



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4074/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Robe River Mining Co Pty Ltd

1.3. Property details

Property: Iron Ore (Robe River) Agreement Act 1964, Section 91 Licence 00338-2008_3_70 under the Land Administration Act 1997
Local Government Area: Shire of Roebourne
Colloquial name: Cape Lambert Powerline

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
10		Mechanical Removal	Construction of a powerline corridor, transmission towers, powerline installation and access tracks

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 10 February 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 at a 1:250,000 scale for the whole of Western Australia. One Beard vegetation association has been mapped within the application area (GIS Database).

157: Hummock grasslands, grass steppe; hard spinifex, *Triodia wiseana*.

A number of flora and vegetation surveys have been undertaken over parts of the application area by several environmental consulting companies between 2008 and 2010. Vegetation mapping by GHD (2008), Rio Tinto (2009) and Biota (2010) covers the large southern section of the application area and some of the smaller two northern sections of the application area.

Thirteen vegetation types were identified in the application area, as well as a unit being assigned for heavily disturbed areas. The broad landform that the vegetation types occurred in was also recorded for most of the vegetation types. The vegetation types are listed below with the landform in brackets:

Te (Hills and slopes): *Triodia epactia* hummock grassland.

ChAtuTeCEc (Drainage lines): *Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis* tall open shrubland over *Triodia epactia* very open hummock grassland over *Cenchrus ciliaris* very open tussock grassland.

EHsFbCspGpDaCec (Hills and slopes): *Ehretia saligna* var. *saligna* and *Ficus brachypoda* scattered low trees over *Capparis spinosa* var. *nummularia* and *Grevillea pyramidalis* scattered shrubs over *Dicliptera armata* scattered low shrubs and *Cenchrus ciliaris* very open tussock grassland.

AbAiTw (Hills and slopes): *Acacia bivenosa*, *A. inaequilatera* open shrubland, over *Triodia wiseana* hummock grassland.

AiTw (Hills and slopes): *Acacia inaequilatera* tall scattered shrubs over *Triodia wiseana* hummock grassland.

AtuAbApAaCcTe (Drainage lines): *Acacia tumida* open scrub to high open shrubland, over *A. bivenosa*, *A. pyrifolia*, *A. arida* shrubland over *Stemodia grossa*, *Corchorus tectus*, *Indigofera monophylla* low open shrubland over *Cenchrus ciliaris* tussock grassland with *Triodia epactia* open hummock grassland.

AsTsEe (Broad flat plains): *Acacia sabulosa* high shrubland over *Triodia schinzii* open hummock grassland with *Eragrostis eriopoda* very open tussock grassland.

AaAsCc (Clayey plains): *Acacia amplexa*, *A. stellaticeps* scattered low shrubs with *Cenchrus ciliaris* tussock grassland over mixed herbs.

HG1 (Rockpiles): Hummock grassland; *Triodia epactia*; herbs (variable), may have scattered shrubs and emergent tree species.

HG2 (Hummock grasslands): Hummock grassland; *Triodia pungens* (may have scattered shrubs).

LW1, HG, S (Minor flow lines): Low woodland (variable); shrubland (variable), hummock grassland (variable); *Acacia coleii* and/or *Corymbia hamersleyana*, *Acacia* spp. over mixed herbs, grasses and *Triodia pungens*.

ChApyAbTwTe: *Corymbia hamersleyana* scattered low trees over *Acacia pyrifolia* scattered tall shrubs over *A. bivenosa* open shrubland over *Triodia wiseana*, *T. epactia* hummock grassland.

AcoAaAbAstTwTe: *Acacia coleii* var. *ileocarpa*, *A. ancistrocarpa* tall open shrubland over *A. bivenosa* open shrubland over *A. stellaticeps* low open shrubland over *Triodia wiseana*, *T. epactia* hummock grassland.

HD: Heavily disturbed.

Clearing Description	<p>Robe River Mining Co Pty Ltd has applied to clear up to 10 hectares of native vegetation within an application area of approximately 303 hectares for the purpose of construction of a powerline and associated infrastructure. Clearing will be for the development of a powerline corridor, transmission towers, powerline installation and access tracks.</p> <p>Rio Tinto Iron Ore (Rio Tinto) have planned a strategic upgrade of the Pilbara Power System that they operate. Rio Tinto have proposed a transmission line corridor to connect Cape Lambert to the proposed new power station development west of Karratha. The current application is for the construction of a 220 kV powerline, a 132 kV tie-in to the Cape Lambert Substation and to facilitate an upgrade to existing facilities.</p> <p>The application area is made up of three separate defined areas. There is a large southern section and two smaller sections approximately 2 kilometres north-east of the large section.</p> <p>Vegetation will be cleared using a dozer with the blade down. Vegetation will be stockpiled and used in rehabilitation.</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>The vegetation condition was assessed by botanists from GHD, Rio Tinto and Biota. The vegetation conditions were described by Rio Tinto and Biota botanists using a scale based on Trudgen (1988) and have been converted to the corresponding conditions from the Keighery (1994) scale. GHD botanists used the Keighery (1994) scale to describe the vegetation conditions.</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 occurs within the Chichester subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by plains supporting a shrub steppe of <i>Acacia inaequilatera</i> over <i>Triodia wiseana</i> hummock grasslands, while <i>Eucalyptus leucophloia</i> tree steppes occur on ranges (CALM, 2002).</p> <p>The vegetation within the application area is broadly mapped as Beard vegetation association 157, which is common in the Pilbara region and approximately 99.9% of the pre-European vegetation extent remains (Shepherd, 2009; GIS Database).</p> <p>Several flora and vegetation surveys have been undertaken over, and adjacent to, the application area (Biota, 2008a, 2010; GHD, 2008; Rio Tinto, 2009). GHD conducted a field survey over an area of 1793 hectares in July and August 2008 which encompassed most of the current application area. A total of 158 plant taxa from 34 families were recorded from the survey area, which is considered to represent a medium degree of diversity (GHD, 2008). The application area itself is a smaller area and contains fewer vegetation types, and would therefore be expected to contain fewer plant species and have lower plant diversity.</p> <p>No Declared Rare Flora, Priority Flora, Threatened Ecological Communities (TECs) or Priority Ecological Communities have been identified within the application area (Biota, 2008a, 2010; GHD, 2008; Rio Tinto, 2009; GIS Database). According to available databases there are several known PECs within a 20 kilometre radius of the application area but none are within the application area (GIS Database). Occurrences of the PECs "Roebourne Plains Gilgai Grasslands" and "Horseflat Land System of the Roebourne Plains" were recorded during the vegetation surveys conducted in the Cape Lambert and Roebourne area but none were within the application area (Biota, 2008a, 2010; GHD, 2008; Rio Tinto, 2009).</p> <p>Weeds are widespread both within the application area and its surroundings due to a history of disturbance and historical grazing (GHD, 2008). Buffel Grass (<i>Cenchrus ciliaris</i>) is widespread with Kapok (<i>Aerva javanica</i>), Birdwood Grass (<i>Cenchrus setiger</i>) and Purslane (<i>Portulaca oleracea</i>) also occurring within the application area (GHD, 2008; Rio Tinto, 2009). The presence of these weed species lowers the biodiversity value of the application area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce</p>
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weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The fauna habitat types within the application area are common in the region and are found in equal or better condition in the surrounding local area (GHD, 2008). No habitats were recorded that were considered to be specific to the study area or a significant habitat type (GHD, 2008).

A fauna survey was undertaken by Biota in April 2008 over a large area, a corridor approximately 80 kilometres in length, that intersected approximately 8 hectares of the application area (Biota, 2008b; Rio Tinto, 2010). This survey recorded a total of 118 vertebrate species, comprising of 53 avifauna species, 19 mammals, 3 frogs and 43 reptiles (Biota, 2008b). These survey results are similar to other surveys of a similar scale in the region and the species recorded were representative of the taxa commonly recorded in the region (Biota, 2008b). The application area itself contained fewer habitat types than the whole study area and therefore would be expected to provide habitat to a lower number of species.

There is existing disturbance within the application area from roads, access tracks, infrastructure and powerlines, and past disturbance from grazing and frequent fire events (GHD, 2008; GIS Database). It is not likely that the area to be cleared comprises a high level of biological diversity in a regional context (Rio Tinto, 2010).

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

Methodology	Biota (2008a) Biota (2008b) Biota (2010) CALM (2002) GHD (2008) Rio Tinto (2009) Rio Tinto (2010) Shepherd (2009) GIS Database: - Declared Rare and Priority Flora List - IBRA WA (Regions - Sub Regions) - Pre-European Vegetation - Roebourne 50 cm Orthomosaic - Landgate 2007 - Threatened Ecological Sites Buffered
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(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	<p>Proposal is not likely to be at variance to this Principle</p> <p>No targeted fauna surveys have been undertaken over the whole application area. Desktop searches were conducted, and fauna habitats and incidental fauna sightings were recorded by environmental consultants from GHD (2008) and Rio Tinto (2009) over most of the application area during their field surveys. A fauna survey was undertaken by Biota in April 2008 that overlapped approximately 8 hectares of the application area (Biota, 2008b; Rio Tinto, 2010).</p>
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Fauna habitat types were recorded during the field surveys by GHD (2008) and Rio Tinto (2009), as well as the fauna survey by Biota (2008b). The main fauna habitats likely to be occurring within the application area are:

- Scattered to open *Acacia* sp. shrublands over *Triodia* sp. on clayey loam;
- Rocky hill slopes with *Triodia* sp., sometimes with scattered *Acacia* sp.;
- Small drainage line with *Acacia* sp. over *Triodia* sp.;
- Boulder piles with *Triodia* sp..

Other fauna habitat types were recorded within the larger survey areas but were excluded from the above list after a comparison with the vegetation mapping and orthophotos of the application area indicated they were unlikely to occur. The fauna habitat types within the application area are also the dominant habitat types in the surrounding area (GHD, 2008). No habitats were recorded that were considered to be specific to the study area or a significant habitat type (GHD, 2008).

The fauna survey undertaken by Biota in April 2008 was over a large area approximately 80 kilometres in length for Rio Tinto's rail duplication project from Cape Lambert to Emu Siding (Biota, 2008b). The northern most section of the study area is adjacent to, and slightly overlaps, the current application area. The survey recorded a total of 118 vertebrate species, comprising of 53 avifauna species, 19 mammals, 3 frogs and 43 reptiles (Biota, 2008b). These survey results are similar to other surveys of a similar size in the region and the species recorded were representative of the taxa commonly recorded in the region (Biota, 2008b).

Several conservation significant fauna species were recorded during the fauna survey or the reconnaissance field surveys but none were recorded in the application area (Biota, 2008b; GHD, 2008). The Short-tailed Mouse (*Leggadina lakedownensis*) (Priority 4), Western Star Finch (*Neochmia ruficauda subclarescens*)

(Priority 4), Rainbow Bee-eater (*Merops ornatus*) (Migratory), and White-bellied Sea-eagle (*Haliaeetus leucogaster*) (Migratory) were recorded in the study areas. However, each of the study areas covered much larger and more diverse areas than the application area itself (Biota, 2008b; GHD, 2008). The application area may provide potential foraging habitat for several mobile conservation significant species but would not be considered core habitat (Rio Tinto, 2009).

The quality of fauna habitat has been reduced due to existing disturbances within the application area. Roads, tracks, infrastructure and powerlines have degraded sections of the application area (GHD, 2008; GIS Database). The vegetation types within the study area are also found outside the study area in equal or better condition (GHD, 2008).

The small size of the proposed clearing is unlikely to result in a significant impact on fauna or the availability of fauna habitat in the local or regional area.

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

Methodology Biota (2008b)
GHD (2008)
Rio Tinto (2009)
Rio Tinto (2010)
GIS Database:
- Roebourne 50 cm Orthomosaic - Landgate 2007

(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 databases there are no known records of Declared Rare Flora (DRF) within the application area (GIS Database).

Several flora and vegetation surveys have been undertaken over parts of, and adjacent to, the application area. No DRF species were recorded within the application area or adjacent survey areas (Biota, 2008a, 2010; GHD, 2008; Rio Tinto, 2009).

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

Methodology Biota (2008a)
Biota (2010)
GHD (2008)
Rio Tinto (2009)
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

A search of available databases revealed there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest recorded TEC, *Themeda* grasslands on cracking clays, is located approximately 170 kilometres south-south-east of the application area (GIS Database). At this distance there is little likelihood of any impact to the TEC from the proposed clearing.

No TECs were identified during the flora and vegetation surveys conducted over the application area (Biota, 2008a, 2010; GHD, 2008; Rio Tinto, 2009).

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

Methodology Biota (2008a)
Biota (2010)
GHD (2008)
Rio Tinto (2009)
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 clearing application area falls within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion in which approximately 99.9% of the pre-European vegetation remains (see table) (Shepherd, 2009; GIS Database). This gives it a conservation status of "Least Concern" according to the Bioregional

Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

The vegetation of the clearing application area has been broadly mapped as Beard vegetation association 157 "Hummock grasslands, grass steppe; hard spinifex, *Triodia wiseana*" (GIS Database). According to Shepherd (2009) approximately 99.8% of Beard vegetation association 157 remains at the state level and 99.9% remains at a bioregional level. This vegetation association would be given a conservation status of "Least Concern" at both a state and bioregional level (Department of Natural Resources and Environment, 2002).

The vegetation under application is not a remnant of vegetation in an area that has been extensively cleared.

	Pre-European Area (ha)*	Current Extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,193	17,785,001	~99.9	Least Concern	6.3
Beard Veg Assoc. – State					
157	502,729	501,514	~99.8	Least Concern	18.0
Beard Veg Assoc. – Bioregion					
157	198,634	198,519	~99.9	Least Concern	5.7

* Shepherd (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 (Regions - Sub Regions)
- 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 is at variance to this Principle

There are no permanent watercourses or wetlands within the application area, however, there are numerous minor non-perennial watercourses and two major drains that cross the eastern edge of the large section of the application area (GIS Database).

The vegetation mapping by GHD in 2008 and Rio Tinto in 2009 indicated that the application area contains several vegetation communities that are associated with drainage lines:

- **LW1, HG, S (Minor flow lines):** Low woodland (variable); shrubland (variable), hummock grassland (variable); *Acacia colei* and/or *Corymbia hamersleyana*, *Acacia* spp. over mixed herbs, grasses and *Triodia pungens*;
- **ChAtuTeCEc (Drainage lines):** *Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis* tall open shrubland over *Triodia epactia* very open hummock grassland over *Cenchrus ciliaris* very open tussock grassland;
- **AtuAbApAaCcTe (Drainage lines):** *Acacia tumida* open scrub to high open shrubland, over *A. bivenosa*, *A. pyrifolia*, *A. arida* shrubland over *Stemodia grossa*, *Corchorus tectus*, *Indigofera monophylla* low open shrubland over *Cenchrus ciliaris* tussock grassland with *Triodia epactia* open hummock grassland (GHD, 2008; Rio Tinto, 2009).

These vegetation communities are not unique (GHD, 2008) and minor ephemeral watercourses, and their associated vegetation, are widespread in the Pilbara bioregion (GIS Database).

Based on the above, the proposed clearing is at variance to this Principle. However, vegetation associated with minor drainage lines is widespread in the region, and the small area of the proposed clearing is unlikely to have any significant impact on any watercourse or wetland.

Methodology GHD (2008)
Rio Tinto (2009)
GIS Database:
- Hydrography, Linear

(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 available datasets the application area intersects the Boolgeera, Rocklea, Ruth and Uaroo Land Systems (GIS Database).

The Boolgeeda Land System is characterised by stony lower slopes and plains below large range hill systems that support spinifex grasslands and Mulga shrublands (Van Vreeswyk et al., 2004). Soil mantles are likely to comprise of abundant to very abundant pebbles, cobbles, ironstone and other rocks (Van Vreeswyk et al., 2004). The Boolgeeda Land System is not susceptible to erosion (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 (Van Vreeswyk et al., 2004). This system has a very low risk of erosion (Van Vreeswyk et al., 2004).

The Ruth Land System is characterised is characterised by hills and ridges of volcanic and other rocks supporting hard spinifex (occasionally soft spinifex) grasslands (Van Vreeswyk et al., 2004). This land system is not susceptible to erosion (Van Vreeswyk et al., 2004).

The Uaroo Land System is characterised by broad sandy plains supporting shrubby hard and soft spinifex grasslands (Van Vreeswyk et al., 2004). There is occasionally some erosion but generally the system is not susceptible to erosion (Van Vreeswyk et al., 2004).

All works associated with the powerline construction will be in accordance with the Cape Lambert Port B Construction Environmental Management Plan. Erosion and sediment control procedures detail the management strategies, monitoring and recording to be undertaken to control erosion (SKM, 2008).

The application area is located within a low to moderate acid sulfate soil (ASS) risk area (GIS Database). The Department of Agriculture and Food (DAFWA) have previously provided advice for applications in the Cape Lambert area that are within an ASS risk area (DAFWA, 2009). Provided the proposed clearing does not expose the subsoil or involve dewatering in areas where ASS risks have been identified, then environmental acidity is unlikely to arise (DAFWA, 2009). If disturbance of ASS is unavoidable then ASS should be neutralised and reburied taking care to ensure that the subsoil is not left exposed to air (DAFWA, 2009). The applicant should be aware of the low to moderate risk of ASS in certain areas of the application area and manage accordingly.

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

Methodology DAFWA (2009)
SKM (2008)
Van Vreeswyk et al. (2004)
GIS Database:
- Acid Sulfate Soil Risk Map, Pilbara Coastline
- 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 proposed clearing is not located within a conservation reserve (GIS Database). The nearest known conservation areas are on islands off the coast (GIS Database) and the application area is unlikely to provide any ecological linkage to these. The nearest mainland conservation area is Millstream Chichester National Park, located approximately 55 kilometres south of the application area (GIS Database). At this distance the proposed clearing is unlikely to impact on the environmental values of the National Park.

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

Methodology GIS Database:
- DEC Tenure
- Register of National Estate (Status)

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available databases the application area is not located within a Public Drinking Water Source Area (PDWSA). The nearest PDWSA is Roebourne Water Reserve, which is approximately 12 kilometres to the south (GIS Database). The series of minor ephemeral flow lines in the application area flow in a north to north-east direction to the sea (Rio Tinto, 2009) so the proposed clearing is unlikely to affect the water quality of the water reserve.

The groundwater salinity within the application area is approximately 1,000 - 3,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). Given the size of the area to be cleared (10 hectares) compared to the size of the Pilbara Groundwater Province (5,557,665 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels to alter significantly.

There are no permanent watercourses or wetlands within the application area (GIS Database). There are several minor, ephemeral drainage lines within the application area and these only flow for short periods following heavy rain (Rio Tinto, 2009). The small amount of proposed clearing is unlikely to cause deterioration in the quality of surface water in the local area.

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

Methodology Rio Tinto (2009)
GIS Database:
- Groundwater Provinces
- Groundwater Salinity, Statewide
- 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 experiences an arid-tropical climate with an average annual rainfall of 288.4 mm, recorded from the weather station at nearby Roebourne (BOM, 2010). The area experiences a high evaporation rate where the average yearly evaporation exceeds rainfall by as much as 2,500 mm per year (GHD, 2008). Local flooding of ephemeral creeklines may occur after large seasonal rainfall events, however, clearing within the application area is unlikely to exacerbate or increase the incidence or intensity of flooding (Rio Tinto, 2010).

The application area is located within the Coastal catchment area of the Port Hedland Coast basin (GIS Database). Given the size of the area to be cleared (10 hectares) in relation to the size of the catchment area (744,301 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

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

Methodology BOM (2010)
GHD (2008)
Rio Tinto (2010)
GIS Database:
- Hydrographic Catchments - Catchments

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

Comments There is one Native Title Claim (WC99/14) 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 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 clearing permit is not a future act under the *Native Title Act 1993*.

There are several registered Aboriginal Sites of Significance within the application area (Site IDs: 565, 566, 7787 and 29198) (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.

The clearing permit application was advertised on 29 November 2010 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology GIS Database:
- Aboriginal Sites of Significance (Status)
- Native Title Determined

4. References

- Biota (2008a) Pilbara Power System Upgrade Additional Areas: Native Vegetation Clearing Permit Report. Report for Pilbara Iron, Prepared by Biota Environmental Services, May 2008.
- Biota (2008b) Rio Tinto Rail Duplication Fauna Survey Cape Lambert to Emu Siding. Report for Rio Tinto Iron Ore, Prepared by Biota Environmental Services, July 2008.
- Biota (2010) Cape Lambert to Emu Siding Additional Vegetation Mapping. Report for Rio Tinto Iron Ore, Prepared by Biota Environmental Services, March 2010.
- BOM (2010) Bureau of Meteorology Website - Climate Statistics for Australian Locations, Summary Statistics ROEBOURNE. <http://www.bom.gov.au/> (Accessed 26 November 2010).
- DAFWA (2009) Land Degradation Advice for CPS 3452/1. Advice to assessing officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP), received (7 December 2009). Department of Agriculture and Food, Western Australia.
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- GHD (2008) Report for the 320 Mt Marshalling Yards, Maintenance Workshop and Quarry: Flora and Fauna Assessment. Report for Rio Tinto Iron Ore, Prepared by GHD, November 2008.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Rio Tinto (2009) Dampier 7-Mile to Cape Lambert 220 kV Transmission Line Corridor - Additional Areas Native Vegetation Clearing Permit Supporting Report. Report by Rio Tinto Iron Ore, September 2009.
- Rio Tinto (2010) Statement Addressing the 10 Clearing Principles: Cape Lambert PSU220 YMPS and Cape Lambert OHTL Amendments. Report by Rio Tinto Iron Ore, August 2010.
- Shepherd, D.P. (2009) 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.
- SKM (2008) Construction Environmental Management Plan for Cape Lambert Early Works and Port B Project. Report Prepared for Rio Tinto Iron Ore, November 2008.
- Trudgen, M.E. (1988) A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished Report Prepared for Bowman Bishaw and Associates, West Perth.
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A. and Hennig, P. (2004) Technical Bulletin - An Inventory and Condition Survey of the Pilbara Region, Western Australia, No. 92. Department of Agriculture, Government of Western Australia, Perth, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), 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 (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
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 Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

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.