



1. Application details

1.1. Permit application details

Permit application No.: 1428/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: Main Roads WA

1.3. Property details

Property: ROAD RESERVE (MIDDLE SWAN 6056)
 Local Government Area: City Of Swan
 Colloquial name: Road Reserve - Great Northern Hwy Cnr. Roe Hwy

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.6		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 Complex: 1009</p> <p>Medium woodland; marri and river gum (Hopkins et al. 2001, Shepherd et al. 2001).</p>	<p>The area of vegetation under application consists of a narrow corridor covering 0.6ha along 300m of previously disturbed native vegetation within the Road Reserve next to a major transport corridor, corner of Great Northern Highway and Roe Highway.</p>	<p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)</p>	<p>The vegetation description and condition is based on information obtained during a Site Inspection (2006) of the area, and information provided in the Biological Survey conducted by GHD (2005).</p>
<p>Heddle Vegetation Complexes: Guildford Complexes</p> <p>A mixture of open forest to tall open forest of E. calophylla - E. wandoo - E. marginata and woodland of E. wandoo (with rare occurrences of E. lane-poolei). Minor components include E. rudis - M. rhapsiophylla.</p>	<p>The purpose of the application is for road and bridge widening of the Great Northern Highway.</p>	<p>A Site Inspection (2006) determined that the vegetation under application appeared to be degraded, as the area has been and will continue to be disturbed by weed invasion from edge effects. It has also previously been disturbed for the installation of power lines. Very little species diversity was observed. The dominant overstorey species included Eucalyptus rudis and Melaleuca rhapsiophylla. The middle storey consisted of Acacia pulchella and A. saligna. The understorey was mainly infested with the weed species Lovegrass (Eragrostis curvula) and Veldt grass (Ehrharta calycina).</p>	
<p>Swan Complex</p> <p>Fringing woodland of E. rudis - M. rhapsiophylla with localised occurrence of low open forest of Casuarina obesa and M. cuticularis. (Hedde et al. 1980).</p>			
<p>Mattiske Vegetation Complex: Guildford</p> <p>Mosaic of open forest of Corymbia calophylla-Eucalyptus wandoo-Eucalyptus marginata subsp. marginata and woodland of Eucalyptus wandoo (with rare occurrences of E. lane-poolei) (Mattiske Consulting 1998).</p>			<p>A Biological Survey of the area under application, conducted in August 2005</p>

(GHD 2005), identified the vegetation as being in degraded to completely degraded condition.

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 area under application consists of a narrow corridor of native vegetation comprising 0.6ha, 300m in length within the Road Reserve next to a major transport corridor, corner of Great Northern Highway and Roe Highway.

A Biological Survey of the area by GHD (2005) concluded that the remnant native vegetation is not considered to contain a high level of biological diversity as it is mostly weed infested and is in a degraded condition (GHD 2005). This description and condition of the vegetation was confirmed during a Site Inspection (2006). The site appeared to be degraded as the area has been and will continue to be disturbed by weed invasion from edge effects, and very little species diversity was observed. The vegetation has also been disturbed through the installation of power lines.

The vegetation does not appear to support high levels of biodiversity and therefore the clearing is not likely to be at variance to this Principle.

Methodology GHD (2005)
Site Inspection (2006) TRIM Ref. No. DOC7040

(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 area applied to be cleared is located within a Road Reserve on the intersection of Great Northern Hwy and Roe Hwy, incorporating approximately 0.28 ha of Bush Forever Site 302. It is a narrow and linear corridor that had been and will continue to be subject to disturbance from the adjacent transport corridor. Furthermore, the vegetation has previously been disturbed for the installation of power lines (Site Inspection, 2006).

While Bush Forever (Government of Western Australia, 2000) indicates the area provides suitable habitat for many native animals including the Priority 5 Species, Quenda (*Isodon obesulus*), a Site Inspection (2006) noted that the vegetation within the area under application is in a degraded condition, consisting of a relatively sparse overstorey, and an understorey dominated by weed species.

An opportunistic fauna survey was undertaken by GHD (2005) in August 2005. A total of 21 bird species and one reptile species were recorded during the survey. No species recorded are recognised under the WA Wildlife Conservation Act.

Given the degraded condition of the vegetation under application, and the close proximity to other areas of significant vegetation, the applied vegetation is considered not likely to represent significant habitat for fauna indigenous to Western Australia and the clearing, therefore, is not likely to be at variance to this Principle.

Methodology GHD (2005)
Government of Western Australia (2000)
Site Inspection (2006) TRIM Ref. No. DOC7040

(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**

There are no known Declared Rare (DRF) or Priority Flora recorded in the area under application.

A Biological Survey conducted by GHD (2005) identified one DRF and 12 Priority species within the local area (10km radius). A targeted survey of the area applied to be cleared did not identify any DRF or Priority species (GHD 2005).

Given the above, the vegetation under application is not considered necessary for the continued existence of DRF and therefore the clearing is not likely to be at variance to this Principle.

Methodology GHD (2005)
GIS Database,
- Declared Rare and Priority Flora List - CALM 01/04/05

(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 (TEC) recorded approximately 3km south east of the area under application within Bush Forever Site 306, Talbot Road Bushland.

These TECs are:

- SCP 3c: Eucalyptus calophylla- Xanthorrhoea preissii woodlands and shrubland; and
- SCP 20c: Eastern shrublands and woodlands.

A targeted survey for these communities was conducted by GHD (2005). No components of the above TECs were identified within the area applied to be cleared. A Site Inspection (2006) confirmed that the area is unlikely to comprise of these TECs, as the remnant native vegetation applied to be cleared comprised of an overstorey dominated by Eucalyptus rudis and Melaleuca raphiophylla, over a weed infested understorey. Therefore it is considered that the vegetation applied to be cleared is inconsistent with that of the local TECs and the clearing would not be at variance to this Principle.

Methodology GHD (2005)
 Site Inspection (2006) TRIM Ref. No. DOC7040
 GIS Database:
 - Threatened Ecological Communities, CALM 12/04/05

(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 may be at variance to this Principle

The vegetation under application is a component of Beard vegetation association 1009 (Hopkins et al. 2001), Hedde Vegetation complexes Guildford and Swan (Hedde et al. 1980) and Mattiske complex Guildford (Mattiske Consulting, 1998), of which 30.40%, 5%, 15.6% and 12.3% of Pre European extent remain respectively.

reserves/CALM	Pre-European (ha)*	Current extent (ha)*	Remaining (%)*	Conservation***% status	In managed land
IBRA Bioregions					
Swan Coastal Plain	1,529,235	657,450	43%	Depleted	
City of Swan	103,944	54,792	52.7	Least Concern	
Beard Vegetation Association:					
- 1009	8,792	2,673	30.40%	Depleted	0.1%
Hedde Vegetation Complex:					
Guildford Complex	92,497	4,662	5.0%	Endangered	0.2%
Swan Complex	15,783	2,454	15.6%	Vulnerable	0
Mattiske Vegetation Complex: Gu Guildford	68,546	8,441	12.3%	Vulnerable	

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 (Department of Natural Resources and Environment 2002, EPA 2000). However, the proposed area to be cleared lies within a Bush Forever study area. These are considered as constrained in recognition of past land use planning decisions. Retention objectives in constrained areas are varied to at least 10 per cent.

Ground truthing revealed that the vegetation that is proposed to be cleared has been subject to significant modifications, and is not considered to be representative of either Hedde's or Mattiske's 'Guildford' complexes. Notwithstanding the aforesaid, even in a highly modified form, the vegetation has some biodiversity values, and in recognition of this, Main Roads WA (2006) has submitted an offset proposal which would result in a net environmental gain.

Methodology Site Inspection (2006) TRIM Ref. No. DOC7040
 Department of Natural Resources and Environment (2002)
 Shepherd et al. (2001)
 Hopkins et al (2001)
 Main Roads (2006) TRIM Ref.No. DOC12600

GIS Databases:

- Pre-European Vegetation - DA 01/01.
- Heddle Vegetation Complexes - DEP 21/06/95.
- Matiske Vegetation - CALM 24/03/98
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments Proposal is at variance to this Principle

The water course Jane Brook and the palusplain James Road run directly through the area applied to be cleared. The section of the palusplain that intersects the vegetation under application is classified as a Multiple Use wetland. A section of the palusplain 30m west of the vegetation under application is classified as a Conservation Category Wetland (CCW). The Water and Rivers Commission Position statement for Wetlands states that a buffer zone of up to 200m should be put in place to protect the wetlands from potential deleterious impacts while helping to safeguard and maintain ecological processes and functions within the wetlands (Waters and Rivers Commission, 2001). The area under application is located within the required 200m buffer for the CCW. Given the above, the vegetation applied to be cleared is growing in and in association with a watercourse and wetland.

It is also noted that Waljarra Swamp is located approximately 100m north and the Swan River approximately 500m south-west of the area applied to be cleared. Given the small area applied to be cleared (0.6ha) and distance from these wetlands it is considered that the proposed clearing is not likely to impact upon these water features.

An Offset Proposal has been submitted by Main Roads (2006) to mitigate the clearing of vegetation located within Bush Forever Site 302. The clearing offset will rehabilitate an area covering 0.6ha, approximately 200m east of the proposed clearing, which comprises of the same under-represented Heddle Guildford vegetation complex.

Methodology Main Roads (2006) TRIM Ref.No. DOC12600
Site Inspection (2006) TRIM Ref. No. DOC7040
Waters and Rivers Commission (2001)
GIS Database:
- Geomorphic Wetlands (Mgt Categories) Swan Coastal Plain DEC

(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

Soil mapping of the area under application identifies two soil types present within the applied areas. These are Mu11 and Wd6 (DAWA 2004). Mu11 is identified as being associated with river terraces, consisting primarily of neutral red earths and neutral yellow earths on the higher terrace. Wd6 is identified with chief soils being sandy acidic yellow mottled soil, some of which contain ironstone gravel (DAWA 2004).

Acid Sulphate Soil (ASS) mapping identifies the northern and southern sections of the area under application as having a Class 3 risk, which is no known risk of ASS with approximately one third of central section having a Class 2 risk rating, or moderate/low risk of Acid Sulphate Soils. It is not expected that soil disturbance associated with vegetation clearing will impact at soil depths great enough to influence ASS or potential ASS.

Given the above and considering the proposed clearing consists of degraded vegetation within a relatively narrow corridor (0.6ha over 300m), it is considered unlikely that the clearing would cause appreciable land degradation. Therefore the proposed clearing is not considered likely to be at variance to this Principle.

Methodology DAWA (2004)
GIS Databases:
- Soils, Statewide - DA 11/99
- Acid Sulphate Soil risk map, SCP - DOE 01/02/04

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments Proposal is at variance to this Principle

The area under application is located within a Road Reserve which comprises of 0.28ha of Bush Forever Site 302, Swan River and Jane Brook (227.3ha). Under the definition of principle (h) an area is at variance if it has an impact on a conservation area. Any clearing within this conservation area constitutes an impact on the environmental values of the conservation area, therefore the clearing is at variance to this principle. Due to this DEC has negotiated that a revegetation offset be a condition of any permit to clear, to mitigate the potential impacts on the conservation area. The Bush Forever Office advised that given the works are contained within the cadastral boundaries of the primary regional road boundary there was no objection to the clearing (DPI, 2006).

There are three DEC managed National Parks within the local area. These include John Forest National Park located 5km east, Greenmount National Park located 5.7km north east and Mundaring National Park located 5.5km north of the area under application. Given the small area applied to be cleared and distance from this reserve, it is considered that the clearing would not impact on the conservation values of these reserves.

Methodology Department of Planning and Infrastructure (2006) TRIM Ref.No. DOC2816
Site Inspection (2006) TRIM Ref. No. DOC7040
Main Roads (2006) TRIM Ref.No. DOC12600
GIS Databases:
- EPP, Areas - DEP 06/95
- CALM Managed Lands and Waters, CALM 1/07/05

(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 groundwater table is located 8m below the surface (Department of Environment, 2004). It is considered that the removal of a narrow corridor (0.6ha over 300m) of previously disturbed native vegetation is unlikely to have an appreciable impact on surface or groundwater water quality. Therefore proposed clearing is not considered likely to be at variance to this Principle.

Methodology Department of Environment (2004) Perth Groundwater Atlas 2nd Edition

(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 water course Jane Brook and the palusplain James Road run directly through the area applied to be cleared. Given that the proposed clearing is for a narrow corridor (0.6ha over 300m) adjacent to an existing transport corridor, the clearing is considered unlikely to cause, or exacerbate, the incidence or intensity of flooding.

Methodology GIS Database:
- Geomorphic Wetlands (Mgt Categories) Swan Coastal Plain DEC
- Hydrography, linear - DOE 01/02/04

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

Comments

The area applied to be cleared is partly within Bush Forever Site 302. A submission from the Department of Planning and Infrastructure (2006) supported the proposed clearing, providing that works must be contained within the cadastral boundaries of the primary regional road boundary. The area applied to be cleared is contained within the cadastral boundaries of the primary road boundary.

An Offset Proposal has been submitted by Main Roads (2006) to mitigate the clearing of vegetation located within Bush Forever Site 302. The clearing offset will rehabilitate an area covering 0.6ha, approximately 200m east of the proposed clearing, which comprises of the same under-represented Heddlie Guildford vegetation complex. The proposal will link existing remnant vegetation patches and improves biodiversity corridors for fauna. The offset proposal also addresses issues raised within principal (e) and (f)

While the DPI suggested that the offset proposed equates to an equivalent area (0.6 ha /0.6 ha), and not the 2:1 standard requirement for Bush Forever, the area applied to be cleared that is within the Bush Forever site totals 0.28 ha. Therefore, the offset for this area is actually just greater than 2 : 1.

Six Aboriginal Sites of Significance (Permanent Registered) are within the area applied to be cleared. These include Great Northern and Roe, Turtle Swamp, Jane Brook, Jane Brook Camp 1, Bishop Road Camp and Whitmans Brick Hill Camp. It is the responsibility of the proponent to ensure that no Aboriginal Sites of

Significance are damaged through the clearing process.

A public submission received by the Department stated the following objections to the proposed clearing.

-The strip of vegetation is relatively healthy.

-The reason for road safety is not an adequate reason to clear.

It was determined during the assessment that the vegetation is in a degraded condition. In regards to the purpose of clearing, it is the responsibility of the Local Government Authority to ensure the safety of those transport corridors for which it is responsible.

There is no other RIWI Act Licence, Works Approval or EP Act Licence that will affect the area that has been applied to clear.

Methodology
Department of Planning and Infrastructure (2006) TRIM Ref.No. DOC2816
Department of Planning and Infrastructure (2007) TRIM Ref. No. DOC17293
Main Roads (2006) TRIM Ref.No. DOC12600
Main Roads (2007) TRIM Ref.No. DOC 17293
Site Inspection (2006) TRIM Ref. No. DOC7040
GHS Database:
- Aboriginal Sites of Significance - DIA

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Road construction or maintenance	Mechanical Removal	0.6	<p>The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and has been found to be at variance with Principles (e), (f) and (h).</p> <p>A Clearing Offset Proposal has been submitted by Main Roads. The clearing offset will rehabilitate an area covering 0.6ha, approximately 200m east of the proposed clearing, which comprises of the same under represented Heddle Guildford vegetation complex. The revegetation will involve planting a greater amount of seedlings than trees removed. It will also improve amenity and link existing remnant vegetation paths and establish biodiversity corridors for fauna.</p> <p>Given the above, the assessing officer recommends that this permit be granted, with conditions.</p>

5. References

- 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 (2001) Environmental Protection of Wetlands. Preliminary Position Statement No.4. Perth, Western Australia.
- GHD (2005) Reid Highway (West Swan Road to Great Northern Highway) Biological Survey, GHD
- Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.
- Heddle, 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.
- 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.
- JANIS Forests Criteria (1997) Nationally agreed criteria for the establishment of a comprehensive, Adequate and Representative reserve System for Forests in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Regional Forests Agreement process. Commonwealth of Australia, Canberra.
- 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.
- Site Inspection (2006) TRIM Ref. No. DOC7040
- Western Australia Department of Agriculture (2004) Soil-landscape mapping, Western Australia Department of Agriculture, Date accessed 29/12/06

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)