Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1459/2
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Argyle Diamonds Ltd**

1.3. Property details

Property: *Diamond (Argyle Diamond Mines Joint Venture) Agreement Act 1981*, Mining Lease 259SA (AM 70/259)
Local Government Area: Shire of Wyndham-East Kimberley
Colloquial name: AK1 Tailings Storage Facility Expansion

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 17 May 2012

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 area:

819: Grasslands, tall bunch grass savanna low tree; cabbage gum & silver-leaved box over *Aristida* & ribbon grass on sandy plains; and
833: Grasslands, short bunch grass savanna sparse low tree; scattered snappy gum over arid short grass on plains (GIS Database; Shepherd, 2009).

The application area was surveyed by Mattiske Consulting in March 2004 (Mattiske Consulting Pty Ltd, 2004). The following vegetation types were identified within the application area:

Hummock Grasslands

HG1: Hummock grassland of *Triodia bitextura* and *Triodia bynoei* with emergent *Eucalyptus brevifolia*, *Corymbia confertiflora*, *Corymbia opaca*, *Eucalyptus pruinosa*, *Bauhinia cunninghamii* over Acacia *argyraea* and *Acacia hemignosta*;

HG2: Hummock grassland of *Triodia bitextura* and *Triodia bynoei* with emergent *Corymbia confertiflora*, *Corymbia opaca*, *Eucalyptus brevifolia*, *Eucalyptus pruinosa, Bauhinia cunninghamii* and *Terminalia canescens*;

HG3: Hummock grassland of *Triodia bitextura* and *Triodia bynoei* with emergent denser pockets of *Terminalia canescens* and *Cochlospermum fraseri*, with the occasional *Corymbia confertiflora* and *Eucalyptus brevifolia*;

Woodlands

W2: Low open woodland of *Melaleuca minutifolia* and *Eucalyptus pruinosa* over *Triodia bitextura*;

W3: Low open woodland of *Eucalyptus brevifolia* over pockets of *Acacia argyraea* and *Eriachne ciliata;*

W4: Open woodland and low open woodland of *Terminalia platyptera, Terminalia arostrata, Adansonia gregorii, Buchanania obovata* and *Bauhinia cunninghamii;*

W5: Mixture of open woodland and low open woodland of *Adansonia gregorii, Buchanania obovata, Bauhinia cunninghamii* and *Eucalyptus brevifolia* over patches of *Typha domingensis, Heteropogon contortus, Cenchrus elymoides* and *Chloris truncata;*

W6: Low open woodland of *Melaleuca minutifolia* over patches of *Typha domingensis*;

W7: Low open woodland of *Bauhinia cunninghamii* and *Eucalyptus pruinosa* over mixed grasses and herbs;

Sedgelands

S1: Sedgelands of *Typha domingensis* with emergent *Adansonia gregorii, Melaleuca viridiflora* and *Lophostemon grandiflorus* subsp. *riparius* (Mattiske Consulting Pty Ltd, 2004).

Clearing Description

Argyle Diamonds Ltd is proposing to clear up to 173.4 hectares of native vegetation within a boundary of approximately 546 hectares for the purpose of expanding the AK1 Tailings Storage Facility (TSF)

The AK1 TSF dam wall is proposed to increase in height which will result in an increased footprint. As a result of the increase footprint the existing reclaim water pond at the bottom of the TSF wall will be buried. A new larger reclaim pond will have to be built as a result of the proposed TSF expansion. The new reclaim pond is proposed to be built to the south east of the existing reclaim pond within the proposed clearing permit area.

The proposed 173.4 hectares of clearing is on the perimeter of the existing AK1 TSF which currently covers an area of approximately 350 hectares (Argyle Diamonds Ltd, 2006). Approximately 1,000 hectares has been cleared nearby for the process plant (100 hectares), pit and waste dumps (900 hectares). The application area does not cover the area for the proposed new Tailings Storage Facility (TSF2) detailed in the Environmental Protection Statement produced by the EPA in relation to the underground mining proposal (EPA, 2005).

Vegetation Condition

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery,1994);

To

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

Comment

The vegetation within the areas to be cleared has been disturbed and degraded by pastoral activities and mining operations due to its proximity to the AK1 TSF. The vegetation condition was derived from a vegetation survey conducted by Mattiske Consulting Pty Ltd (2004).

Clearing permit CPS 1459/1 was granted by the Department of Mines and Petroleum (DMP) on 2 June 2011 and was valid from 2 June 2011 to 14 October 2014. The clearing permit authorised the clearing of 126.4 hectares of native vegetation. An application to amend the permit was received by DMP on 27 February 2012 to increase the amount of clearing authorised by 47 hectares and extend the clearing permit boundary. The additional clearing is not likely to have significant additional environmental impacts.

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 may be at variance to this Principle

The Argyle Diamond Mine is situated approximately 200 kilometres south-west of Kununurra (by road) within the Ord (OVP1) subregion of the Ord Victoria Plains Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by level to gently undulating plains with scattered hills on Cambrian volcanic and Proterozoic sedimentary rocks; vertosols on plains and predominantly skeletal soils on hills (CALM, 2002). The overall vegetation is grassland with scattered bloodwoods (*Corymbia* spp.) and snappy gum (*Eucalyptus brevifolia*) with spinifex and annual grasses (CALM, 2002).

The Australian Natural Resources Atlas (ANRA) (2008) notes that the Ord Victoria Plains bioregion includes a blend of biota from arid environments and high rainfall areas. It is noted that the Argyle lease area is located in the Northern Botanical District, near the point where three of the four Kimberley Botanical Districts meet (Argyle Diamonds Ltd, 2008). A very high diversity and abundance of granivorous birds are present in the bioregion. This is likely to be a reflection of the numerous grass species present in the area. Pastoral practices, weeds, feral animals and changed fire regimes are identified as being the most influential factors affecting biodiversity of the bioregion (ANRA, 2008).

The previously recorded Priority One species; *Goodenia lunata* was subsequently re-identified as *Goodenia coronopifolia* which is not listed as a Priority or Threatened Flora species. This species was recorded in extensive numbers on the low lying slopes and flats near the creeklines and has now been recorded more extensively over the area in communities GH1, W2, W4 and W7 (Mattiske Consulting Pty Ltd, 2004). The occurrence of large numbers of *Goodenia coronopifolia* plants in 2004 indicates that this species establishment follows regular summer rainfall events (Mattiske Consulting Pty Ltd, 2004).

A fauna review of the Argyle lease area was undertaken by Bamford Consulting Ecologists (2005) in January 2005. The review concluded that the Argyle area is rich in reptile, amphibian and avifauna, with an abundance of waterbirds drawn to the natural riverine systems and artificial water sources associated with the mining operation. A large number of conservation significant species (41) have previously been recorded from the lease area, with 29 of these being migratory bird species.

At a local scale, the Argyle Diamond Mine is likely to have had some impact on biodiversity. An estimated 900

hectares of native vegetation has been progressively cleared for existing waste rock dumps and open pit (Argyle Diamonds Ltd, 2006). Accommodation camps, roads and other mining-related infrastructure have also required native vegetation clearing since the mine began operating in 1982. Additional impacts to biodiversity from the proposed clearing of 173.4 hectares for the AK1 Tailings Storage Facility (TSF) expansion works are not likely to be significant in a regional context.

Parts of the proposed clearing area are completely degraded and consist of access roads in and around the AK1 TSF. On the basis of information available, the topography, soils and vegetation of the proposed clearing area would appear typical of the larger Argyle lease area and landscape surrounding the mine.

Thirteen alien weed species were recorded within the vegetation survey area (Mattiske Consulting Pty Ltd, 2004). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology

ANRA (2008)
Argyle Diamonds Ltd (2006)
Argyle Diamonds Ltd (2008)
Bamford Consulting Ecologists (2005)
CALM (2002)
Mattiske Consulting Pty Ltd (2004)
GIS Database:
- IBRA (Regions - Subregions)

(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

Numerous fauna surveys have been undertaken at the Argyle Diamond Mine lease area, including 1980/1981, 2000 and 2002. In addition, the annual Rio Tinto Bird Watch has been undertaken at Argyle since 2001 and has made an important contribution to understanding the local avifauna of the area (Argyle Diamonds Ltd, 2008).

In 2005, a general review of the local fauna was undertaken by Bamford Consulting Ecologists (2005). As a result of previous surveys at the Argyle lease, 27 mammals, 205 birds, 79 reptiles and 19 amphibians have been recorded. Of these 330 species, 41 are of conservation significance. This includes 29 bird species listed under the Japan-Australia Migratory Bird Agreement (JAMBA) or China-Australia Migratory Bird Agreement (CAMBA), 24 of which are waterbirds (Bamford Consulting Ecologists, 2005).

Three conservation significant species that are typically associated with the riverine vegetation of permanent fresh water systems in the Kimberley have been recorded from previous fauna surveys and monitoring on the Argyle lease (Watts and Aslin, 1981; Biostat, 2003; Garnett and Crowley, 2000). They are the Purple-Crowned Fairy-Wren (*Malurus coronatus coronatus*) (P4), Water Rat (*Hydromys chrysogaster*) (Priority 4) and Fresh Water Crocodile (*Crocodylus johnstoni*) (Schedule 4). No permanent natural freshwater habitats occur within the application area, however the existing retention pond may be suitable habitat for freshwater crocodiles. The population of freshwater crocodiles has probably increased in the area as a result of the various dams and TSF built as a result of the mine (Biostat, 2003) and since a new larger retention pond will be built to replace the existing one it is unlikely that the clearing will be detrimental to the freshwater crocodile population in the local area over the long term.

The Argyle lease area has rich reptile, amphibian and avifauna. A mixture of arid and northern zone species is present. Many of the amphibians and reptiles recorded from the lease area are common to the spinifex and sorghum grasslands found on the alluvial plains of the region (Bamford Consulting Ecologists, 2005). A high number of waterbird species (72) have previously been recorded from the lease area. The existing natural riverine systems of the area and 'man-made' tailings storage facility and numerous water storage dams associated with the mining operation provide suitable habitat for waterbird species (Bamford Consulting Ecologists, 2005).

The native mammal fauna of the Argyle lease is typical of the arid region of the East Kimberley. The distribution and abundance of mammal fauna is highly seasonal, particularly rodents; with many species reaching plague proportions during favourable seasons. Introduced mammal fauna known from the lease area include cats, donkeys and foxes (Argyle Diamonds Ltd, 2008).

According to Shepherd (2009) approximately 99.99% of the pre-European vegetation remains within the Ord Victoria Plain bioregion. Given the extent of native vegetation remaining in the local area and bioregion, the vegetation to be cleared does not represent a significant ecological linkage in a regional context. The size of the proposed clearing (173.4 hectares) in relation to the size of the Argyle lease area (approximately 182,069 hectares) (GIS Database) and the surrounding uncleared landscape suggests that any potential loss of

significant habitat is likely to be low.

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

Methodology
Argyle Diamonds Ltd (2008)
Bamford Consulting Ecologists (2005)
Biostat (2003)
Garnett and Crowley (2000)
Shepherd (2009)
Watts and Aslin (1981)
GIS Database:
- Mining Tenements

(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 GIS databases there are no known records of Threatened or Priority Flora within the application area (GIS Database).

A flora survey was conducted over the original application area for clearing permit CPS 1459/1 by staff from Mattiske Consulting Pty Ltd in March 2004 (Mattiske Consulting Pty Ltd, 2004). No Threatened were recorded within that application area (Mattiske Consulting Pty Ltd, 2004). Numerous flora and vegetation surveys have been conducted over the Argle lease, beginning with those conducted for the original environmental impact assessment in 1982, and no Threatened Flora have been recorded within the operational areas at the mine site (Argle Diamonds Ltd, 2012).

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

Methodology
Argle Diamonds Ltd (2012)
Mattiske Consulting Pty Ltd (2004)
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

A search of available databases reveals that there are no Threatened Ecological Communities (TECs) within the application area (GIS Database). A search of available databases reveals there are no known TECs within a 200 kilometre radius of the application area (GIS Database).

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

Methodology
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 falls within the Ord Victoria Plains IBRA bioregion (GIS Database). Shepherd (2009) reports that approximately 99.99% of the pre-European vegetation remains in this bioregion.

The vegetation within the application area is recorded as Beard vegetation associations:
819: Grasslands, tall bunch grass savanna low tree; cabbage gum & silver-leaved box over *Aristida* & ribbon grass on sandy plains; and
833: Grasslands, short bunch grass savanna sparse low tree; scattered snappy gum over arid short grass on plains (GIS Database; Shepherd, 2009).

According to Shepherd (2009) approximately 100% of these Beard vegetation associations remain at both a state and bioregional level (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Ord Victoria Plains	5,497,882	5,497,224	~99.99%	Least Concern	~15.98%
Beard vegetation associations - State					
819	58,827	58,827	~100%	Least Concern	N/A
833	38,675	38,675	~100%	Least Concern	N/A
Beard vegetation associations - Bioregion					
819	48,986	48,986	~100%	Least Concern	N/A
833	38,498	38,498	~100%	Least Concern	N/A

* 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 - 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 is at variance to this Principle

According to available databases, there are numerous minor non-perennial watercourses which traverse the proposed clearing area (GIS Database). These watercourses provide for the shedding of water off the East Ridge during the wet season (Argyle Diamonds Ltd, 2008). Water shedding off the East Ridge empties into the AK1 TSF, whilst drainage near the crusher empties into Gap Creek (located south of the proposed clearing area).

Based on vegetation mapping conducted by Mattiske Consulting Pty Ltd (2004) three of the ten vegetation associations found within the application area are associated with drainage areas. These are;

W4: Open woodland and low open woodland of *Terminalia platyptera, Terminalia arostrata, Adansonia gregorii, Buchanania obovata* and *Bauhinia cunninghamii;*
W5: Mixture of open woodland and low open woodland of *Adansonia gregorii, Buchanania obovata, Bauhinia cunninghamii* and *Eucalyptus brevifolia* over patches of *Typha domingensis, Heteropogon contortus, Cenchrus elymoides* and *Chloris truncata*; and
S1: Sedgelands of *Typha domingensis* with emergent *Adansonia gregorii, Melaleuca viridiflora* and *Lophostemon grandiflorus* subsp. *riparius* (Mattiske Consulting Pty Ltd, 2004).

The vegetation association "W6: Low open woodland of *Melaleuca minutifolia* over patches of *Typha domingensis*" is located below the old saddle dam area in the north eastern part of the application area is the result of water seeping from that dam since it was built in the early 1980's. Prior to the construction of the saddle dam this would normally have been dry channel vegetation (Environmental Advisor, Argyle Diamond Mines, 10 May 2006).

Woodlands on the creek systems are dominated by mixed over storey species including *Adansonia gregorii, Buchanania obovata* and *Terminalia platyptera*, over understorey species including *Typha domingensis* and *Heteropogon contortus* (Mattiske Consulting Pty Ltd, 2004). The woodland associations W4 and W5 have both suffered previous disturbance due to stock grazing in the area, while the sedgeland association S1 is entirely dominated by *Typha domingensis*, which is an invasive sedge (Mattiske Consulting Pty Ltd, 2004). The branch of Limestone Creek where the vegetation community S1 was recorded is artificially watered by the mine, which has resulted in the prolific growth of *Typha domingensis*.

Based on the above, the proposed clearing is at variance to this Principle. However, it is acknowledged that there are no natural swamps, ANCA wetlands, RAMSAR wetlands or Wild Rivers within the application area (Argyle Diamonds Ltd, 2008; GIS Database). Wetland environments likely to be impacted as a result of the

proposed clearing are artificial environments located adjacent to the AK1 TSF. Such areas are unlikely to contain significant stands of riparian vegetation which warrant retention.

Methodology

Argyle Diamonds Ltd (2008)
Mattiske Consulting Pty Ltd (2004)
GIS Database:
- ANCA, Wetlands
- Geodata, Lakes
- Hydrography, linear
- RAMSAR, Wetlands
- Wild Rivers

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

Comments

Proposal may be at variance to this Principle

The landscape around the Argyle Diamond Mine is hilly, with gentle foothills, mountain and strike ridges and well defined drainage lines (Argyle Diamonds Ltd, 2008).

The soils of the Argyle lease area vary from skeletal to extensive silt and sandy flats. The soils of the proposed clearing area can be characterised as lithosols, being predominantly coarse-textured (stony and rocky), weakly coherent in the moderately moist state and non-calcareous (Argyle Diamonds Ltd, 2008).

According to available GIS Databases, the soils of the application area can be characterised as red and brown shallow porous loamy soils, shallow sandy soils and neutral hard red to alkaline hard yellow mottled soils (GIS Database). These soils have a low to high risk of erosion (Schoknecht, 2002).

The Department of Agricture and Food WA (DAFWA) advised that the proposed clearing of 140 hectares for expansion of the tailings dam is likely to be a soil erosion risk. Therefore the clearing and constructions of the tailings will need to be carried out and completed within a dry season to avoid exposure to high intensity rainfall. It is likely that this proposal may be at variance with Principle (g) for soil erosion (DAFWA, 2006).

Based on the above, the proposed clearing may be at variance to this Principle. Potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a rehabilitation condition and a condition restricting clearing to the dry season.

Methodology

DAFWA (2006)
Schoknecht (2002)
GIS Database
- Soils, Statewide

(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). According to available databases the nearest known conservation reserve is located approximately 42 kilometres south-east of the application area (GIS Database).

The RAMSAR listed and nationally significant listed Lake Argyle is situated approximately 15 kilometres north-east of the application area (GIS Database). The area surrounding Argyle lake adjacent to the Argyle Diamonds lease is itself listed on the register of the National Estate (GIS Database). At this distance the proposed clearing is not likely to significantly impact on the environmental values of the conservation areas listed above.

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

Methodology

GIS Database:
- DEC Tenure
- RAMSAR, Wetlands
- Register of National Estate

(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) (GIS Database).

The application area is traversed by numerous minor non-perennial watercourses which provide for the shedding of water from the hill slopes in the wet season. A majority of the drainage in the east of the proposed clearing area empties into the AK1 TSF, ensuring that no water or suspended material is released into the surrounding environment (Argyle Diamonds Ltd, 2008).

The groundwater salinity within the application area is approximately 500-1,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the size of the area to be cleared (173.4 hectares) compared to the size of the Halls Creek Groundwater Province (4,600,599 hectares) (GIS Database), the proposed clearing is not likely to cause groundwater salinity levels within the application area to alter significantly.

Groundwater studies on the Argyle lease area have identified two principal aquifer systems that are being impacted by mine dewatering activities, which have lowered the groundwater table around the open pit and surrounds. Underground mining operations also involve mine dewatering which will continue until at least 2018. The impacts of mine dewatering on groundwater levels and quality are outside the scope of this assessment, however it is noted that dewatering activities are much more likely to impact upon groundwater than the proposed vegetation clearing.

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

Methodology

Argyle Diamonds Ltd (2008)
GIS Database:
- Groundwater Provinces
- Groundwater Salinity, Statewide
- Public Drinking Water Source Areas (PDWSA)

(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 Argyle region is characterised by a mean annual rainfall of approximately 700-800 millimetres and an annual evaporation rate of approximately 2,800 millimetres (GIS Database). Rainfall is usually experienced during summer months (CALM, 2002). It is likely that during times of intense rainfall there may be some localised flooding in adjacent areas. Local flooding occurs seasonally within the Kimberley region as a result of cyclonic activity and sporadic thunderstorm events.

The application area is traversed by numerous drainage lines which provide for the shedding of water from the hill slopes in the wet season. During the wet season the majority of the drainage empties into the AK1 TSF or into Gap Creek where any sediments are captured by the sedimentation ponds and is not released into the surrounding environment (Argyle Diamonds Ltd, 2010).

There are no natural swamps within the application area and the area surrounding the mine site is well drained (Argyle Diamonds Ltd, 2008). Considering the ephemeral nature of the watercourses and the lack of low - lying flood prone areas within the application area, it is unlikely that the proposal will lead to an incremental increase in peak flood height or duration.

Given the size of the area to be cleared (173.4 hectares) in relation to the size of the Ord River catchment area (4,526,028 hectares) (GIS Database), the proposed clearing is not likely to increase the potential for flooding within the application area, local area or within the catchment (GIS Database).

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

Methodology

Argyle Diamonds Ltd (2008)
Argyle Diamonds Ltd (2010)
CALM (2002)
GIS Database:
- Evaporation Isopleths
- Hydrographic Catchments - Catchments
- Mean Annual Rainfall

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

Comments

There are no Native Title Claims over the area under application (GIS Database). 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 clearing permit is not a future act under the *Native Title Act 1993*.

There are numerous registered 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 1459/1 was granted by the Department of Mines and Petroleum (DMP) on 2 June 2011 and was valid from 2 June 2011 to 14 October 2014. The clearing permit authorised the clearing of 126.4 hectares of native vegetation. An application to amend the permit was received by DMP on 27 February 2012 to increase the amount of clearing authorised by 47 hectares and extend the clearing permit boundary. The additional clearing is not likely to have significant additional environmental impacts.

The clearing permit application amendment was advertised on 20 February 2012 by DMP inviting submissions from the public. No submissions were received.

Methodology

GIS Database:

- Aboriginal Sites of Significance
- Native Title Claims – Determined by the Federal Court
- Native Title Claims – Filed at the Federal Court
- 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 (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.