



1. Application details

1.1. Permit application details

Permit application No.: 249/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Main Roads WA

1.3. Property details

Property: ROAD RESERVE (JANE BROOK 6056)
ROAD RESERVE (RED HILL 6056)
LOT 14165 ON PLAN 195521 (RED HILL 6056)
Local Government Area: City Of Swan
Colloquial name: Toodyay Road

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
<p>Beard vegetation association 4: medium woodland; marri and wandoo.</p> <p>Beard vegetation association 2003 - medium forest; jarrah and marri on laterite with blackbutt (<i>Eucalyptus patens</i>) in valleys, swampy bottomlands with bullich (<i>E. megacarpa</i>) and <i>Agonis flexuosa</i>. (Shepherd et al 2001, Hopkins et al 2001)</p> <p>Hedde vegetation complex - Darling Scarp: vegetation ranges from low open woodland to lichens according to depth to soils. Woodland components chiefly <i>E. wandoo</i> with <i>E. laeliae</i> in the north, <i>E. haematoxylon</i> in the south and <i>E. calophylla</i> through out the region.</p> <p>Hedde vegetation complex - Dwellingup complex in medium to high rainfall: no vegetation description available.</p> <p>Hedde vegetation complex - Yarragil complex in medium to high rainfall: no vegetation description available. (Hedde et al 1980)</p> <p>Mattiske vegetation complex - DS: Darling Scarp, mosaic of open forest of <i>E. marginata</i> subsp <i>marginata</i>, <i>Corymbia calophylla</i>, with some admixtures with <i>E. laeliae</i> in the north (sub-humid zone), with occasional <i>C. haematoxylon</i> in the south (humid zone) on deeper soils adjacent to outcrops, woodland of <i>E. wandoo</i> (subhumid and semi-arid zones), low woodland of <i>Allocasuarina huegeliana</i> on shallow soils over granite outcrops, closed heath of Myrtaceae - Proteaceae species and lithic complex on or near granite outcrops in all climate zones.</p> <p>Mattiske vegetation complex - Yg1: open forest of <i>E. marginata</i> subsp. <i>marginata</i>, <i>C. calophylla</i> on slopes with admixtures of <i>E.</i></p>	<p>The area under application consists of the road reserve along Toodyay Road. This area has been previously cleared and revegetated as part of previous Main Roads WA works. As such, the vegetation under application is a mix of regenerated native species with naturally occurring mixed scrub heath with marri and introduced perennial species and annuals (GHD 2002). Most of native scrub heath vegetation is located outside of the road reserve on slopes on top of the road embankment. Common species include <i>Acacia puchella</i>, <i>A. saligna</i>, <i>Anigozathus</i> sp, <i>Astartea fascicularis</i> and <i>Lepidosperma</i> sp. (GHD 2002).</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)</p>	<p>A site visit by DoE officers (19 August 2005) confirmed that the condition of the vegetation is good to very good. Some dumping had occurred, non-aggressive weed species were present, and vegetation on the road verge showed signs of stress.</p>

patens and *E. megacarpa* on the valley floors in humid to semi-humid zones. (Mattiske Consulting 1998)

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 flora and vegetation survey undertaken by GHD (2002) did not identify any vegetation communities of outstanding diversity. Most of the road reserve area within the area under application has been previously cleared of its original native vegetation and is now vegetated with opportunistic native species, species used in rehabilitation and/ or introduced species (GHD 2002).

Site inspection by DoE officers confirmed that the condition of the vegetation is good to very good. Some dumping had occurred and non-aggressive weed species were present.

Given that the majority of the area under application has been previously cleared and currently consists of rehabilitation species and regenerating native species (GHD 2002), it is unlikely that the area under application has a high biodiversity value. In addition, the road reserve abuts the John Forrest National Park which would be of higher biodiversity value than the area under application.

Methodology GHD (2002) (DoE Trim Ref IN18465)
Site visit (19/08/2005)
GIS Databases:
- CALM Managed Lands and Waters - CALM 01/08/04

(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 following Specially Protected and Priority fauna species are known to occur in the local area (10km radius):
Western Swamp Tortoise (*Pseudemydura umbrina*);
Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*);
Baudin's Black Cockatoo (*Calyptorhynchus baudinii*);
Chuditch (*Dasyurus geoffroii*);
Western Ringtail Possum (*Pseudocheirus occidentalis*);
Graceful Sunmoth (*Synemon gratiosa*);
Scorpion Fly (*Austromerope poultoni*);
Black Stripe Minnow (*Galaxiella nigrostriata*);
Western Brush Wallaby (*Macropus irma*); and
Quenda (*Isodon obesulus fusciventer*).
(CALM 2005)

Marsupial fauna species are likely to find habitat in equal or better condition in the adjacent John Forrest National Park (CALM 2005). In addition, the area under application is not conducive to supporting the Western Swamp Tortoise (CALM 2005). There may or may not be nesting hollows sufficient for the Carnaby's Black Cockatoo (CALM 2005), however it is considered that there would be more likelihood of the Cockatoo finding suitable hollows in the adjacent John Forrest National Park.

While CALM (2005) suggest that the clearing may be at variance to this Principle, the DoE officer recommends that given the above mitigating factors and that the area to be cleared is relatively small and linear, it is unlikely that the clearing as proposed will impact significantly on these species.

Further, GHD (2002) conclude that the potential impacts of the passing lane on fauna is minimal due to the small amounts of habitat in the road reserve, and the presence of other significant areas of habitat within the broader area.

Methodology CALM (2005) Land Clearing Proposal Advice (DoE Trim Ref EI 3388)
GHD (2002) (DoE Trim Ref IN18465)

(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**

No Declared Rare or Priority flora species were identified by GHD (2002) in the area under application.

It is possible that some significant species may occur in the more intact vegetation of the John Forrest National Park or other patches of remnant vegetation bordering the road reserve. However, this vegetation is not in proximity to the area under application and GHD (2002) advise that any such occurrence will not be impacted

by the clearing as proposed.

Given that the area under application has been cleared and rehabilitated within the last 17 years (GHD 2002), there is a reduced likelihood that there would be any species of conservation significance occurring within this area (CALM 2005).

Methodology GHD (2002) (DoE Trim Ref IN 18465)
CALM (2005) Land Clearing Proposal Advice (EI3388)

(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 two Threatened Ecological Communities (TECs) known to occur in the local area (10km radius): SCP3c - characterised by woodlands with common species including *Corymbia calophylla*, *Xanthorrhoea preissii* and *Dryandra nivea*; and SCP20c - shrubland or woodland of *Banksia attenuata* and *Banksia menziesii* and sometimes with *Allocasuarina fraseriana* over diverse shrub and herb layers. (CALM 2005)

No TECs were recorded from the vegetation survey (GHD 2002). In addition, both TECs occur on the Forrestfield vegetation system and the Swan Coastal Plain (CALM 2005). The area under application consists of a different vegetation system and the Ridge Hill Shelf (CALM 2005). Therefore, it is considered the clearing as proposed is unlikely to be at variance to this Principle.

Methodology CALM (2005) Land Clearing Proposal Advice (DoE Trim Ref EI3388)
GHD (2002) (DoE Trim Ref IN18465)

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments Proposal is not likely to be at variance to this Principle

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment, 2002; EPA, 2000). The area under application has been classified by a number of studies that give varying figures in relation to the extent of vegetation remaining. According to Beard (Shepherd et al 2001, Hopkins et al 2001), the vegetation complexes are 4 and 2003 with 23.5% (292,993ha) and 86% (50,939 ha) remaining respectively. According to the study conducted by Heddle et al (1980), the vegetation under application consists of Darling Scarp with 36.9% (18,227ha) and Dwellingup with 84.5% (71,067ha) remaining (Heddle et al 1980). Mattiske Consulting (1998) maps the vegetation as DS with 43.3% (126,045ha) remaining and Yg1 which has 87.9% (703,654ha) remaining.

However, given that the area under application has been previously cleared and rehabilitated, it is unlikely to have retained the floristic profile of the described vegetation complexes. It is considered therefore, that the clearing as proposed is not likely to be at variance to this Principle.

Methodology Shepherd et al (2001)
Heddle et al (1980)
Hopkins et al (2001)
Department of Natural Resources and Environment (2002)
EPA (2000)
Mattiske Consulting (1998)

(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

A tributary of Strelley Brook runs parallel to the road reserve for some distance (GHD 2005). The fringing vegetation along this drainage line is in varying condition from good to degraded (site visit 19/08/2005). The original area under application has been amended and the proposed clearing has been moved to the other side of the road reserve to avoid having any direct impact on the tributary where it runs parallel and adjacent to the road reserve (GHD 2005).

Methodology GHD (2005)
Site visit (19/08/2005)
Information provided by the proponent
GIS databases:
- Hydrography, linear - DOE 01/02/04.
- Geomorphic wetlands - Swan Coastal Plain - DOE 15/09/04.

- EPP, Areas - DEP 06/95.
- EPP, Lakes - DEP 28/07/03.

(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**
 DAWA (2005) advises that there is a high risk of land degradation occurring in the form of erosion both on and offsite, from resultant surface water run-off. This can be managed through the standard Main Road management practices of undertaking construction in the summer months as there is less rainfall; and monitoring and maintaining drains during construction and after first substantial post-construction rains. Other management techniques include recontouring, grading and placing rocks in eroded sections to trap sediments and disperse floodwaters.

In addition, the area under application is recorded as being Class 3 Low Risk of Acid Sulphate Soils, and a low risk of salinisation.

Given that these management techniques are included in the Environmental Management Plan, the clearing as proposed is not likely to be at variance to this Principle.

Methodology DAWA (2005) (DoE Trim Ref CEO129/05)
 Information provided by the proponent (DoE Trim Ref EI 3825)
 GHD (2005) Environmental Management Plan (DoE Trim Ref EI3827)
 GIS database:
 - Salinity Monitoring LM 50m - DOLA 00
 - Salinity Risk LM 25m - DOLA 01

(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 may be at variance to this Principle**
 Part of the road reserve is located adjacent to the John Forrest National Park. No clearing is proposed for within the boundaries of the National Park. However, there may be risks to the conservation values of the National Park through the spread of weeds and the potential for *Phytophthora cinnamoni* (Dieback) to be introduced to the Park (CALM 2005). Weed management strategies, such as spraying with relevant insecticides at relevant times, are incorporated in the Main Roads Revegetation Plan (GHD 2005) for the area and the Department advises that these strategies be adopted.

Methodology CALM (2005) Land Clearing Proposal Advice (DoE Trim Ref EI3388)
 GHD (2005) Revegetation Plan (DoE Trim Ref EI3827)
 GIS database
 - CALM Managed Lands and Water - CALM 01/08/04

(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**
 According to GHD (2002), it is likely that, due to the slopes and soil types of the area under application, there will be a considerable amount of runoff and a corresponding erosion risk. It can be expected that these flow on effects from the proposed clearing will have an impact on Strelley Brook without the implementation of appropriate management measures (GHD 2002). The main concern will likely be with regard to turbidity and sedimentation of the water body and any downstream distributaries (GHD 2002). This notwithstanding, GHD (2002) advises that these impacts can be managed using standard construction techniques. Main Roads have outlined these in the Environmental Management Plan (GHD 2005) and include undertaking construction works in summer to reduce erosion due to lower rainfall; and monitoring and maintaining drains during construction and after first substantial post-construction rains.

The area under application is not located within a Public Drinking Water Source Area or a groundwater protection area (EPP Area). Given the long, linear nature of the area under application, it is unlikely that the clearing as proposed would have a significant impact on groundwater quality.

Methodology GHD (2002) (DoE Trim Ref IN 18465)
 GHD (2005) Environmental Management Plan (DoE Trim Ref EI3827)
 GIS Databases:
 - Public Drinking Water Source Area (PDWSA) - DOE 29/11/04
 - EPP, Areas - DEP 06/95
 - Groundwater Salinity, Statewide - 22/02/00
 - Hydrography, linear - DOE 01/02/04

(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 shows a general relief in topography toward the south-west. Given this, and the transmissive nature of the soils at the site, the clearing as proposed is unlikely to cause or exacerbate the incidence of flooding.

Methodology GIS Databases:

- Hydrography, linear - DOE 01/02/04.
- Topographic Contours, Statewide - DOLA 12/09/02.
- FMD 100yr ARI Floodway and Flood Fringe Areas - DOE 02/03
- Soils, Statewide - DA 11/99

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

Comments

The area under application occurs within the Combined Metropolitan Working Group (NNTT Claim Number WC95/86; ref. WAG0142) Native Title Claim. In addition, GHD (2002) advise that the entire area under application falls within the Ballaruks People (NNTT Claim Number WC95/86) Native Title Claim. However, the Native Title Claims are extinguished on privately owned land and within existing public utility corridors. Therefore, as the works are for road construction and maintenance of a utility transport corridor managed and maintained by Main Roads, the clearing as proposed in the area under application is not considered to be a future act that affects Native Title.

The City of Swan has no objections to the clearing as proposed as it complies with the zonings in the City's Town Planning Scheme. The City also suggests that Main Roads liaise with the DPI on potential impacts to the Bush Forever site nearby. However given that this Bush Forever site is 1.2km east of the area under application, and the narrow, linear nature of the proposed clearing, it is considered unlikely that the clearing as proposed would have an impact on this Bush Forever site.

Methodology Direct interest submission - City of Swan (DoE Trim Ref NI933)

- GIS Databases:
- Aboriginal Sites of Significance - DIA 04/07/2002
 - Native Title - DLI 19/12/04

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Road construction or maintenance	Mechanical Removal	3.5	Grant	<p>The Principles have been addressed and the clearing as proposed may be at variance to Principle h in relation to the potential for weeds to spread into the adjacent John Forrest National Park. The proponent, Main Roads WA, has agreed to the following condition to address this:</p> <p>For an area that is not road infrastructure, the permit holder shall selectively remove or kill all plant species that are not native vegetation within the area solid-fill yellow on attached Plan 249/1 during the months of June to August.</p> <p>In this Permit, road infrastructure means running surface, shoulder, back slope and culverts.</p> <p>In addition, the Department recognises Main Roads WA commitment to revegetating areas not required for road infrastructure as well as to the management techniques for addressing water erosion that are outlined in the Environmental Management Plan.</p> <p>Given the above, the assessor recommends that this permit be granted.</p>

5. References

CALM (2005) Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref EI3388.

DAWA Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref CEO129/05.

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales ; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority.

GHD (2002) Toodyay Road: Passing Lanes 1 to 4. Preliminary Environmental Impact Assessment. Prepared for Main Roads WA. DoE Trim Ref IN18465

GHD (2005) Toodyay Road Passing Lanes - Revegetation Plan. Prepared for Main Roads WA. DoE Trim Ref EI3827.

GHD (2005) Toodyay Road Passing Lanes 1, 2 and 4 - Environmental Management Plan. Prepared for Main Roads WA. DoE Trim Ref EI3827

Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In

Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
Mattiske Consulting (1998) Mapping of vegetation complexes in the South West forest region of Western Australia, CALM.
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.

6. Glossary

Term	Meaning
CALM	Department of Conservation and Land Management
DAWA	Department of Agriculture
DEP	Department of Environmental Protection (now DoE)
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 DoE)