



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3685/2
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

1.3. Property details

Property: Iron Ore (Hamersley Range) Agreement Act 1963
Mineral Lease 246SA (AML 70/246)
Local Government Area: Shire of Ashburton
Colloquial name: 4EMP Waste Dump

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
55.5		Mechanical Removal	Mineral Production

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 6 October 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard Vegetation Associations have been mapped for the whole of Western Australia. Two Beard Vegetation Associations have been mapped within the application areas (GIS Database).

82: Hummock grasslands; low tree steppe; snappy gum over *Triodia wiseana*;

181: Shrublands; mulga and snakewood scrub

Rio Tinto (2010) conducted a vegetation survey over the application area and its surrounding vegetation in February 2010. The entire study area was systematically traversed on foot by Pilbara Iron botanists in October 2004 and as such, systematic flora searches across the entire study area were not conducted during the 2010 field survey. Twelve intact vegetation types were identified during the vegetation survey. These are:

Vegetation of Rocky Hills and Ranges

1) *Acacia tetragonophylla* open shrubland over *Senna artemisoides* subsp. *oligophylla*, *Senna stricta*, *Eremophila cuneifolia* low shrubland over *Enchylaena tomentosa* subsp. *tomentosa*, *Sclerolaena eriacantha* scattered low herbs;

2) *Acacia tetragonophylla* scattered tall shrubs *Senna artemisoides* subsp. *oligophylla*, *Eremophila cuneifolia* open shrubland over *Triodia epactia* scattered hummock grasses to open hummock grassland;

3) *Acacia aneura* var. *tenuis* scattered tall shrubs over *Eremophila latrobei* subsp. *latrobei* scattered shrubs to open shrubland over *Eriachne mucronata* very open tussock grassland;

4) *Acacia aneura* var. *tenuis*, *Grevillea berryana* scattered tall shrubs over *Acacia aneura* var. *tenuis*, *Acacia tetragonophylla*, *Eremophila latrobei* subsp. *latrobei* open shrubland over *Dodonaea petiolaris*, *Ptilotus obovatus*, *Eremophila phyllopoda* low open shrubland to low shrubland over *Triodia epactia* scattered hummock grasses;

5) *Acacia pruinocarpa*, *Acacia tetragonophylla* scattered tall shrubs over *Eremophila cuneifolia*, *Acacia tetragonophylla*, *Senna glutinosa* subsp. *pruinosa* scattered shrubs over *Eremophila jucunda*, *Eremophila phyllopoda* scattered low shrubs over *Triodia epactia* very open to open hummock grassland;

6) *Acacia pruinocarpa*, *Grevillea berryana*, *Acacia rhodophloia*, *Acacia aneura* var. *tenuis* scattered

tall shrubs to high open shrubland over *Acacia tetragonophylla*, *Eremophila latrobei* subsp. *latrobei*, *Senna glutinosa* subsp. *glutinosa* open shrubland over *Eremophila jucunda*, *Ptilotus obovatus*, *Eremophila phyllopoda* low open shrubland over *Triodia epactia* very open to open hummock grassland;

7) *Acacia aneura* var. *tenuis*, *Grevillea berryana* very open tall shrubs over *Eremophila jucunda* low open heath over *Triodia epactia* hummock grassland;

Vegetation of Stony Lower Slopes and Plains

8) *Acacia xiphiylla* scattered tall shrubs over *Acacia tetragonophylla*, *Ptilotus obovatus*, *Senna artemisioides* subsp. *oligophylla* scattered shrubs over *Tribulus suberosus* scattered low shrubs over *Enneapogon caerulescens* scattered tussock grasses;

9) *Acacia aneura* var. *tenuis* scattered tall shrubs over *Acacia tetragonophylla*, *Acacia wanyu* scattered shrubs over *Eriachne pulchella*, *Enneapogon caerulescens*, *Aristida holathera* scattered tussock grasses;

Vegetation of Minor Drainage Lines

10) *Acacia aneura* var. *tenuis*, *Grevillea berryana* scattered tall shrubs over *Acacia aneura* var. *tenuis*, *Acacia tetragonophylla*, *Acacia marramamba* open shrubland over *Triodia epactia* very open hummock grassland;

11) *Acacia aneura* var. *tenuis* scattered tall shrubs over *Acacia synchronicia*, *Acacia tetragonophylla*, *Eremophila latrobei* open shrubland over *Eremophila phyllopoda*, *Ptilotus obovatus* low scattered shrubs over *Triodia epactia* open hummock grassland;

12) *Acacia citrinoviridis*, *Acacia aneura* var. *tenuis*, *Acacia wanyu* tall open shrubland over *Ptilotus obovatus*, *Senna artemisioides* subsp. *oligophylla* open shrubland over mixed scattered low shrubs over scattered tussock grasses.

Other Mapping Units

Areas currently cleared of native vegetation or where the floristic and structural composition of the vegetation has been severely altered (these areas may support a small number of disturbance tolerant native species).

Clearing Description	<p>Hamersley Iron Pty Ltd has applied to clear up to 55.5 hectares of native vegetation (GIS Database; Rio Tinto, 2010). The application area is located approximately 8.2 kilometres south-east of Paraburdoo (GIS Database). The proposed clearing is for the purpose of constructing a waste dump (Rio Tinto, 2010).</p> <p>Clearing will be done using a dozer, blade down. Vegetation will be stockpiled and used in rehabilitation (Rio Tinto, 2010).</p>
Vegetation Condition	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).</p> <p>To</p> <p>Pristine: No obvious signs of disturbance (Keighery, 1994).</p>
Comment	<p>Clearing permit CPS 3685/1 was granted by the Department of Mines and Petroleum on 20 May 2010 and was valid from 19 June 2010 to 30 April 2019. The clearing permit authorised the clearing of 55.5 hectares of native vegetation. An application to amend the permit was received by the Department of Mines and Petroleum on 14 September 2011. The application requested that Condition 4(a) on the clearing permit be amended to allow stockpiling of vegetative material and topsoil in previously cleared areas outside of the area cross-hatched yellow on Plan 3685/2. It is considered unlikely that the proposed amendment will result in any significant environmental impact.</p>

3. Assessment of application against clearing principles

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

Comments	<p>Proposal is not likely to be at variance to this Principle</p> <p>The application area is located within the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). This subregion generally consists of</p>
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mountainous areas of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite) (Kendrick, 2001). The Hamersley subregion generally contains mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (Kendrick, 2001).

The vegetation within the application area consists of Beard Vegetation Associations 82 and 181, which are considered both common and widespread throughout the Pilbara region, with approximately 100% of these pre-European vegetation types remaining (GIS Database; Shepherd, 2009).

A flora survey was conducted over the application area and its surrounding vegetation in February 2010 by two Rio Tinto (2010) botanists. The application area has also been systematically traversed on foot by Pilbara Iron botanists in October 2004 (Rio Tinto, 2010). The Rio Tinto (2010) survey recorded a total of 77 native flora species from 37 genera belonging to 24 plant families. Species richness was considered to be typical for the Pilbara bioregion, as were the types of families and genera represented (Rio Tinto, 2010).

The landform and soil types of the survey area are considered potentially suitable habitat for several threatened species. According to available databases, no Declared Rare Flora (DRF) or Priority Flora species occur within the application area (GIS Database). No DRF, Threatened Ecological Communities or Threatened Fauna Species were noted across the application area during the vegetation survey (Rio Tinto, 2010).

Three introduced flora species were identified during the vegetation survey. These are:

- *Cenchrus ciliaris* (Buffel Grass);
- *Aerva javanica* (Kapok Bush);
- *Acetosa vesicaria* (Ruby Dock).

None of these species are listed as 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

From a fauna perspective, no detailed surveys have been undertaken to measure the species richness of the application area; however, fauna habitats were assessed at the time of the botanical survey (Rio Tinto, 2010). Habitat found within the application area was considered largely to be comprised of marginal foraging habitat (Rio Tinto, 2010). The application area did not contain 'core habitat' for any species likely to occur within the application area (Rio Tinto, 2010). Fauna habitats identified within the application area are typical of the local area and region.

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

Methodology Kendrick (2001)
Shepherd (2009)
Rio Tinto (2010)
GIS Database:
-Threatened and Priority Flora
-IBRA WA (Regions - Sub Regions)
-Pre-European Vegetation

(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

According to available datasets, there are no known records of threatened fauna within the application area (GIS Database). The assessing officer has conducted a search of the Department of Environment and Conservation's (DEC, 2007) online fauna database, centred on the coordinates 23°14'31" South, 117°36'11" East, with a radius of 20 kilometres. This search identified 2 Amphibian, 51 Avian, 15 Mammalian and 54 Reptilian species as potentially occurring within the search area (DEC, 2007). Of these, four species of conservation significance have been previously recorded within the search area:

- *Dasyurus hallucatus* (Northern Quoll) - Endangered;
- *Liasis olivaceus* subsp. *barroni* (Pilbara Olive Python) - Vulnerable;
- *Pogona minor* subsp. *minima* (Dwarf Bearded Dragon) - Vulnerable;
- *Pseudomys chapmani* (Western Pebble-mound Mouse) - Priority 4.

No targeted fauna surveys have been undertaken within the application area, however state and federal database searches for conservation significant fauna were undertaken (Rio Tinto, 2010). All incidental fauna sightings were recorded during field investigations at the site and observations of available fauna habitats noted (Rio Tinto, 2010).

Fauna habitat within the study area is dominated by rocky slopes and ridges as well as colluvial slopes formed

below eroding banded ironstone ridges (Rio Tinto, 2010). The eroding ridges contain small overhangs and large crevices which may provide habitat for reptiles, macropods and other non-volant mammal species. Small fissures, cracks and caves in rock outcrops may provide suitable maternity roosting sites for some bat species, although the site would not provide suitable maternity resting sites for any conservation significant bat species (Rio Tinto, 2010). This is most likely due to the absence of deep caves. The minor drainage lines present within the application area, provide narrow bands of tall shrubland often with increased large woody debris and leaf litter below (Rio Tinto, 2010).

No other significant fauna habitats such as large caves, waterholes, large tree hollows or termite mounds were observed within the study area (Rio Tinto, 2010). The study area is surrounded on three sides by walls of the main waste dump of the Paraburdoo Mine and as such would not function as a corridor for the movement of fauna across the landscape (Rio Tinto, 2010). An assessment of fauna that may potentially utilise the study area, found that habitat within the application area was largely restricted to marginal foraging habitat (Rio Tinto, 2010). The study area did not contain 'core habitat' for any threatened species that may utilise the application area (Rio Tinto, 2010).

The vegetation proposed to be removed is typical of vegetation in the greater Paraburdoo area and beyond and as such, the proposed clearing is unlikely to result in a significant impact on fauna or fauna habitat in the area.

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

Methodology DEC (2007)
Rio Tinto (2010)
GIS Database:
-Threatened Fauna

(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 application area (GIS Database). The nearest recorded location of a DRF (*Lepidium catapycnon*) is approximately 55 kilometres north, north-east of the application area (GIS Database).

The application area contains potentially suitable habitat for the DRF *Lepidium catapycnon* as well as several Priority Flora species (Rio Tinto, 2010). A vegetation survey was carried out over the application area in February 2010 by Rio Tinto and October 2004 by Pilbara Iron. No DRF, Priority Flora or *Environment Protection and Biodiversity Conservation Act 1999* listed threatened flora were identified during these studies (Rio Tinto, 2010).

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

Methodology Rio Tinto (2010)
GIS Database:
-Threatened and Priority Flora

(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 or in the vicinity of the application area (GIS Database; Rio Tinto, 2010). The nearest known TEC is located approximately 90 kilometres north-east of the application area (GIS Database). Given the distance between the proposal and the nearest known TEC, the proposed clearing is not likely to impact on the conservation of the TEC.

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

Methodology Rio Tinto (2010)
GIS Database:
-Threatened Ecological Sites Buffered

(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 application area is located within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Shepherd (2009) report that approximately 99.95% of the pre-European vegetation still exists in the Pilbara Bioregion. The vegetation in the application area is broadly mapped as Beard vegetation Associations 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and 181: Shrublands; mulga and snakewood scrub (Shepherd, 2009). According to Shepherd (2009) there is

approximately 100% of these vegetation types remaining in the Pilbara Bioregion and the State (see table below).

According to Bioregional Conservation Status of Ecological Vegetation Classes the conservation status for Beard Vegetation Associations 82 and 181 within the Pilbara Bioregion is of 'Least Concern' (Department of Natural Resources and Environment, 2002).

Although several large scale mining operations are located within a 50 kilometre radius of the application area, the Pilbara Bioregion remains largely uncleared (GIS Database). As a result, the conservation of the vegetation associations within the bioregion are not likely to be impacted upon by the proposal.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,188	17,794,647	~99.95	Least Concern	~6.32
Beard veg assoc. - State					
82	2,565,901	2,565,901	~100	Least Concern	~10.2
181	1,697,291	1,697,291	~100	Least Concern	~2.4
Beard veg assoc. - Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	~10.2
181	65,091	65,091	~100	Least Concern	~4.9

* Shepherd et al. (2009)

** 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 (2009)
GIS Database:
-IBRA WA (Region - Subregions)
-Pre-European Vegetation

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

Comments Proposal may be at variance to this Principle

There are no permanent wetlands or watercourses within the application area (GIS Database; Rio Tinto, 2010). Several drainage lines traverse the application area, which may result in the loss of vegetation associated with a watercourse (GIS Database). However, these drainage lines currently suffer from varying levels of degradation associated with weed infestations, creation of vehicle tracks and altered hydrology caused by mining activities. These drainage lines are ephemeral in nature and only flow following significant rainfall events (Rio Tinto, 2010).

The proposed clearing is likely to have a negligible impact on minor watercourses outside the study area (Rio Tinto, 2010). The loss of vegetation is not likely to significantly increase runoff or sediment transport to the watercourses nor is the removal of riparian vegetation likely to destabilise creek banks (Rio Tinto, 2010).

As there are watercourses within the application area, the proposed clearing may be at variance to this Principle. However these creek systems largely act as minor drainage lines that are widespread across the Pilbara region and responsible for quickly dispersing floodwaters after significant rainfall events (GIS Database; Rio Tinto, 2010). The two largest watercourses present within the application area currently suffer from varying levels of degradation associated with weed infestations, creation of vehicle tracks and altered hydrology caused by mining activities (Rio Tinto, 2010). The vegetation communities growing in association with the watercourses are not unique and are considered common and widespread in the Pilbara bioregion (GIS Database; Rio Tinto, 2010).

Methodology Rio Tinto (2010)
GIS Database:
-Hydrography, Linear
-Paraburdoo, 50cm Orthomosaic

(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

The application area has been mapped as occurring within the Boolgeeda and Newman Land Systems (GIS Database; Rio Tinto, 2010).

The Newman Land System consists of rugged jaspilite plateaux, ridges and mountains with hard spinifex which typify much of the Pilbara (GIS Database; Rio Tinto, 2010). The Newman Land System is common and widespread in the Pilbara bioregion, and is the second largest land system occupying an area of approximately 1,993,742 hectares (Rio Tinto, 2010). The Newman Land System is comprised of four landform units: Plateaux, ridges, mountains and hills; Lower slopes; Stony plains; and Narrow drainage floors with channels (Payne et al., 1998). Analysis of aerial photography indicates the application area is most likely to occur within the landform units: Plateaux, ridges, mountains and hills; Stony plains; and Narrow drainage floors with channels (Van Vreeswyk et al., 2004).

The Boolgeeda Land System is widespread and common in the Pilbara bioregion and occupies an area of approximately 961,634 hectares (Rio Tinto, 2010). The Boolgeeda Land System consists of stony lower slopes and wide, low relief plains, below large range hill systems, that support spinifex grasslands and Mulga shrublands (Payne et al., 1988). The soils of the Boolgeeda Land System consist of rocky outcrops with virtually no soil development and red loamy soils with dense stony mantles (Payne et al., 1988). Analysis of aerial photography indicates the application area is most likely to occur within the landform units: Stony slopes and lower plains; and Narrow drainage floors and channels (Van Vreeswyk et al., 2004).

Both the Boolgeeda and Newman Land Systems have stony surface materials which are likely to show high resistance to erosion (Payne et al., 1988; Van Vreeswyk et al., 2004). 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.

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

Methodology Payne et al. (1998)
Rio Tinto (2010)
Van Vreeswyk et al. (2004)
GIS Database:
-Paraburdoo 50cm Orthomosaic
-Rangeland Land System Mapping

(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 estate is Karijini National Park, which is situated approximately 40 kilometres east of the application area (GIS Database). 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 Karijini National Park.

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

Methodology GIS Database:
-DEC Tenure

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

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

The application area is located in a semi-desert-tropical region, within the Ashburton River catchment. The Paraburdoo area has an average annual rainfall of approximately 283.8 millimetres (BoM, 2010) falling mainly during the summer months, although rainfall may vary widely from year to year (ANRA, 2007). With an average annual pan evaporation rate of 3200-4000 millimetres, the presence of surface water resulting from significant rain events is relatively short lived (Eberhard et al., 2004).

There are no permanent watercourses or wetlands within the application area (GIS Database; Rio Tinto, 2010). The closest watercourses of significance are Seven Mile Creek which is approximately 1.15 kilometres west

and Pirraburdu Creek which is approximately 2.95 kilometres west of the application area. None of these watercourses are perennial.

It is likely that existing surface water quality within the minor drainage lines traversing the site have been affected by runoff from previous clearing activities within the Paraburdoo mine site. However, the two land systems associated with the application area have a high resistance to erosion (Payne et al., 1988; Rio Tinto, 2010). It is unlikely that the proposed clearing activities will significantly increase runoff or sediment transport to the watercourses present within and surrounding the application area (Rio Tinto, 2010).

At a regional scale, the application area lies within the Hamersley Fractured Rock Aquifer (HFRA) (Rio Tinto, 2010). Locally, aquifers below and surrounding the application area are contained within mineralised members of the Brockman Iron Formation (Rio Tinto, 2010). The aquifers are recharged via direct infiltration of rainfall runoff where drainage lines (e.g. Pirraburdu Creek and Seven Mile Creek) cross the ore body and discharge via base flow to the creeks and wellfield pumping (Pilbara Iron, 2004). Given the size of the proposed clearing (55.5 hectares), it is unlikely that the proposal would have an impact on groundwater recharge or groundwater quality (Rio Tinto, 2010).

The application is not located within a Public Drinking Water Source Area (GIS Database).

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

Methodology ANRA (2007)
BoM (2010)
Eberhard et al. (2004)
Payne et al. (1988)
Pilbara Iron (2004)
Rio Tinto (2010)
GIS Database:
-Hydrography, Linear
-Public Drinking Water Source Areas

(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 located in a semi-arid region where the average annual pan evaporation rate greatly exceeds the average annual rainfall (GIS Database; ANRA, 2007). Natural flooding occurs seasonally in the Pilbara region as a result of cyclonic activity and sporadic thunderstorm activity (ANRA, 2007; Rio Tinto, 2010). The average annual rainfall of Paraburdoo is approximately 283.8 millimetres (BoM, 2010), with monsoonal events from tropical cyclones producing a few large rainfall events each year with rainfall in excess of 100 millimetres in a few days (ANRA, 2007).

The application is not associated with any permanent wetlands or watercourses (GIS Database; Rio Tinto, 2010). Several non-perennial 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).

Given the size of the application area (55.5 hectares) in relation to the size of the Ashburton River catchment area (7,877,743 hectares), it is unlikely that the proposed clearing will alter the frequency or intensity of flooding.

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

Methodology ANRA (2007)
BoM (2010)
Rio Tinto (2010)
GIS Database:
-Evaporation Isopleths
-Hydrography, Linear

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

Comments

There is one Native Title Claim (WC10/11) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a permit is not a future act under the *Native Title Act 1993*.

According to available databases there are no known Aboriginal Sites of Significance within the application area

(GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a works approval, Water Licence, Bed and Banks permit or any other licences or approvals are required for the proposed works.

Clearing permit CPS 3685/1 was granted by the Department of Mines and Petroleum on 20 May 2010 and was valid from 19 June 2010 to 30 April 2019. The clearing permit authorised the clearing of 55.5 hectares of native vegetation. An application to amend the permit was received by the Department of Mines and Petroleum on 14 September 2011. The application requested that Condition 4(a) on the clearing permit be amended to allow stockpiling of vegetative material and topsoil in previously cleared areas outside of the area cross-hatched yellow on Plan 3685/2. It is considered unlikely that the proposed amendment will result in any significant environmental impact.

Methodology GIS Database:
-Aboriginal Sites of Significance
-Native Title Claims – Registered with the NNTT

4. References

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5. 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.
DMP	Department of Mines and Petroleum, 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.