraging within the survey area (GHD, 2016).

Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests. One hundred and seventy four potential breeding trees (trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres. For salmon gum and wandoo, suitable DBH is 300 millimetres) were recorded within the survey area, with nine trees having large hollows, two medium hollows and two small hollows. One large hollow in a jarrah showed evidence of previous use by forest red-tailed black cockatoos. The proposed clearing will impact upon approximately 36 potential breeding trees.

Two quenda (*Isoodon obesulus* subsp. *fusciventer*) were recorded along McIntosh Road reserve and also from a motion sensitive camera positioned at the intersection of McIntosh Road reserve and East River Road reserve. Southern brush-tailed phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*) was also identified, with a number of diggings recorded throughout the survey area in areas where habitat is dense and continuous.

No priority ecological communities (PEC's) have been mapped within the application area. The closest PEC is located over five kilometres from the application area.

The proposed clearing has the potential to spread weeds and dieback into adjacent areas of remnant vegetation. Weed and dieback management measures will assist in minimising this risk.

The local area retains approximately 76 per cent pre-European vegetation and the Warren bioregion retains approximately 79 per cent native vegetation, 85 per cent of which is held in conservation estate. Therefore the vegetation types within the application area are well represented locally and regionally.

The application area contains suitable habitat for indigenous fauna, however it is unlikely to represent significant habitat given the extent of surrounding vegetation. Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology

References:
GHD (2016)
Keighery (1994)

GIS Database:
SAC Bio datasets – Accessed December 2016

(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

Proposed clearing may be at variance to this Principle

Sixteen fauna species listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* have been recorded within the local area (10 kilometre radius) (Department of Parks and Wildlife 2007-). Broad scale vegetation mapping of the application area classifies vegetation complexes as a mixture of marri and jarrah woodland (Shepherd et al., 2001).

Five fauna habitats were identified and are considered largely to be in a good to excellent condition (GHD, 2016), being:

- Jarrah, sheoak and *Banksia* woodland/forest
- Sedgelands
- Myrtaceous shrubland
- Planted trees / scattered native species
- Highly disturbed

Habitat suitable for black cockatoos, southern brush-tailed phascogale, red-tailed phascogale (*Phascogale calura*), chuditch (*Dasyrurus longirostris*) and quenda has the potential to be impacted by the proposed clearing. The fauna survey identified a southern brush-tailed phascogale and two quenda along McIntosh Road and the intersection of McIntosh Road reserve and East River Road reserve. Additionally, a number of diggings were recorded throughout the survey area in areas where habitat is dense and continuous (GHD, 2016).

The survey area has been identified as black cockatoo foraging, roosting and breeding habitat based upon mapped fauna habitats (GHD, 2016).

Allocasuarina sp., *Corymbia* sp. and *Eucalyptus* sp. were recorded within the woodland habitats and are considered to provide black cockatoo foraging habitat. Foraging evidence on jarrah, marri, *Eucalyptus staeri* and *Allocasuarina* nuts was observed during the survey, which was from forest red-tailed black cockatoos, Baudin's cockatoo and possibly Carnaby's cockatoo (GHD, 2016). A forest red-tailed black cockatoo and Baudin's cockatoo were recorded foraging within the survey area (GHD, 2016).

Based on the mapped vegetation types there is approximately 20 hectares of foraging and roosting habitat present within the survey area (GHD, 2016).

The fauna survey identified 174 potential breeding trees within the survey area, with nine trees having large hollows, two medium hollows and two small hollows. One large hollow in a jarrah showed evidence of previous use by forest red-tailed black cockatoos (GHD, 2016).

The proposed clearing has the potential to impact upon an estimated 36 potential breeding trees. A requirement to check hollows for fauna prior to clearing will assist in mitigating the risk of fauna being injured during the clearing process.

The application area contains habitat for black cockatoo, southern brush-tailed phascogale, red-tailed phascogale, chuditch and quenda. However, given the amount of vegetation within the local area (approximately 76 per cent) and within the Warren bioregion (approximately 84 per cent), the application area is not likely to be significant habitat for indigenous fauna.

Given the above, the proposed clearing may be at variance to this Principle, however the proposed clearing is unlikely to have an unacceptable impact on habitat for indigenous fauna.

Methodology

References:
Department of Parks and Wildlife (2007-)
GHD (2016)
Shepherd et al. (2001)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposed clearing is not likely to be at variance to this Principle

According to available datasets no rare flora species have been mapped within the application area. Two rare flora species have been recorded within the local area (10 kilometre radius).

A level 2 flora and vegetation survey undertaken by GHD did not identify any rare flora species (GHD, 2016). Based upon the timing and level of survey conducted, the presence of rare flora species within the application area is considered unlikely.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

References:
GHD (2016)
GIS Database:
SAC Bio datasets – Accessed December 2016

(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 **Proposed clearing is not likely to be at variance to this Principle**
 Three threatened ecological communities (TEC) have been mapped within the local area (10 kilometre radius). According to available datasets, the closest mapped TEC is located approximately seven kilometres south east of the application area and is known as Subtropical and Temperate Coastal Saltmarsh.

The application area is not consistent with the description of any of the mapped TEC's, and given the distance to the closest TEC, the proposed clearing is not considered necessary for the maintenance of this community.

Given the above, the proposed clearing is not likely to be at variance to this clearing Principle.

Methodology GIS Database:
 SAC Bio datasets – Accessed December 2016

(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 **Proposed clearing is not likely to be at variance to this Principle**
 The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is located within the Warren Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and represented by Beard vegetation association 3. Finer scale vegetation mapping conducted by Mattiske classifies the application area as vegetation complex Ds, DC2, S7 and F. The Warren bioregion, Beard vegetation association and Mattiske vegetation complexes are above the minimum 30 per cent threshold (Government of Western Australia, 2015 and Department of Parks and Wildlife, 2015). Furthermore, there is an estimated 76 per cent pre-European vegetation remaining within the local area (10 kilometre radius).

The vegetation within the application area is considered to be in an excellent to degraded (Keighery, 1994) condition and contains suitable habitat for indigenous fauna. However, based upon the proximity of vegetation in similar condition, the application area is not likely to be a significant remnant.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Warren Shire*	833,985.55	660,310.82	79	84
Shire of Denmark	190,533.86	142,246.14	74	79
Beard Vegetation Association in Bioregion*				
3	2,390,591	1,611,061	67	81
Mattiske Vegetation Association in Bioregion**				
Ds	3,188.35	2,067.97	64	31
DC2	4,360.17	2,682.06	61	42
S7	4,785.52	3,107.69	64	47
F	22,093.03	15,076.30	68	43

Methodology References:
 Commonwealth of Australia (2001)
 Department of Parks and Wildlife (2015)**
 Government of Western Australia (2015)*
 Keighery (1994)

GIS Databases:
 Imagery
 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 **Proposed clearing is at variance to this Principle**
One minor, non-perennial watercourse intersects the application area.

The proposed clearing will result in the removal of three vegetation types that are considered to be growing in association with a watercourse or wetland (GHD, 2016), namely:

- **VT5:** *Melaleuca preissiana*, *Homalospermum firmum* and *Kunzea ericifolia* shrubland (approximately 1.77 hectares within survey area). Limited to small sections (0.111 hectares) of remnant vegetation retained within the southern portion of East River Road Reserve and western portions of the Denmark – Mount Barker Road.
- **VT6:** *Evandra aristata*, *Anarthria prolifera* and *Leptocarpus tenax* sedgeland (approximately 1.26 hectares within survey area). Located on the northern side of East River Road Reserve, approximately 0.669 hectares of this vegetation type will be cleared.
- **VT9:** *Tremulina tremula*, *Mesomelaena tetragona* and *Lepidosperma pubisquamum* sedgeland. Located on the western portion of McIntosh Road, approximately 0.256 hectares of this vegetation type will be cleared.

Given the presence of a watercourse and riparian vegetation, the proposed clearing is at variance to this Principle. The use of culverts will ensure that the mapped watercourse is not significantly impacted by the proposed clearing.

Methodology References:
GHD (2016)

GIS Databases:
Geomorphic Wetlands
Hydrography, linear
Hydrography, hierachy

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments **Proposed clearing is not likely to be at variance to this Principle**
Land system mapping by the Department of Agriculture and Food Western Australia (DAFWA) characterise the application area as:

- Fernley Subsystem: Gently undulating sandy terrain. Sandy or gravelly yellow duplex soils on rises; Jarrah-Bullich woodland. Humus podzols in broad depressions; Kangaroo Grass sedgeland; Teatree heath.
- Dempster slope Phase (Kentdale): Sands and gravels on smooth slopes; Albany blackbutt-sheoak low forest.
- Dempster crest Phase (Kentdale): Sands and laterite on elongate crests; Jarrah-Albany Blackbutt-Marri forest.
- Minor Valleys S7 (Kentdale) slope Phase: Slopes of broad valleys in sedimentary rocks; 30 metre relief; smooth slopes. Deep sands and iron podzols on slopes; Albany blackbutt-jarrah-sheoak woodland. Podzols and yellow duplex soils on floors; paperbark woodland, teatree heath.

These subsystems are classified as having a 10 – 30 per cent of the map unit having a high to extreme water erosion risk. The Fernley, Dempster slope phase and minor valleys S7 slope phase subsystems are considered to have a 50 – 70 per cent of a high to extreme wind erosion risk.

Based upon the linear nature of application area, the proposed clearing is not likely to result in appreciable land degradation.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology References:
Annual Rainfall, Statewide
Soils, Statewide
Topography

(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 **Proposed clearing may be at variance to this Principle**
Eight conservation areas have been mapped within the local area (10 kilometre radius), including McIntosh Road Nature Reserve (adjacent to the eastern perimeter), Denmark Catchment State Forest (1.7 kilometres), Scotsdale Road Nature Reserve (2.6 kilometres), Rudyard Beach Nature Reserve (3.6 kilometres), Mount Lindesay Nation Park (4.2 kilometres), McLean Road Nature Reserve (4.4 kilometres), Redmond Road Nature Reserve (5 kilometres), Denmark Catchment State Forest (9.2 kilometres), and Mount Shadforth Nature Reserve.

The disturbance caused by the proposed clearing will increase the risk of weeds and dieback being spread into McIntosh Road Nature Reserve. Weed and dieback management practices will assist in mitigating this risk.

Given the linear nature of the application area, the proposed clearing is not likely to sever any ecological corridors which provide a linkage between conservation areas.

Given the above, the proposed clearing may be at variance to this Principle.

Methodology GIS Databases:
Parks and Wildlife Tenure

(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 Proposed clearing is not likely to be at variance to this Principle

One minor, non-perennial watercourse intersects the application area. This watercourse runs across the western portion of East River Road, flowing north west into Denmark River. The proposed clearing is not likely to significantly impact surface water quality as impacts will be short term during the clearing process.

Groundwater salinity mapped within the application area is 500-1000 milligrams per litre (measured as Total Dissolved Solids). This level of groundwater salinity is considered to be marginal. The proposed clearing of 13.83 hectares over a linear distance of 4.7 kilometres, in a local area which retains approximately 76 per cent native vegetation, is not likely to increase groundwater salinity.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Databases:
Hydrography, linear
Hydrography, hierachy
Geomorphic Wetlands
Groundwater salinity

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments Proposed clearing is not likely to be at variance to this Principle

The soil within the application area is dominated by sand and gravel which are both highly permeable. Given this and the linear nature of the application area, the proposed clearing is not likely to increase the incidence or intensity of flooding.

The proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Databases:
Annual Rainfall, Statewide
Soils, Statewide

Planning instruments and other relevant matters.

Comments The application is to clear 13.83 hectares of native vegetation within Lot 556 on Deposited Plan 77512, Lot 8027 on Deposited Plan 194711, East River Road reserve, McIntosh Road reserve, Sheoak Drive Road reserve, Hay and Denmark Mount Barker Road reserve, Scotsdale, for the purpose of road upgrades and associated works. The road upgrades are required as part of the Denmark East Development, which includes an additional link road between Denmark town and the McIntosh Road industrial area and airport.

The Shire of Denmark has appointed LandCorp as the Project Manager for the planning and delivery of the Denmark East Development Precinct project.

The application was advertised in *The West Australian* newspaper on 5 December 2016 by the Department of Environment Regulation inviting submissions from the public within a 21 day period. No submissions were received in relation to this application.

Landcorp referred this project to the Department of the Environment and Energy (DotEE) under *Environmental Protection and Biodiversity Conservation Act 1999* (Reference No. 2016/7835). On 9 January 2017 DotEE determined that the project was not a controlled action (DotEE, 2016).

Methodology ~~References:~~
Annual Rainfall, Statewide
Soils, Statewide

4. References

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Department of Parks and Wildlife (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed December 2016.
- Department of the Environment and Energy (2016) Referral Decision for the Denmark East Development Precinct (Clearing for Eastern Precinct) EPBC 2016/7832 (DER Ref: A1360323).
- GHD (2016) Denmark East Development Precinct, Eastern Section Flora and Fauna Survey. Prepared for LandCorp. November 2016 (DER Ref: A1194654).
- Government of Western Australia (2015). 2015 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2015. WA Department of Parks and Wildlife, Perth.
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