



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4467/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Vaughan Corps

1.3. Property details

Property: Mining Lease 47/796
Local Government Authority: Shire of Roebourne
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
8.9		Mechanical Removal	Sand extraction and associated activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 25 August 2011

2. Background

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Vegetation within the application area has been mapped as the following Beard vegetation associations: (Shepherd, 2009; GIS Database): - 127: Bare areas; mud flats; and - 157: Hummock grasslands, grass steppe; hard spinifex, <i>Triodia wiseana</i> .	VW Corps has applied to clear up to 8.9 hectares of native vegetation for sand extraction. Vegetation will be cleared by a dozer with its blade down. Vegetation and topsoil will be removed and stockpiled for future use in rehabilitation.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).	Vegetation condition was derived from vegetation descriptions provided by Astron Environmental Services (2010) and a site inspection of the Mining Lease conducted by Department of Mines and Petroleum officers on 9 March 2010 in relation to a previously approved clearing permit, CPS 3645/1, located adjacent to the area currently under application.

Astron Environmental Services conducted a flora and vegetation survey of the application area on 8 April 2010. Four vegetation communities were recorded within the application area (Astron Environmental Services, 2010).

AjCcWa: *Aerva javanica* low shrubland over mixed *Cenchrus ciliaris* and *Whiteochloa airoides* tussock and *Triodia epactia* hummock grassland. Patchy *Diplopeltis eriocarpa* and scattered *Acacia sclerosperma*.

AbAsTe: *Acacia bivenosa* open shrubland over *Acacia stellaticeps* open low shrubland over open *Triodia epactia* and some *T. wiseana* hummock grassland.

AsAjTe: *Acacia sclerosperma* tall shrubland with *Acacia coriacea* over *Aerva javanica* open low shrubland over mixed *Triodia epactia* hummock and *Cenchrus ciliaris* tussock grassland, patchy *Whiteochloa airoides*.

Due to the implementation of a condition to retain a vegetation buffer to the tidal inlet only 6.86 hectares is recommended for clearing.

AstAeTe: *Acacia stellaticeps*
shrubland over *Aerva javanica*
low/closed shrubland over mixed
Triodia epactia hummock and
Cenchrus ciliaris tussock
grassland.

3. Assessment of application against Clearing Principles

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

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

Astron Environmental Services (2010) recorded a total of 66 flora taxa from 51 genera and 26 families from six vegetation communities during the flora survey of the application area and surrounding vegetation. No Declared Rare Flora, Priority Flora or Threatened Ecological Communities were identified within the application area (Astron Environmental Services, 2010). The condition of the vegetation communities was considered to be 'Very Good' (Keighery, 1994), however the vegetation within the application area is largely degraded by the weed species Buffel Grass (*Cenchrus ciliaris*) and Kapok (*Aerva javanica*). Other disturbances included edge effects from nearby roads and mining operations (Astron Environmental Services, 2010).

The vegetation communities within the application area occur on a coastal sandy dune landform unit (Astron Environmental Services, 2010; Van Vreeswyk et al., 2004), and coastal Pilbara vegetation surveys indicate that these vegetation communities are restricted to the limited habitat of coastal sand dunes. Van Vreeswyk et al. (2004) indicate that the coastal dune landform constitutes only 3% of the Littoral Land System in the Pilbara region, however, vegetation mapping by Shepherd (2009) demonstrates that in excess of 96% of the pre-European vegetation remains at the local and regional level. Astron Environmental Services (2010) report that similar landforms and vegetation communities occur outside of the application area, and assessment of aerial imagery indicates that similar communities are likely to occur in neighbouring coastal environments (GIS Database).

Two Priority Ecological Communities (PEC's), Roebourne Plains coastal grasslands with gilgai microrelief on deep cracking clays (Priority 1) and Horseflat land system of the Roebourne Plains (Priority 3), are located within a 15 kilometre radius from the application area (GIS Database). None of the vegetation communities within the application are representative of these PEC's.

A site visit to Mining Tenement 477/96 conducted by Department of Mines and Petroleum officers on 9 March 2010 identified that there were no significant landform features such as dense stands of vegetation, drainage features, outcrops or caves that would suggest the area would support a high diversity of fauna species.

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

Methodology Astron Environmental Services (2010)
Keighery (1994)
Van Vreeswyk et al. (2004)
GIS Database:
- Dampier and Extensions 50cm Orthomosaic - Landgate 2008
- Threatened Ecological Sites Buffered

(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 may be at variance to this Principle**

Astron Environmental Services (2010) identified four fauna habitats within the mining tenement.

1. Low stony rise with dense gravel mantle with open hummock grass and scattered shrubs;
2. Low coastal dune with loosely consolidated whitish-grey fine to coarse sand with marine fragments. Generally dense grass cover with scattered to open shrublands;
3. Fringe of saline flat with soft saline silty loam with some marine fragment. Dwarf samphire shrubland; and
4. Small shell dune with *Acacia* shrubs and very open grasses.

A site visit to Mining Tenement 477/96 conducted by Department of Mines and Petroleum officers on 9 March 2010 identified that there were no significant landform features such as dense stands of vegetation, drainage features, outcrops or caves that would suggest the area would support a high diversity of fauna species.

CALM (2002) have identified the mangroves of the Nickol Bay area as having sub-regional significance as they provide important habitat for conservation significant birds. Whilst there are no mangroves at risk of being cleared, the application area is located adjacent to the Nickol River tidal system and aerial imagery indicates that a significant mangrove community is located directly north of the application area (GIS Database). There is a risk that the clearing of vegetation could increase the export of sediments during peak tides and cyclonic rainfall events into the Nickol River tidal system which could potentially impact on the mangrove system.

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

mangrove system as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition and the maintenance of a buffer to the tidal inlet.

Methodology Astron Environmental Services (2010)
CALM (2002)
GIS Database:
- Dampier and Extensions 50cm Orthomosaic - Landgate 2008

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available datasets there are no known records of Declared Rare Flora (DRF) within the application area (GIS database). The nearest record of DRF is located approximately 220 kilometres south-east of the application area (GIS Database). No DRF were recorded during the survey of the application area and none would be expected to occur (Astron Environmental Services, 2010).

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

Methodology Astron Environmental Services (2010)
GIS Database:
- Declared Rare and Priority Flora List

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

Comments **Proposal is not likely to be at variance to this Principle**
There are no records of Threatened Ecological Communities (TEC's) within the application area (GIS database). The nearest known TEC is located approximately 178 kilometres south-east 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 clearing application area is located within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). According to Shepherd (2009), approximately 99.9% of the pre-European vegetation remains (see table).

The vegetation of the clearing application area has been mapped as Beard vegetation associations 127: Bare areas; mud flats and 157: Hummock grasslands, grass steppe; hard spinifex, *Triodia wiseana* (GIS Database, Shepherd, 2009).

According to Shepherd (2009) in excess of 96% of Beard vegetation associations 127 and 157 remain at both the state and bioregional level (see table).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-european % in IUCN Class I-IV Reserves
IBRA bioregion – Pilbara	17,804,188	17,794,647	~99.9	Least Concern	6.32
Beard veg assoc. – State					
127	742,644	719,966	~96.9	Least Concern	8.0
157	502,729	501,514	~99.8	Least Concern	17.9
Beard veg assoc. – Bioregion					
127	180,401	177,739	~98.5	Least Concern	No information available
157	198,633	198,518	~99.9	Least Concern	5.7

* Shepherd (2009)

** 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.

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 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 may be at variance to this Principle

There are no permanent wetlands or watercourses within the application area (GIS Database), however, the tidal inlet adjacent to the application area contains a mangrove system that fringes the Nickol River and Nickol Bay (Astron Environmental Services, 2010; GIS Database). These mangroves are recognised as having sub-regional significance because they provide habitat for conservation significant birds (CALM, 2002). There is a risk that the clearing of native vegetation could lead to the export of sediments during peak tides and cyclonic rainfall events into the Nickol River tidal system which could potentially impact on the nearby mangrove system.

Based on the above, the proposed clearing may be at variance to this Principle. Potential impacts to the mangrove system as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition and the maintenance of a buffer to the tidal inlet.

Methodology Astron Environmental Services (2010)
CALM (2002)
Shepherd (2009)
GIS Database:
- Dampier and Extensions 50cm Orthomosaic - Landgate 2008
- Hydrography, linear

(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 the available datasets the application area comprises of the Littoral Land System (GIS Database).

The Littoral Land System is described as bare coastal mudflats with mangroves on seaward fringes, samphire flats, sandy islands, coastal dunes and beaches (Van Vreeswyk et al., 2004). A site visit to Mining Tenement 477796 conducted by Department of Mines and Petroleum officers on 9 March 2010 confirmed that the tenement is located within the coastal dune landform unit. Coastal dunes are described as beach foredunes and hind dunes with gently to moderately inclined slopes, moundy surfaces and relief to 8 metres (Van Vreeswyk et al., 2004).

Coastal dunes are considered highly susceptible to erosion if vegetative cover is removed (Van Vreeswyk et al., 2004). Water-logging was also observed during the site inspection in areas adjacent to the application area which had been previously cleared and mined. Removal of native vegetation and sand extraction may make the soil within the application area susceptible to water-logging, especially during peak tide events, however, this risk is reduced by the sandy and porous nature of the soils.

Based on the above, the proposed clearing may be at variance to this Principle. Potential erosion and water-logging impacts as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition and the maintenance of a buffer to the tidal inlet.

Methodology Van Vreeswyk et al. (2004)
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

There are no Department of Environment and Conservation (DEC) managed conservation areas within or adjoining the application area (GIS Database). The closest conservation area is located 3.5 kilometres south west of the application area.

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

Methodology GIS Database:
- DEC Tenure

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

Comments Proposal may be at variance to this Principle

There are no permanent wetlands or watercourses within the application area (GIS Database). The application area is located adjacent to Nickol River and Nickol Bay. With the soils of the application susceptible to erosion, there is a risk that the clearing of native vegetation could lead to the export of sediments during peak tides and cyclonic rainfall events into Nickol River and Nickol Bay which could potentially impact on water quality.

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is Roebourne Water Reserve which is located approximately 25 kilometres east, south-east of the application area (GIS Database). Given the distance separating the application area and the nearest water supply area, the proposed clearing is unlikely to impact on the water quality of the Roebourne Water Reserve.

Based on the above, the proposed clearing may be at variance to this Principle. Potential impacts to water quality as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition and the maintenance of a buffer to the tidal inlet.

Methodology GIS Database:
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

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

The application area is located within the Port Hedland Coast catchment area which covers an area of approximately 744,301 hectares (GIS Database). Given the small size of the area proposed for clearing, the proposal is not likely to form a catchment area sufficiently large enough to increase the incidence of flooding, or impact on the drainage characteristics of the local catchment area.

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

Methodology GIS Database:
- Clearing Instruments
- Hydrographic Catchments - Catchments

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

Comments

There is one Native Title Claim over the area under application (WC99/014). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

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

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 18 July 2010 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received from the Shire of Roebourne. The Shire of Roebourne identified that the application area is located partially within the Karratha townsite and is part of the coastal foreshore and located immediately adjacent to a mangrove community within a cyclone prone coastal area. It is regarded as a sensitive coastal location due to these factors. The Shire of Roebourne recommended that should any extraction of sand/soils be approved in this area that conditions be implemented to ensure the integrity of the dune is maintained.

These issues have been addressed in the assessment of the clearing permit application through the implementation of a buffer to the tidal inlet and mangrove community. Due to the application of a buffer, the area of native vegetation to be cleared has been reduced from 8.9 hectares to 6.86 hectares.

4. References

Astron Environmental Services (2010). Karratha Earthmoving Tenement M47/796 Vegetation, Flora and Fauna Survey , Prepared for Karratha Earthmoving, Prepared by Astron Environmental Services, April 2010.

- CALM (2002). Pilbara 4 (PIL 4 – Roebourne synopsis, A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Report published by CALM, Perth, Western Australia.
- Department of Natural Resources and Environment (2002). Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Keighery, B.J. (1994). Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- 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.
- Van Vreeswyk A.M.E., Payne A.L., Leighton K.A. and Hennig P. (2004). Technical Bulletin - An inventory and condition survey of rangelands in Pilbara Region, Western Australia, No 92, Department of Agriculture, Government of Western Australia, Perth, Western Australia.

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.

