Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2460/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Robe River Pty Ltd**

1.3. Property details

Property: Ashburton Location 54 on Lands and Surveys Miscellaneous Plan 515; Lease 3116/4627
Iron Ore (Cleveland Cliffs) Agreement Act 1964

Local Government Area: Shire of Ashburton

Colloquial name: Wandoo Housing Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
18		Mechanical Removal	Building or Structure

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Vegetation within the application area has been mapped at a 1:250,000 scale as the following Beard vegetation association (Shepherd et al., 2001; GIS Database);

- 173: Hummock grasslands, shrub steppe; kanji over soft spinifex & *Triodia wiseana* on basalt.

The purpose permit application comprises of four separate project application areas. Biota Environmental Sciences were commissioned by Robe River to undertake a flora and vegetation assessment for the application areas in January 2008. Biota Environmental Services (2008) has described the vegetation types that were identified within each of the four project areas.

1. Permanent Village:
(i) AiAaAbTw*: Acacia inaequilatera* scattered tall shrubs over *A. ancistrocarpa* and *A. bivenosa* open shrubland over *Triodia wiseana* hummock grassland.

(ii) Cleared: Areas currently cleared of vegetation, or historically cleared and extensively degraded by weeds.

2. Construction Camp:
(i) AiAbTw: *Acacia inaequilatera* scattered tall shrubs over *A. bivenosa* scattered shrubs *over Triodia wiseana* hummock grassland.

(ii) Cleared: Areas currently cleared of vegetation, or historically cleared and extensively degraded by weeds.

3. Service Station:
(i) AiAbTw: *Acacia inaequilatera* scattered tall shrubs over *A. bivenosa* scattered shrubs over *Triodia wiseana* hummock grassland.

(ii) Rehab areas: Rehabilitation areas.

(iii) Cleared: Areas currently cleared of vegetation, or historically cleared and extensively degraded by weeds.

4. New Wastewater Infrastructure:
(i) AiTw: *Acacia inaequilatera* scattered tall shrubs over *Triodia wiseana* hummock grassland.

(ii) EcCEc: *Eucalyptus camaldulensis* low woodland over *Cenchrus ciliaris* tussock grassland.

(iii) AtrVf: *Acacia trachycarpa, Vachellia farnesiana* scattered tall shrubs.

(iv) Cv: *Cyperus vaginatus* closed sedgeland

(v) Cleared: Areas currently cleared of vegetation, or historically cleared and extensively degraded by weeds.

Clearing Description

Robe River Pty Ltd has applied to clear up to 18 hectares of native vegetation for the construction of

buildings and infrastructure for the Pannawonica town site. The clearing application area involves four project areas that are located within the Pannawonica town site on Lease 3116/4627. The proposed clearing under this clearing application is for the construction of a permanent village, construction camp, service station and waste water treatment plant.

Vegetation will be cleared by a bulldozer with its blade down. All vegetative material and topsoil from cleared areas will be collected and stockpiled and used for future rehabilitation purposes (Robe River, 2008).

Vegetation Condition

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994).

to

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994).

Comment

The vegetation condition was assessed by Biota Environmental Services (2008). Biota Environmental Services (2008) made the following comments in relation to the vegetation condition within each of the project areas.

1. Permanent Village:
Vegetation in the vicinity of the existing buildings and other structures in the eastern section of the Permanent Village area was degraded, being largely cleared and with large numbers of weeds. Numerous ornamental species have also been planted in this area. Vegetation unit AiAaAbTw of the western section of the Permanent Village area was more intact but still showed some signs of physical disturbance; it was only considered to be in Good condition.

2. Construction Camp:
This vegetation was generally in Very Good to Excellent condition, apart from the historically cleared areas in the vicinity of the existing shed and laydown areas, which showed signs of physical disturbance and also had scattered weeds.

3. Service Station:
Overall the condition of the Service Station area was rated as Poor due to the high level of weed infestation through the area, with only the small areas of intact vegetation unit AiAbTw ranked as Very Good. There were also signs of cattle grazing in the area.

4. New Wastewater Infrastructure:
The areas in the vicinity of the existing sewage farm were degraded, being historically cleared and infested with weeds as a result of the damp and nutrient-rich conditions. There were also signs of grazing and trampling by cattle through these areas. The more intact native vegetation unit AiTw at the northern and southern edges of the New Wastewater Infrastructure area and along the eastern 600 metres of the Pannawonica Road was in Very Good condition, with scattered patches of weeds comprising the main disturbance.

A site inspection of the application area was undertaken by the Assessing Officer on 30 January 2008.

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 application area is located within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region which encompasses an area of 17,804,164 hectares (GIS database). The vegetation within the application area consists of Beard vegetation association 117 which is common and widespread throughout this region, with approximately 99.9% of the pre-European vegetation remaining (Shepherd et al. 2001).

The dominant vegetation of the Pilbara region comprises of *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands, and *Eucalyptus leucophloia* over *Triodia wiseana* on ranges (Kendrick and McKenzie, 2001). The Pilbara region is characterised by a diverse range of landforms that includes plains, ranges, hills, plateaux and gorges that provide suitable habitat for a diverse range of flora and fauna species, many of which are endemic to the Pilbara region (Van Vreeswyk et al., 2004; Kendrick and McKenzie, 2001).

Biota Environmental Services (2008) have surveyed the area under application and identified a total of seven vegetation types. None of the vegetation types that have been identified within the application area were of particular local or regional significance and all were relatively common for the Pannawonica locality (Biota Environmental Services, 2008). A total of 87 native flora species, from 52 genera and belonging to 28 families were identified within application area (Biota Environmental Services, 2008). None of the vegetation types that were identified were particularly rich in native flora species (Biota Environmental Services, 2008). The total number of species identified within the application area is not considered to represent an area of high species richness (Biota Environmental Services, 2008).

The application area is located within the Pannawonica town site on Lease 3116/4627 (Robe River, 2008). Pannawonica town site was built by Robe River Iron Associates in 1971-72 as a service centre for the mines which are located near to the town, and as a result the town site and surrounding areas have been subject to a considerable degree of disturbance over a long period of time (Biota Environmental Services, 2008). Biota

Environmental Services (2008) noted that the vegetation condition of the Permanent Village, Service Station and New Wastewater Infrastructure project areas ranged from predominately Degraded to Poor as the areas were either largely cleared or infested with weeds. A small western section of the Permanent Village area was more intact but still showed some signs of physical disturbance and was considered to be in Good condition, whilst the northern and southern edges of the New Wastewater Infrastructure area and along the eastern 600 metres of the Pannawonica Road was in Very Good condition, with scattered patches of weeds comprising the main disturbance (Biota Environmental Services, 2008).

A total of nine weed species were recorded within the Wandoo Housing Project application area and these were Kapok (*Aerva javanica*), Buffel Grass (*Cenchrus ciliaris*), Birdwood Grass (*Cenchrus setiger*), Colocynth (*Citrullus colocynthis*), Spiked Malvastrum (*Malvastrum americanum*), Basil (*Ocimum basilicum*), Coffee Senna (*Senna occidentalis*), Caltrop (*Tribulus terrestris*) and Mimosa Bush (*Vachellia farnesiana*) (Biota Environmental Services, 2008). A number of weed species were identified within each of the Wandoo Housing project areas (Biota Environmental Services, 2008). It is likely that the presence of weed species has adversely impacted on the biodiversity of the application area. The disturbance of soil is likely to promote weed growth, and there is a risk that the movement of soil and clearing equipment throughout and between the project areas may cause the spread of weed species. The Assessing Officer recommends that should the permit be granted, conditions be imposed on the permit for the purpose of weed management.

The application area does not contain any significant landform features of the Pilbara region and Biota Environmental Services (2008) have confirmed that none vegetation and landform types that were identified within the application area were of local or regional significance. The application area has been subject to a considerable degree of disturbance which is likely to have impacted on the biodiversity of the area. Biota Environmental Services (2008) indicated that the application area is largely cleared or infested with weeds, and this was confirmed during a site visit to the application area by the Assessing Officer on 30 January 2008. Due to the disturbance that has occurred, the vegetation of the application area is unlikely to be considered as an area of outstanding biodiversity.

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology

Biota Environmental Services (2008)
Kendrick and McKenzie (2001)
Robe River (2008)
Shepherd et al. (2001)
Van Vreeswyk et al. (2004)
GIS Database:
- Interim Biogeographic Regionalisation of Australia
- Pre-European Vegetation - DA 01/01

(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

A fauna habitat assessment of the application area was undertaken in conjunction with the flora and vegetation survey by Biota Environmental Services (Biota Environmental Services, 2008). In order to identify species habitat that may potentially occur within the application area, Biota Environmental Services carried out a search of the Western Australian Museum and Department of Environment and Conservation databases to identify Schedule and Priority listed fauna that may occur within a 50 kilometre radius from Pannawonica. A search of the Environmental Protection and Biodiversity Conservation Act 1999 database was also conducted (Biota Environmental Services, 2008).

Biota Environmental Services (2008) identified one common fauna habitat across the application area – Stony Undulating Plain: Mixed Acacia scattered to open shrubland over *Triodia wiseana* (occasionally *T. epactia*) hummock grassland.

Stony undulating plains are common in the Pannawonica locality (Biota Environmental Services, 2008). Such areas typically support a sparse to open cover of mixed wattles, particularly *Acacia inaequilatera, A. ancistrocarpa, A. atkinsiana, A. bivenosa* and occasionally *A. orthocarpa*, over a hummock grassland of hard spinifex (*Triodia wiseana*) or sometimes soft spinifex (*Triodia epactia*) (Biota Environmental Services, 2008). The substrate comprises a clay-loam to loam with a pebbly to stony surface (Biota Environmental Services, 2008). Such areas tend not to have particularly high avian species richness due to the lack of a dense shrub or tree overstorey, but may support numerous species of other vertebrates (Biota Environmental Services, 2008).

A small stand of *Eucalyptus camaldulensis* low woodland over *Cenchrus ciliaris* tussock grassland was identified at the eastern edge of the proposed New Wastewater Infrastructure area, along with a minor flow line of *Acacia trachycarpa* and *Vachellia farnesiana*, with dense *Cyperus vaginatus* sedges along the outflow channel (Biota Environmental Services, 2008). *Eucalyptus camaldulensis* of suitable age may form hollows of sufficient size to provide habitat to a variety of avian fauna species. The Pannawonica town site was built by Robe River Iron Associates in 1971-72. It is likely that this creekline and associated vegetation has been artificially created since the advent of the Pannawonica town site wastewater treatment facility (Biota Environmental Services, 2008). As a result, the *Eucalyptus camaldulensis* trees that were identified by Biota

Environmental Services are unlikely to be of sufficient age to have formed hollows that are of suitable size to provide fauna habitat.

It was observed during a site visit to the application area by the Assessing Officer that the diversity of landforms within the application area is low in terms of ranges, ridges, outcrops or caves suitable to provide habitat for fauna. Biota Environmental Services (2008) have indicated that the application area is largely cleared or infested with weeds, and this was confirmed during the site visit to the application area by the Assessing Officer. The application area has been subject to a considerable degree of disturbance which is likely to have reduced the habitat value for the area. The vegetation and habitats that have been identified and described for the application area is typical of the Pannawonica locality (Biota Environmental Services, 2008). Due to the level of disturbance that has occurred around the Pannawonica town site, it would be considered likely that higher quality vegetation and fauna habitat would exist throughout the surrounding Pannawonica locality and Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region.

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology Biota Environmental Services (2008)

(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

According to available datasets there are no known records of Declared Rare Flora (DRF) or Priority flora species within the clearing application area (GIS database).

A Declared Rare Flora and Priority Flora survey was undertaken by botanists from Biota Environmental Services on 8 February 2008. No DRF or Priority Flora species were recorded within the application area during the survey (Biota Environmental Services, 2008). The proposed clearing is unlikely to impact on any DRF or Priority flora species.

Botanists from Biota Environmental Services located five seedlings of the Priority 3 species *Goodenia pascua* during a survey for the expansion to the existing airstrip (Biota Environmental Services, 2008). *Goodenia pascua* was recorded in an area of deep cracking clay (gilgai) on the north side of the existing airstrip which is situated 1.5 kilometres north of the application area (GIS Database; Biota Environmental Services, 2008). No individuals of *Goodenia pascua* were recorded within the application area, and there were no areas of gilgai identified within the area under application (Biota Environmental Services, 2008). Given the lack of suitable of habitat within the application area, *Goodenia pascua* is unlikely to be impacted on by the proposed clearing activities.

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

Methodology

Biota Environmental Services (2008)
GIS Database:
- Declared Rare and Priority Flora List

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

There are no known Threatened Ecological Communities (TEC's) within the application area (GIS database; Biota Environmental Services, 2008). The nearest known TEC is located approximately 77 kilometres south-east of the application area (GIS database). Given the distance between the proposal and the nearest known TEC, the proposed clearing is unlikely to impact on the conservation of that TEC.

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

Methodology

Biota Environmental Services (2008)
GIS Database:
- Threatened Ecological Communities

(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 at variance to this Principle

The clearing application area falls within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region in which approximately 99.9% of the pre-European vegetation remains (see table) (GIS database; Shepherd et al., 2001).

The vegetation of the clearing application area has been mapped as Beard vegetation association 173:

Hummock grasslands, shrub steppe; kanji over soft spinifex & *Triodia wiseana* on basalt (GIS Database, Shepherd et al., 2001). According to Shepherd et al., (2001) approximately 100% of Beard vegetation association 173 remains at both the state and regional level.

According to the Bioregional Conservation Status of Ecological Vegetation Classes the conservation status for the Pilbara Bioregion and Beard vegetation associations 173 is of "Least Concern" (Department of Natural Resources and Environment, 2002).

While a small percentage of the vegetation types within the Pilbara bioregion are protected within conservation reserves, the bioregion remains largely uncleared. As a result, the conservation of vegetation associations within the bioregion is not likely to be impacted by this proposal.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-european % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,164	17,794,651	~99.9	Least Concern	6.3
Beard veg assoc. – State					
173	1,753,116	1,753,116	~100	Least Concern	7.5
Beard veg assoc. – Bioregion					
173	1,752,533	1,752,533	~100	Least Concern	7.5

* Shepherd et al. (2001)
** Department of Natural Resources and Environment (2002)

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology Department of Natural Resources and Environment (2002)
Shepherd et al. (2001)
GIS Database:
- Interim Biogeographic Regionalisation of Australia
- Pre-European Vegetation - DA 01/01

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

Comments

Proposal is not likely to be at variance to this Principle

There are no permanent naturally occurring wetlands or watercourses within the application area (GIS database), and Biota Environmental Services (2008) has advised that the vegetation to be cleared is not associated with any naturally occurring watercourses, wetlands or wetland dependent vegetation. A site visit to the application area by the Assessing Officer has confirmed that the proposed clearing will have no impact on any naturally occurring wetland or watercourse.

The only creekline of note occurs through the central section of the New Wastewater Infrastructure area. A small stand of *Eucalyptus camaldulensis* low woodland over *Cenchrus ciliaris* tussock grassland was identified at the eastern edge of the proposed New Wastewater Infrastructure area, along with minor flow line of *Acacia trachycarpa* and *Vachellia farnesiana*, with dense *Cyperus vaginatus* sedges along the outflow channel (Biota Environmental Services, 2008). It is likely that this creekline and vegetation has been artificially created since the advent of the Pannawonica town site wastewater treatment facility (Biota Environmental Services, 2008). This creekline contains an abundance of weed species and artificially promoted wetland vegetation, and as a result the vegetation is considered to be extensively degraded (Biota Environmental Services, 2008).

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology Biota Environmental Services (2008)
GIS Database:
- Hydrography, linear_1
- Hydrography, linear (hierarchy)

(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

According to the Department of Agriculture in Technical Bulletin No 92 "An inventory and condition survey of the rangelands of the Pilbara Region, Western Australia", the application area is comprised of the Rocklea Land System (Van Vreeswyk et al., 2004).

The Rocklea Land System is characterised by basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and occasionally soft spinifex) grasslands. Landform units within the Rocklea Land System comprise (Van Vreeswyk et al., 2004):

- Hills, ridges, plateaux and upper slopes;
- Lower slopes;
- Stony plains and interfluves;
- Gilgai plains;
- Upper drainage lines; and
- Drainage floors and channels (Van Vreeswyk et al., 2004).

Biota Environmental Services (2008) indicate that the application area is located the landform unit Stony plains and interfluves which has been described by (Van Vreeswyk et al., 2004) as gently undulating to undulating plains, interfluves and low rises up to 1.5 kilometres in extent, surface mantles of abundant to very abundant pebbles and cobbles of basalt and occasionally shale and other rocks. The soils consist of calcareous shallow loams, red sandy earths and shallow red/brown non-cracking clays (Van Vreeswyk et al., 2004). This land system has very low erosion hazard (Van Vreeswyk et al., 2004). A site visit to the application area was undertaken by the Assessing Officer on 30 January 2008 and there was no evidence of wind or water erosion within the application area. Robe River proposes to clear up to 18 hectares within a purpose permit application area of approximately 37 hectares for the purpose of constructing buildings and associated infrastructure (Robe River, 2008). The proposed clearing may expose surface mantles which may cause an increase in surface water runoff, however, given the stony nature of the surface materials, water and/or wind erosion is unlikely to occur.

Groundwater salinities have been measured in the range from 500 to 1,000 milligrams/litre Total Dissolved Solids (TDS) (GIS Database). The application area is located at Pannawonica which experiences mean annual rainfall of 400.9 millimetres and mean annual evaporation of approximately 3,400 millimetres (BoM, 2008; GIS Database). Due to the low rainfall to high evaporation ratio, it is likely that the majority of groundwater recharge would occur following significant rainfall events. It is unlikely that the proposed clearing will significantly increase groundwater recharge, or that land salinisation will be increased either on or off-site.

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology

Biota Environmental Services (2008)
Robe River (2008)
Van Vreeswyk et al. (2004)
GIS Database:
- Groundwater Salinity, Statewide
- Evaporation Isopleths

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is not located within a Department of Environment and Conservation managed conservation area (GIS Database). The nearest conservation area is Cane River Conservation Park which is situated approximately 60 kilometres south-west of the application area (GIS database; Biota Environmental Services, 2008). Based on the distance between the proposal and the nearest conservation area, the proposed clearing is not likely to impact on the conservation values of Cane River Conservation Park.

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

Methodology

Biota Environmental Services (2008)
GIS Database:
- CALM Managed Lands and Waters

(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 no permanent naturally occurring watercourses, drainage systems or wetlands within the application area (GIS Database; Biota Environmental Services, 2008). The land system associated with the application

area has high resistance to erosion (Van Vreeswyk et al., 2004; Payne et al., 1988), thereby reducing the risk of sediment export which may result in sedimentation and turbidity in nearby watercourses. The proposed clearing is unlikely to cause deterioration in the quality of surface water in the local area.

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is the Millstream Water Reserve which is located approximately 52 kilometres east from the application area (GIS Database). Given the distance separating the application area and the nearest water supply area, the proposed clearing is unlikely to impact on the quality of the Millstream Water Reserve.

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology

Biota Environmental Services (2008)
Payne et al. (1988)
Van Vreeswyk et al. (2004)
GIS Database:
- Hydrography, linear_1
- Hydrography, linear (hierarchy)
- Public Drinking Water Source Areas (PDWSAs)

(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 application area is not associated with any permanent wetlands or watercourses (GIS database). The average annual rainfall of the application area is 400.9 millimetres and BoM (2008) indicates that the Pannawonica locality receives majority of the rainfall between December and March. As a result, local flooding can be expected to occur seasonally in the Pilbara region as a result of heavy rainfall triggered by cyclonic activity and sporadic thunderstorms (Biota Environmental Services, 2008).

Numerous ephemeral watercourses are distributed across the landscape, and these are responsible for quickly dispersing floodwaters after significant rainfall events, thereby reducing peak flood heights (GIS database). The Assessing Officer undertook a site visit to the application area on 30 January 2008 and observed that a considerable portion of the vegetation within the application area is subject to a significant degree of disturbance. The application area is largely cleared or covered by town or mine associated infrastructure (Biota Environmental Services, 2008). It is unlikely that the additional clearing required under this proposal will impact on drainage patterns in the Pannawonica locality.

The proposed clearing of native vegetation for the Wandoo Housing Project is unlikely to cause or increase the incidence of flooding or result in an increase in peak flood height.

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

Methodology

Biota Environmental Services (2008)
BoM (2008)
GIS Database:
- Hydrography, linear - DOE 1/2/04
- Rivers, 1M - GA 01/06/00
- Lakes, 1M - GA 01/06/00

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

Comments

There are no Native Title claims over the area under application (GIS Database).

There is one registered Site of Aboriginal Significance (Site ID: 10051) within the area applied to clear (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

One direct interest submission was received stating no objection to the proposal.

It is the proponent's responsibility to liaise with the DEC and the DoW to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licence or approvals are required for the proposed works.

Methodology

GIS Database
- Native Title Claims
- Sites of Aboriginal Significance

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles and is not likely to be at variance to Principles (a), (b), (c), (d), (f), (g), (h), (i) and (j), and is not at variance to Principle (e).

It is recommended that should a permit be granted, conditions be endorsed on the permit with regards to weed management, recording areas cleared and reporting against the permit conditions.

5. References

Biota Environmental Services (2008). Wandoo Housing Project Native Vegetation Clearing Report, Prepared for Robe River Iron Associates, Prepared by Biota Environmental Sciences, March 2008.

BoM (2008). Climate Statistics for Australian Locations. A Search for Climate Statistics for Kalgoorlie-Boulder, Australian Government Bureau of Meteorology, viewed 30 May 2008. <http://www.bom.gov.au/climate/averages/tables/cw_005069.shtml>

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.

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

Kendrick, P. and McKenzie, N. (2001). Pilbara 1 (PIL3 Hamersley Subregion). In a Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, pp 547-558.

Payne A. L., Mitchell A. A., Holman W. F. (1988). Technical Bulletin - An inventory and condition survey of rangelands in the Ashburton River Catchment, Western Australia, No 92, Department of Agriculture, Government of Western Australia, Perth, Western Australia.

Robe River (2008). Documentation Accompanying Clearing Permit Application for CPS 2460/1, Prepared by Robe River Pty Ltd, April 2008.

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.

Van Vreeswyk A.M.E., Payne A.L., Leighton K.A. and Hennig P. (2004). Technical Bulletin - An inventory and condition survey of rangelands in Pilbara Region, Western Australia, No 92, Department of Agriculture, Government of Western Australia, Perth, Western Australia.

6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
IBRA	Interim Biogeographic Regionalisation for Australia.
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P2 **Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P3 **Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.

P4 **Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.

R **Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

X **Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1 **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.

Schedule 2 **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.

Schedule 3 **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.

Schedule 4 **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P2 **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P3 **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P4 **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.

P5 **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999)*

EX **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.

EX(W) **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in

the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

VU **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.