Government of **Western Australia**
Department of **Mines and Petroleum**

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7478/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Australian Nickel Investments Pty Ltd**

1.3. Property details

Property: Mining Lease 36/180
Mining Lease 36/371
Local Government Area Shire of Leonora
Colloquial name: Cosmos Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
64.05		Mechanical Removal	Water management ponds and geotechnical test pits

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 29 June 2017

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. One Beard vegetation association is located within the application area (GIS Database):

18: Low woodland; mulga (*Acacia aneura*)

A flora and vegetation survey over the majority of the application area was undertaken by PEK Enviro in November of 2016 (PEK Enviro, 2017). Vegetation types recorded during the survey were generally dominated by various Mulga complex shrub and/or tree species with an open upper stratum, over a mid-stratum dominated generally by Mulga complex and Eremophila shrub species. The ground stratum was often dominated by various ephemeral and perennial tussock grass species (Poaceae Family) and ephemerals of the Chenopodiaceae family, particularly along drainage lines and in areas where resources accumulate.

Clearing Description Cosmos Project.
Australian Nickel Investments Pty Ltd proposes to clear up to 64.05 hectares of native vegetation within a total boundary of approximately the same size, for the purpose of water management ponds and geotechnical test pits. The project is located approximately 44 kilometres northwest of Leinster, in the shire of Leonora.

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 condition within the application area was determined during a flora and vegetation survey undertaken by PEK Enviro (2017).

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 not likely to be at variance to this Principle

The application area occurs within the East Murchison subregion of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by its internal drainage, and extensive areas of elevated red desert sandplains with minimal dune development.
Salt lake systems are associated with the occluded Paleodrainage system. There are broad plains of red-brown soils and breakaway complexes as well as red sandplains. Vegetation is dominated by Mulga Woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and Halosarcia shrublands (CALM, 2002).

A flora and vegetation survey was undertaken over the majority of the application area by PEK Enviro in November of 2016 (PEK Enviro, 2017). A total of 89 species from 40 genera and 19 families were recorded (PEK Enviro, 2017). No Threatened or Priority flora was recorded during the survey (PEK Enviro, 2017). No Priority Ecological Communities (PECs) or Threatened Ecological Communities (TECs) are known to occur within the area and none were identified during the flora and vegetation survey (PEK Enviro, 2017; GIS Database).

The vegetation associations identified within the application area are considered to be well represented in the surrounding area and are unlikely to act as significant habitat for fauna in the region (PEK Enviro, 2017). There are no sandplains and or associated sand dune systems within the application area. The area has been disturbed to varying degrees by historical mining activity and drilling programs (PEK Enviro, 2017).

One introduced flora species, *Citrullus lanatus*, was recorded during the flora and vegetation survey (PEK Enviro, 2017). Weeds have the potential to out-compete native flora and reduce the biodiversity of an area. 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 is not likely to be at variance to this Principle.

Methodology

PEK Enviro (2017)
CALM (2002)

GIS Database:
- IBRA Australia
- Pre-European Vegetation
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Prioirty Ecological Communities Buffers
- Threatened and Priority flora

(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 not likely to be at variance to this Principle

A field and desktop fauna survey was undertaken over the application area by PEK Enviro in November of 2016 (PEK Enviro, 2017). The field fauna survey recorded no preferred or critical habitat types for any of the conservation significant fauna species that were noted during the desktop assessment (PEK Enviro, 2017). No fauna species of conservation significance were recorded during the field survey.

No Malleefowl mounds or Rainbow Bee-eater burrows were recorded during the field survey (PEK Enviro, 2017).

The vegetation types recorded during the field survey are considered to be widespread in the surrounding area and are not likely to act as significant fauna habitat at a local or regional scale (PEK Enviro, 2017).

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

Methodolgy

PEK Enviro (2017)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposal not likely to be at variance to this Principle

According to available databases, there are no records of Threatened Flora within the application area (GIS Database). No Threatened flora was recorded during a flora and vegetation survey of the application area (PEK Enviro, 2017).

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

Methodology PEC Enviro (2017)

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**

No Threatened Ecological Communities (TECs) are known to occur within the application area (GIS Database). A flora and vegetation survey of the application area did not identify the presence of any TECs (PEK Enviro, 2017).

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

Methodology PEK Enviro (2017)

GIS Database:
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers

(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 occurs within the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.73% of pre-European vegetation remains (Government of Western Australia, 2016; GIS Database).

The vegetation within the application area has been mapped as Beard vegetation association 18 (GIS Database). Beard vegetation association 18 is well represented at both a state and bioregional level, as shown in the table below (Government of Western Australia, 2016). Given the amount of vegetation remaining in the local area and bioregion, the vegetation proposed to be cleared is not considered to represent a remnant within an extensively cleared area.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Lands
IBRA Bioregion - Murchison	28,120,587	28,044,823	99.73	Least Concern	~ 7.78
Beard vegetation associations - State					
18	19,892,305	19,843,727	97.76	Least Concern	~ 6.62
Beard vegetation associations - Bioregion					
18	12,403,172	12,363,252	99.68	Least Concern	~ 4.96

* Government of Western Australia (2016)
** 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)
Government of Western Australia (2016)

GIS Database:
- IBRA Australia
- 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 not likely to be at variance to this Principle

According to available databases, there are no permanent watercourses or wetlands within the application area (GIS Database). There is one minor non-perennial drainage line that runs through the application area. No riparian vegetation was identified during a flora and vegetation survey over the application area (PEK Enviro, 2017)

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

Methodology

PEK Enviro (2017)

GIS Database:
- Hydrography, linear
- Imagery

(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

According to available databases, the application area is comprised of the Jundee land system (GIS database). Typical characteristics of the Jundee Land System include gently inclined to level plains with mantles of fine ironstone gravel, subject to sheet flow, also sparse tracts receiving more concentrated run-on, and occasional irregular low sandy tracts and banks. This land system is mildly susceptible to water erosion (PEK Enviro, 2017; Pringle et al., 1994).

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

Methodology

PEK Enviro (2017)
Pringle et al. (1994)

GIS Database:
- 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 conservation area or DPaW managed land (GIS Database). Wanjarri Nature Reserve is located approximately 11 kilometres north of the application area (GIS Database). Based on the distance between the application area and the reserve, the proposed clearing is not likely to impact the environmental values of any conservation area.

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

Methodology

GIS Database:
- DPaW 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 not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are no permanent watercourses within the application area, however, there is one minor non perennial drainage line (GIS Database).

The annual average rainfall for the Murchison region is 230.8 millimetres and the average annual evaporation rate for the application area is approximately 2,600 millimetres (BoM, 2017). Based on this, surface water is likely to evaporate quickly with surface sheet flow and higher sediment levels generally occurring during larger rainfall events. The proposed clearing is unlikely to have any significant impact on surface water quality.

The application area lies within the Goldfields Groundwater Area (GIS Database). Groundwater within the application area is saline, between 14,000 – 35,000 milligrams per litre of dissolved salts (GIS Database). Given the groundwater is already saline, the amount of clearing proposed (64.05 hectares) is unlikely to alter existing groundwater quality.

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

Methodology BoM (2017)

GIS Database:
- Groundwater Salinity, Satewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)
- RIWI Act, Groundwater 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 within the Lake Carey catchment area (GIS Database). Given the size of the area to be cleared (64.05 hectares) in relation to the size of the catchment area (11,378,092 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

With an average annual rainfall of 230.8 millimetres and an average evaporation rate of approximately 2,600 millimetres, there is likely to be little surface flow during normal seasonal rains (BoM, 2017). Given the likelihood of little surface flow, the proposed clearing is not likely to cause or increase the incidence or intensity of flooding.

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

Methodology BoM (2017)

GIS Database:
- Hydrographic Catchments – Catchments

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

Comments

There is one native title claim (WC2011/007) over the application area (DAA, 2017). 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 clearing permit is not a future act under the *Native Title Act 1993*.

There are two registered Sites of Aboriginal Significance located in close proximity to the area applied to clear (DAA, 2017). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation, the Department of Parks and Wildlife 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 22 May 2017 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology DAA (2017)

4. References

BoM (2017) Climate Statistics for Australian Locations, Murchison. Bureau of Meteorology. http://www.bom.gov.au (Accessed 20 June 2017).

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, Western Australia

DAA (2017) Aboriginal Heritage Enquiry System. Department of Aboriginal Affairs. http://maps.dia.wa.gov.au/AHIS2/ (Accessed 20 June 2017).

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

Government of Western Australia (2016) 2016 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2016. WA Department of Parks and Wildlife, Perth.

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

PEK Enviro (2017) Cosmos Nickel Project. Level 1 Vegetation, Flora and Fauna Survey, Cosmos Nickel Mine Water Management Ponds and Core Yard Expansion. Report provided for Australian Nickel Investments Pty Ltd, by PEK Enviro, January 2017.

Pringle, H.J.R., Van Vreeswyk, A.M.E., and Gilligan, S.A (1994) An Inventory and Condition Survey of the north-eastern Goldfields, Western Australia, Department of Agriculture, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DEE	Department of the Environment and Energy, Australian Government
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DoE	Department of the Environment, Australian Government (now DEE)
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DEE)
EPA	Environmental Protection Authority, Western Australia
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
PEC	Priority Ecological Community, Western Australia
RIWI Act	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2017) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

T **Threatened species:**
Published as Specially Protected under the *Wildlife Conservation Act 1950,* listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened fauna is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the Wildlife Conservation Act.

Threatened flora is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the Wildlife Conservation Act.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**
Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EN **Endangered species**
Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

VU **Vulnerable species**
Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EX **Presumed extinct species**
Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.

IA **Migratory birds protected under an international agreement**
Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.

CD **Conservation dependent fauna**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.

OS **Other specially protected fauna**
Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

P **Priority species**
Species which are poorly known; or
Species that are adequately known, are rare but not threatened, and require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 **Priority One - Poorly-known species:**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species:**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species:**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring:**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.