Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1791/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: Landcorp

1.3. Property details

Property: LOT 1002 ON PLAN 37249 (House No. 240 PEDERICK NEERABUP 6031)

Local Government Area: City Of Wanneroo

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
15.05		Mechanical Removal	Industrial

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard vegetation association 6: Medium woodland; tuart and jarrah. (Hopkins et al. 2001, Shepherd 2006) Heddle vegetation complexes: Cottesloe Complex - Central and South: predominantly open forest of E. gomphocephala - E. marginata - E. calophylla and woodland of E. marginata - Banksia species. Karrakatta Complex - Central and South: Mosaic of woodland of E. gomphocephala and open forest of E. gomphocephala - E. marginata - E. calophylla; closed heath on the Limestone outcrops. (Heddle et al. 1980)	The clearing as proposed comprises two areas under application (total area of 15.05ha). These areas (4.33ha and 10.72ha) are located within Lot 1002 (Zoned Industrial), which is a 22.2ha property. The clearing is for Industrial Development, which will be a component of the Neerabup Industrial Area. The areas under application have been identified as vegetation habitat type: Jarrah (Eucalyptus marginata) and Banksia sp. Woodland over mixed Low Shrubland (ATA Environmental 2007).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The condition of the native vegetation under application was sourced from the Consultant's report (ATA Environmental 2007).

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 at variance to this Principle

The clearing as proposed comprises two areas under application (total area of 15.05ha), both zoned industrial. These areas (4.33ha and 10.72ha) are located within Lot 1002, which is a 22.2ha property.

The vegetation under application was identified as being in very good condition (ATA Environmental 2007). This vegetation is dominated by Banksia spp. and Eucalyptus marginata over mixed Low Shrubland (ATA Environmental 2007). Further, aerial mapping of the areas under application shows a densely vegetated landscape.

A flora survey conducted in October 2006 and November 2006 by ATA Environmental (2007) identified 68 species of native flora and 10 species of introduced flora within Lot 4, Part Lot 1002 and Part Lot 2692 (also known as Lot 600). In addition, fauna surveys conducted in November 2006 by ATA Environmental (2007) trapped a total of 18 vertebrate fauna species comprising 146 individual reptiles and mammals within Part Lot 1002 and observed 42 species of birds and 2096 individual birds near the trap sites.

Given the number of flora and fauna species identified and the areas of structurally intact native vegetation in very good condition, the vegetation applied to be cleared (15.05ha) is likely to comprise high biological diversity.

Methodology Reference:
- ATA Environmental (2007)
GIS Database:
- Swan Coastal Plain North 20cm Orthomosaic - DLI06

(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 at variance to this Principle

ATA Environmental (2007) advises that fauna surveys were conducted in November 2006 within Lot 1, Lot 4, Lot 5, Lot 1002 and Lot 2477 (total area of 195ha). A total of 18 vertebrate fauna species comprising 146 individual reptiles and mammals were trapped within Lot 1002 (ATA Environmental 2007). In addition, 42 species of birds and 2096 individual birds were observed near the trap sites (ATA Environmental 2007).

ATA Environmental (2007) advises that within the areas under application nine species of conservation significance could potentially occur. Of these, Carnaby's Black-Cockatoo (Calyptorhynchus latirostris); Peregrine Falcon (Dasyurus geoffroii); and Rainbow Bee-eater (Merops ornatus) were observed during the fauna surveys in November 2006 (ATA Environmental (2007).

Carnaby's Black-Cockatoo occurs within the Perth metropolitan area and is seen in the urban fringe areas on a seasonal basis (ATA Environmental 2007). This species is listed as a Schedule 1 species under the Wildlife Conservation (Specially Protected Fauna) Notice 2006. Fauna listed as Schedule 1 fauna are rare or likely to become extinct and are declared to be fauna in need of special protection. This species is also listed as Endangered under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 as a matter of national environmental significance.

The preferred habitat is woodlands where it preferentially feeds on plants of the Proteaceae family (ATA Environmental 2007). The Black-Cockatoo is known to also feed on Corymbia calophylla, Eucalyptus marginata and Eucalyptus gomphocephala (Birds Australia WA 2006). The Jarrah and Banksia woodland habitat, which occurs within the areas under application (15.05ha), provides a feeding site for Carnaby's Black-Cockatoo (ATA Environmental 2007). The Department of the Environment and Water Resources (2007) concurs that the proposed action has the potential to have a significant impact on Carnaby?s Black-Cockatoos by clearing some high quality foraging habitat and trees.

In addition, Garnett and Cowley (2000) identify that while individual areas of feeding habitat can only support a number of birds for short periods of time, the progressive loss of such areas is an on-going concern for this species.

Given the occurrence of approximately 15ha of Jarrah and Banksia woodland, the clearing as proposed is at variance to this Principle.

Methodology References:
- ATA Environmental (2007)
- Birds Australia WA (2006)
- Department of the Environment and Water Resources (2007)
- Garnett and Cowley (2000)
GIS Database:
- SAC Bio Datasets 200707

(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 nine known records of Declared Rare Flora (DRF) - Eucalyptus argutifolia within the local area (5km radius). The nearest record DRF Eucalyptus argutifolia is located approximately 3.0km north-west of the areas under application, on the same soils and within the same Heddle vegetation complex (Cottesloe Central & South only), but within a different Beard vegetation type as those under application.

Eucalyptus argutifolia typically occurs in shallow sand on limestone ridges and slopes, where it emerges from heath and thicket of parrotbush (Dryandra sessilis) and chenille honey-myrtle (Melaleuca huegelii) (Brown et al 1998). The habitat type identified within the areas under application is Jarrah (Eucalyptus marginata) and

Banksia sp. Woodland over mixed Low Shrubland (ATA Environmental, 2007), which is not typical habitat for Eucalyptus argutifolia.

Further, there are 13 known records of ten species of Priority flora recorded within 5km radius, with the closest record being approximately 2.6km south-east of the areas under application.

A flora survey conducted in October and November 2006 by ATA Environmental (2007) identified 68 species of native flora and 10 species of introduced flora within Lot 4, Part Lot 1002 and Part Lot 2692 (also known as Lot 600). No DRF and no Priority species were identified during the flora survey (ATA Environmental 2007).

Given the above, it is considered unlikely that the vegetation to be cleared includes, or is necessary for the continued existence of, rare flora. Therefore, the clearing as proposed is unlikely to be at variance to this Principle.

Methodology

References:
- ATA Environmental (2007)
- Brown et al (1998)

GIS Databases:
- SAC Bio Datasets 200707
- Pre-European Vegetation - DA 01/01
- Heddle Vegetation Complexes - DEP 21/06/95
- 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

The Flora and vegetation report (RPS, 2006a) did not identify any Threatened Ecological Communities (TEC) within Lot 1002. However, DEC Species and Communities Branch (2007; TRIM Ref ED1952) has advised that there is a TEC within the southern quadrant of Lot 4, which is adjacent to Lot 1002. This identification was based on data held in 'Flora and Vegetation report Lots 4, 40, 41, and 1002 Neerabup Industrial Estate' (RPS, 2006a). This TEC has been identified as being community type 20a 'Banksia attenuata woodlands over species rich dense shrublands' (Gibson et al, 1994). The two areas under application are located approximately 200m and 750m north of the TEC identified within Lot 4. DEC Species and Community Branch (2007; TRIM Ref ED2043) recommends a TEC buffer of 50-100m. Therefore, the two areas under application are located outside of the recommended buffer.

There are four occurrences of the endangered Threatened Ecological Community (TEC) known as 'Melaleuca huegelii - M. acerosa (currently M. systena) shrublands of limestone ridges located within the local area (5km radius). The nearest recorded occurrences of this TEC are located approximately 2.3km north-west of the areas under application. In addition, according to data held in the report: 'Flora and Vegetation report - proposed road reserves Neerabup Industrial Estate' (RPS, 2006b) this limestone community had been identified in some road reserves in other parts of the proposed Neerabup Industrial Area.

However, ATA Environmental (2007) identified the habitat type of the areas under application to be Jarrah (Eucalyptus marginata) and Banksia sp. Woodland over mixed Low Shrubland. Given the habitat type, it is considered unlikely that the vegetation under application comprises the TEC: Melaleuca huegelii - M. acerosa shrublands of limestone ridges.

Given the areas under application are located approximately 200m and 750m of the TEC (Community type 20a), which is outside of the recommended TEC buffer, the clearing of the vegetation within the areas under application is considered unlikely to impact this TEC. Therefore, the clearing as proposed is not likely to be at variance to this Principle.

Methodology

References:
- ATA Environmental (2007)
- Gibson et al (1994)
- RPS (2006a)
- RPS (2006b)

GIS Databases:
- Environmentally Sensitive Areas - DOE 08/03/05
- SAC Bio Datasets 200707

(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 within the areas under application is identified as a component of Beard vegetation type 6 (Hopkins et al, 2001) and Heddle vegetation complexes: Cottesloe Central & South and Karrakatta Central & South (Heddle et al, 1980), of which there is 26.6%, 41.1% and 29.5% of Pre-European extent remaining respectively (Shepherd,

2006 and EPA, 2006).

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents the clearance of ecological communities with an extent below 30% of that present Pre-European settlement (Commonwealth of Australia, 2001). Two of the vegetation types within the area under application (Beard Unit 6 and Heddle Karrakatta Central and South) are below the recommended minimum of 30% representation.

Although the identified Beard vegetation association and Heddle vegetation complex has less than the recommended 30% minimum of Pre-European extent remaining, the applied area is considered to be within a constrained area. The EPA (2006) recognises the Perth Metropolitan Region as a constrained area, providing for the reduction of vegetation complexes to a minimum of 10% of the Pre-European extent.

Additionally, a further 175ha of native vegetation is proposed to be cleared (CPS1795/1) within the proposed Industrial Area. This vegetation under application is located within Lot 600 and Lot 4, which is adjacent to Lot 1002. The vegetation under application is identified as being within the same Beard vegetation type and within the same Heddle vegetation complexes as those under application. Further, there is an additional 190ha of native vegetation under application in the local area (3km radius).

Given the above, the vegetation applied to be cleared is considered to may be significant as a remnant of native vegetation, being representative of vegetation associations that have been extensively cleared.

It is noted that the Heddle vegetation complexes: Cottesloe Complex Central & South and Karrakatta Complex Central & South are poorly represented in secure tenure (8.8% and 2.5%).

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregion				
- Swan Coastal Plain*	1,501,456	571,758	38.1	
City of Wanneroo**	78,809	45,361	57.6	
Vegetation type:				
Beard: Unit 6*	56,534	15,013	26.6	33.6
Heddle:				
Cottesloe Central & Sth***	44,995	18,474	41.1	8.8
Karrakatta Central & Sth***	44,912	14,729	29.5	2.5

* (Shepherd 2006)
** (Shepherd et al. 2001)
*** (EPA 2006)

Methodology References:
- Commonwealth of Australia (2001)
- EPA (2006)
- Shepherd et al (2001)
- Shepherd (2006)
- Heddle et al (1980)

GIS Databases:
- Pre-European Vegetation - DA 01/01
- 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 not likely to be at variance to this Principle**

There are five Resource Enhancement Wetlands (REWs) and four Conservation Category Wetlands (CCWs) within the local area (4km radius). There is a CCW - Lake Pinjar (also mapped as a EPP Lake) located 1.3km north-east; a CCW - Little Coogee Flat located 2.9km east south-east; a REW - Neerabup Lake (also mapped as a EPP lake) located 3.1km west; a CCW - Lake Adams (also mapped as a EPP lake) located 3.1km south-east; and a REW - Camel Swamp located 3.7km north north-west of the areas under application. In addition, there are no watercourses within the local area.

Given the distance to the surrounding waterbodies it is considered unlikely that the vegetation under application is growing in, or associated with, an environment associated with a watercourse or wetland.

Methodology GIS Databases:

- EPP, Lakes - DEP 1/12/92
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
- Hydrogology, linear - DOE 01/02/04

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

Comments

Proposal may be at variance to this Principle

The Acid Sulphate Soil (ASS) risk mapping indicates the areas under application are mapped as having a Class 3 risk. This classification is defined as having no known risk of ASS or potential ASS.

The landscape of the areas under application and surrounds can be described as undulating dune landscape underlain by aeolianite which is frequently exposed and small swales of estuarine deposits (Northcote et al, 1960). The chief soils are siliceous sands with smaller areas of brown sands and leached sands in the wetter sites (Northcote et al, 1960).

There is a potential risk for land degradation through wind erosion, as the sandy soils within the areas under application are considered to be highly erodible. DAFWA (2007) advice confirms that the soils are potentially erodible and that clearing the large area is likely to cause wind erosion.

Given the sandy soils present on site, it is considered that there is the potential for the proposed clearing to result in wind erosion, and without appropriate management of the exposed surfaces the proposal may cause appreciable land degradation. Therefore, it is considered that clearing as proposed may cause appreciable land degradation.

Methodology

References:
- DAFWA (2007)
- Northcote et al (1960)

GIS Databases:
- Acid Sulphate Soil risk map, Swan Coastal Plain - DEC
- 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 may be at variance to this Principle

There are three conservation reserves within the local area (5km radius) including State Forest 65 (Gnangara-Moore River State Forest) (also includes Bush Forever Sites 139, 140, 293, 446 and 455) located 1.5km north and 2.7km east; Neerabup National Park (also identified as Bush Forever Site 383 and a System 6 Conservation Reserve) located 3.9km west south-west; and Lake Joondalup Nature Reserve (also identified as an ANCA wetland, Conservation Category Wetland and System 6 Conservation Reserve) located 5.0km south-west.

Bush Forever Site 428 is located approximately 650m north north-east of the areas under application; and Site 295 is located approximately 700m south of the areas under application. In addition, Bush Forever Site 382 (also identified as Lake Pinjar and a System 6 Conservation Reserve) is located 1.3km north-east of the areas under application; and Site 384 is located approximately 1.9km west of the areas under application. The areas under application adjoin Lot 4, which is a relatively large remnant that links the areas under application to the nearby Bush Forever Sites. Further, aerial mapping of the local area shows vegetated connectivity, which is likely to provide an ecological linkage from the areas under application to the surrounding conservation areas.

Given the connectivity to the nearby conservation areas the clearing as proposed (15.05ha) may impact on the environmental values of these conservation areas.

Methodology

GIS databases:
- ANCA, Wetlands - CALM 08/01
- Bushforever - MFP 07/01
- DEC Managed Lands and Waters - CALM 1/06/04
-Geomorphic wetlands (Mgt Categories)- Swan Coastal Plain - DEC
- System 6 Conservation Reserves - DEP 06/95
- Swan Coastal Plain North 20cm Orthomosaic - DLI06

(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

There are five Resource Enhancement Wetlands (REWs) and four Conservation Category Wetlands (CCWs) within the local area (4km radius). There is a CCW - Lake Pinjar (also mapped as a EPP Lake) located 1.3km north-east; a CCW - Little Coogee Flat located 2.9km east south-east; a REW - Neerabup Lake (also mapped as a EPP lake) located 3.1km west; a CCW - Lake Adams (also mapped as a EPP lake) located 3.1km south-

east; and a REW - Camel Swamp located 3.7km north north-west of the areas under application.

The areas under application are not located in a Public Drinking Water Source Area or surface water catchment area.

There is a risk of eutrophication occurring, due to sandy soils contained within the applied area having a low phosphorus retention ability, and the removal of deep-rooted perennials will increase the potential for nutrients being leached from the soil and draining into nearby waterbodies. The Perth Groundwater Atlas (Department of Environment 2004) shows groundwater flow in the local area to be from east (Lake Pinjar and the EPP area) to west (Neerabup Lake). DAFWA (2007) advised that given the length of flow path and depth to groundwater the risk to Neerabup Lake (located 3.1km west of the area under application) is low.

Topographic contours identify Lake Pinjar as being down-gradient of the areas under application. The clearing as proposed may increase the risk of eutrophication from surface water run off. However, DAFWA (2007) have advised that as there are no clearly defined drainage lines running from the areas under application and Lake Pinjar the risk from eutrophication is low.

Given the distance to the nearest wetlands and the low eutrophication risk, the clearing as proposed is considered unlikely to cause deterioration in the quality of surface and ground water.

Methodology

References:
- Department of Environment (2004)
- DAFWA (2007)

GIS Databases:
- EPP, Areas - DEP 06/95
- EPP, Lakes - DEP 1/12/92
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
- Public Drinking Water Source Areas (PDWSAs) - DOW

(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

There are no wetlands mapped within the area under application with the nearest wetland, being a conservation category wetland, located approximately 1.3km north-east of the areas under application. Further, there are no watercourses mapped within a 4km radius of the proposed clearing. Given the distance to the nearest wetland or watercourse from the area under application, the clearing as proposed is considered unlikely to cause or increase the incidence or intensity of localised flooding.

Methodology

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

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

Comments

The areas proposed to be cleared are part of the proposed Neerabup Industrial Area within the City of Wanneroo. A Structure Plan (Structure Plan No. 17) for the new industrial subdivision was adopted by the Western Australian Planning Commission (WAPC) in January 2005. Stage 1 of the industrial area (32ha - 80 lots) at Lot 22 Flynn Drive, west of the areas under application, is currently being assessed by the WAPC.

The areas proposed to be cleared are part of a joint venture between City of Wanneroo (CPS 1795/1-175ha) and LandCorp (CPS 1791/1-15.05ha) with the land to be subdivided in the future (ATA Environmental, 2007). It is intended to develop the area as an industrial estate for general industrial uses (ATA Environmental, 2007). The establishment of an industrial estate may result in the increase of surface run-off and pollutants, and increase the risk of eutrophication, which may impact recharge levels and water quality of Lake Pinjar, located approximately 1.3km north- east the areas under application.

Subdivision Approval from the WAPC remains outstanding for this clearing proposal.

Carnaby's Black-Cockatoo is classified as Endangered under the EPBC Act 1999. Given that the clearing as proposed will result in a loss of habitat and foraging sites for this species (ATA Environmental, 2007), the proposed Neerabup Industrial Area (NIA) [in which the areas under application are a part of] is likely to require referral to the Commonwealth Department of Environment and Heritage (DEH) under the EPBC Act 1999 for Carnaby's Black Cockatoo. The DEH is likely to consider that the extent of the proposed clearing will have a significant impact on the feeding habitat of the species and is expected to deem the proposal a Controlled Action.

DAFWA (2007) advised that the soils are potentially erodible and that clearing the large area is likely to cause wind erosion. This should not in itself be regarded as a fatal flaw of the proposal as erosion is quite manageable

with existing technology and given the high land values they could be required to stabilise the areas cleared.

The areas under application are within the Proclaimed Groundwater Area of Wanneroo. Therefore any abstraction of groundwater would require a licence.

The areas proposed to be cleared are zoned Industrial under the Metropolitan Regional Scheme.

Lot 1002 on Plan 37249 is Freehold Land.

On 3 July 2007 the Department of the Environment and Water Resources determined that the proposed to clear 195ha (12ha on Lot 1002, 12ha on 2692 or Lot 600, and 171ha on Lot 4) of remnant habitat to develop an industrial estate was a controlled action and required assessment through preliminary documentation. A decision on whether to approve the action is still outstanding.

The Department sent a 30-day letter to Landcorp on 15 November 2007; to date no response has been received.

Methodology

References:
- ATA Environmental (2007)
- DAFWA (2007)
- Department of the Environment and Water Resources (2007)

GIS databases:
- Metropolitan Regional Scheme - DPI 07/10/05
- RIWI Act, Groundwater Areas - DOW
- RIWI Act, Surface Water Areas - DOW

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Industrial	Mechanical Removal	15.05	The clearing as proposed is at variance to Principles (a) and (b); may be at variance to Principles (e), (g) and (h); and not likely to be at variance to the remaining Principles.

5. References

ATA Environmental (2007) Consultant's Report: City of Wanneroo and Landcorp - Flora, Vegetation and Vertebrate Fauna Assessment; Lot 4, Part Lots 1002 and 2692, Neerabup. ATA Environmental. TRIM Ref DOC25421

Commonwealth of Australia (2001). National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.

DAFWA (2007) Land degradation advice. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food, Western Australia. TRIM Ref ED1913.

Department of Environment (2004) Perth Groundwater Atlas, Second Edition 2004, Department of Environment, Perth, Western Australia.

Department of the Environment and Water Resources (2007) Controlled action; Request for additional information; Department of the Environment and Water Resources, Canberra, ACT. TRIM Ref DOC45902

EPA (2006) Guidance for the Assessment of Environmental Factors -level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.

Garnett, S. and Cowley G. (2000). The Action Plan for Australian Birds. Environment Australia and the Royal Australasian Ornithologists Union.

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.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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.

RPS (2006a) Flora and Vegetation Report: Lots 4, 40, 41 and 1002 - Neerabup Industrial Estate; Version A, March 2006; RPS Bowman, Bishaw and Gorham; Subiaco, Western Australia. TRIM Ref ED1948

RPS (2006b) Flora and Vegetation Report: Proposed Road Reserves - Neerabup Industrial Estate; Version A, February 2006; RPS Bowman, Bishaw and Gorham; Subiaco, Western Australia. TRIM Ref ED1952

Shepherd, D.P. (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.

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)