



1. Application details

1.1. Permit application details

Permit application No.: 8371/1
Permit type: Purpose

1.2. Applicant details

Applicant's name: Northern Star (Hampton Gold Mining Areas) Ltd
Application received date: 19 February 2019

1.3. Property details

Property: Lot 37 on Plan 226324, Cundelee
Local Government Authority: Kalgoorlie-Boulder, City of
Localities: Cundelee

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
20		Mechanical	Mineral Exploration

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 27 August 2019

Reasons for Decision: The clearing permit application was received on 19 February 2019 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that clearing of the application area is at variance to clearing principles (f), may be at variance to clearing principles (a), (b) and (c) and is not, or is not likely to be at variance to the remaining clearing principles.

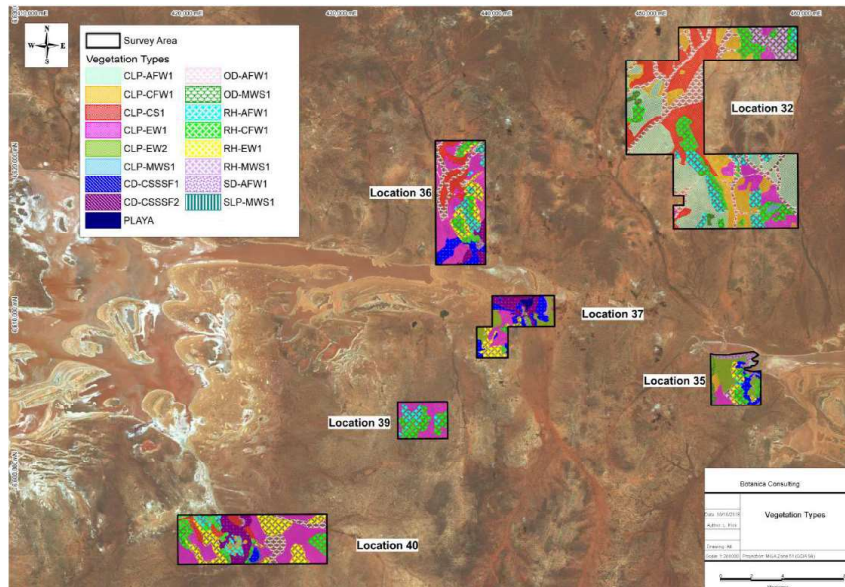
In determining to grant a clearing permit subject to conditions, the Delegated Officer considered that the environmental impacts of the proposed clearing can be managed through onsite avoidance and mitigation measures.

2. Site Information

Clearing Description The application is to clear 20 hectares of native vegetation within Lot 37 on Plan 226324, Cundelee, for the purpose of mineral exploration (figure 1).

Vegetation Description Eight vegetation units were mapped within Lot 37 by Botanica Consulting during a reconnaissance survey in October 2018;

- CLP-EW1 is described as low woodland of *Eucalyptus salmonophloia* over open shrubland of *Senna artemisioides subsp. filifolia* and low chenopod shrubland of *Atriplex vesicaria/ Maireana sedifolia* on clay-loam-plain;
- CLP-EW2 is described as low woodland of *Eucalyptus oleosa* over open shrubland of *Senna artemisioides subsp. filifolia* and low chenopod shrubland of *Atriplex vesicaria/ Maireana sedifolia* on clay-loam-plain;
- CD-CSSSF1 is described as low shrubland of *Cratystylis subspinescens* over low samphire shrubland of *Tecticornia doliiformis/ T. pruinosa* on playa edge;
- CD-CSSSF2 is described as low samphire shrubland of *Tecticornia doliiformis/ T. pruinosa* on playa edge;
- PLAYA (lakebed);
- RH-CFW1 is described as mid woodland of *Casuarina pauper* over mid shrubland of *Scaevola spinescens/ Dodonaea lobulata* and low shrubland of *Ptilotus obovatus* on rocky-hillslope;
- RH-EW1 is described as mid woodland of *Eucalyptus lesouefii* over open low shrubland of *Scaevola spinescens/ Eremophila parvifolia* and *Ptilotus obovatus* on a rocky-hillslope; and
- SD-AFW1 is described as low woodland of *Acacia incurvaneura/ A. ramulosa* over mid shrubland of *Eremophila miniata* and low chenopod shrubland of *Atriplex vesicaria* on sand dune.



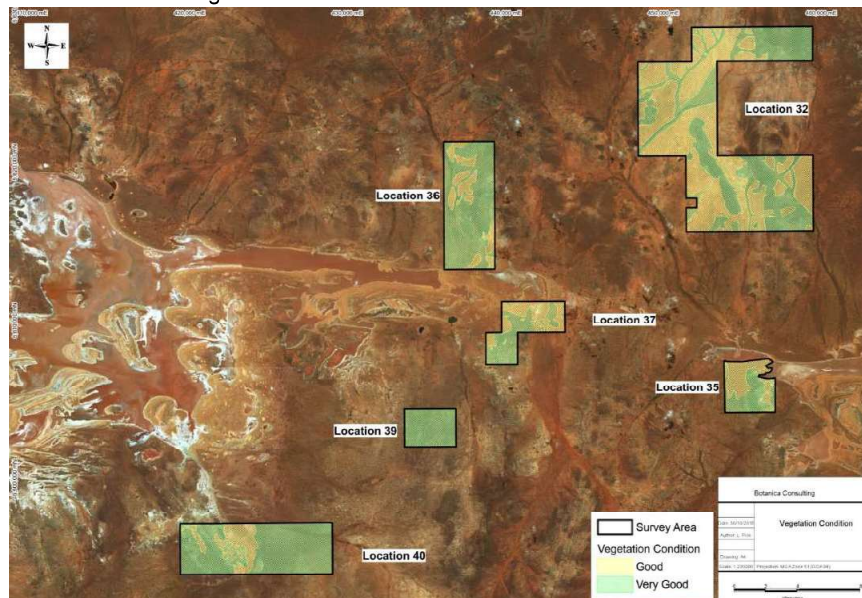
Vegetation types map taken from Botanica Consulting reconnaissance survey 2018

Vegetation Condition

Vegetation condition within this assessment has been assessed using the vegetation condition scale developed by Keighery (1994). All references to vegetation condition throughout this assessment therefore, reference this scale.

A reconnaissance survey by Botanica Consulting in October 2018 identified the vegetation within Lot 37 as predominately in good to very good condition. Vegetation condition was allocated by vegetation type being;

- CLP-EW1 is in very good condition;
- CLP-EW2 is in good condition;
- CD-CSSSF1 is in very good condition;
- CD-CSSSF2 is in good condition;
- PLAYA is a lakebed and therefore no condition rating was assigned;
- RH-CFW1 is in very good condition;
- RH-EW1 is in very good condition; and
- SD-AFW1 is in good condition.



Vegetation condition map taken from Botanica Consulting reconnaissance survey 2018.

Local area

The local area is defined as 20 kilometres from the edge of the application areas.

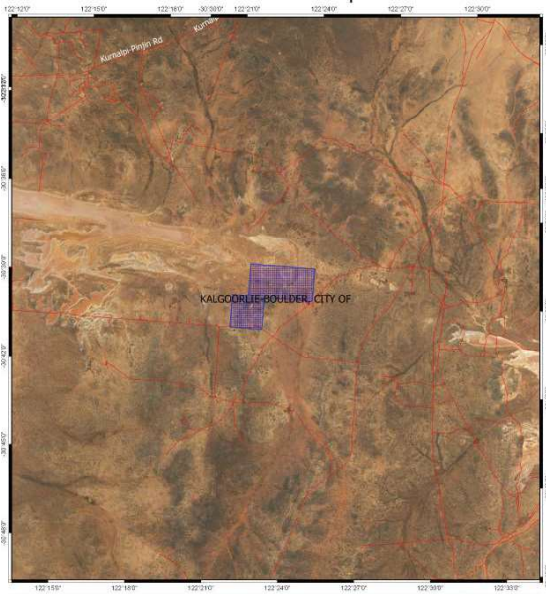


Figure 1 – Application area

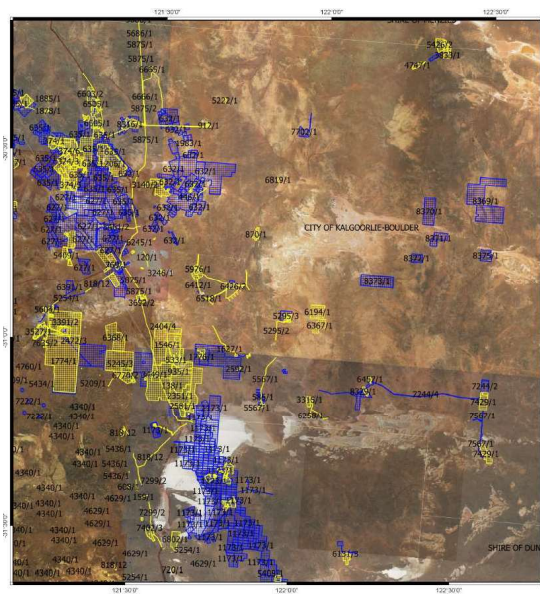


Figure 2 – Local context

3. Assessment of application against clearing principles

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

Proposed clearing may be at variance to this Principle

As assessed within Principle (e), the local area is highly vegetated retaining approximately 100 per cent native vegetation. A reconnaissance survey by Botanica Consulting in October 2018 determined that the vegetation under application is consistent with surrounding vegetation.

No threatened flora have been recorded within the application area. No threatened (TEC) or priority (PEC) ecological communities have been recorded within the application area. A reconnaissance survey by Botanica Consulting in October 2018 did not identify any threatened flora or vegetation consistent with a TEC or PEC, however the associated likelihood of occurrence assessment identified suitable habitat for two threatened taxa within the application area. Given this, the application area may contain threatened flora and is not likely to contain TEC or PEC environmental values.

No flora species listed as Priority by the Department of Biodiversity Conservation and Attractions (DBCAs) have been mapped within the application area. A reconnaissance survey by Botanica Consulting in October 2018 did not identify any Priority flora, however, a likelihood of occurrence assessment determined that 10 priority flora were likely to have suitable habitat within the application area.

As assessed within Principle (b), mapping indicates that the proposed clearing area may contain habitat for the Malleefowl (*Leipoa ocellata*; Threatened), Peregrine Falcon (*Falco peregrinus*; International Agreement), Night Parrot (*Pezoporus occidentalis*; Threatened), Princess Parrot (*Polytelis alexandrae*; Threatened) and Central Long-eared Bat (*Nyctophilus major tor*; P4). A reconnaissance survey determined that suitable habitat for these species may be present within the application area. Given the species are known from the local area and suitable habitat may be present within the application area, they may be impacted by the proposed clearing if suitable habitat is not avoided. Conditioning a clearing permit to ensure that critical habitat for these species is not impacted by the proposed clearing will reduce the potential impact to this species.

As the proposed clearing may contain suitable habitat for conservation significant flora and fauna the proposed clearing may be at variance to this Principle.

A reconnaissance survey by Botanica Consulting in October 2018 recommends targeted flora and Malleefowl surveys prior to clearing.

(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.

Proposed clearing may be at variance to this Principle

A reconnaissance survey by Botanica Consulting in October 2018 identified the proposed clearing may contain habitat for the Malleefowl (*Leipoa ocellata*; Threatened), Peregrine Falcon (*Falco peregrinus*; International Agreement), Night Parrot (*Pezoporus occidentalis*; Threatened), Princess Parrot (*Polytelis alexandrae*; Threatened) and Central Long-eared Bat (*Nyctophilus major tor*; P4). As suitable habitat for these species may be present within the application area and the species are known from the local area, they may be impacted by the proposed clearing. Conditioning a clearing permit to ensure that critical habitat for these species is not impacted by the proposed clearing will reduce the potential impact to this species. Malleefowl are known from the local area and were assessed as possibly occurring within the application area.

The Department of Biodiversity Conservation and Attractions (DBCA) have recorded Malleefowl in the local area. Malleefowl generally occur in semi-arid areas of Western Australia's South West. They nest in a large mound of sand or soil and organic matter, prefer vegetation with a dense understorey of shrubs and their breeding habitat is characterised by light soil and an abundant leaf litter, which is used in the construction of nesting mounds. Density of the canopy cover is an important feature associated with high breeding densities, with grazed areas generally having much lower densities. In the WA Wheatbelt, Malleefowl distribution is associated with landscapes with lower rainfall, greater amounts of mallee and shrubland that occur as large remnants, and lighter soil surface textures. A reconnaissance survey by Botanica Consulting in October 2018 recommended Malleefowl surveys prior to clearing. Conditioning a clearing permit to ensure that critical habitat is not impacted by the proposed clearing would assist in reducing the potential impact to this species.

Habitat utilisation for the Peregrine Falcon (*Falco peregrinus*; International Agreement), Night Parrot (*Pezoporus occidentalis*; Threatened), Princess Parrot (*Polytelis alexandrae*; Threatened) and Central Long-eared Bat (*Nyctophilus major tor*; P4) is likely to be transitional in nature within the areas proposed to be cleared as these species have large home ranges. Cumulative impacts of clearing in this area may impact the quality and opportunity for breeding in the local area for these species.

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

Proposed clearing may be at variance to this Principle

No threatened flora have been recorded within the local area. A reconnaissance survey of Lot 37 was conducted by Botanica Consulting in October 2018. The flora survey did not identify any threatened flora within the survey areas. A likelihood of occurrence assessment identified suitable habitat for two threatened flora taxa within the survey area.

Given the above, the proposed clearing may be at variance to this Principle. Flora management conditions would mitigate the risks of the proposed clearing on these species.

(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.

Proposed clearing is not likely to be at variance to this Principle

No State listed TEC's have been recorded within the local area. A reconnaissance survey by Botanica Consulting in October 2018 of Lot 37, did not identify any vegetation consistent with a State listed TEC within the application area.

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

(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.

Proposed clearing is not at variance to this Principle

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The mapped Interim Biogeographic Region of Australia (IBRA) bioregion, Coolgardie and Murchison, retains 97 per cent and 99 per cent native vegetation respectively. All mapped Beard vegetation associations within the application area, retain above 93 per cent of their pre-European extent within the Murchison or Coolgardie IBRA Bioregions. The local area retains approximately 100 per cent native vegetation. As the mapped vegetation associations and the local area occur significantly above the 30 per cent threshold, the proposed clearing does not occur within a highly cleared landscape.

Given the above, the proposed clearing is not at variance to this Principle.

Table 1: Vegetation extents.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Coolgardie	12,912,204	12,648,491	97	17
Murchison	28,120,586	28,044,823	99	8
Beard Vegetation Association in Bioregion*				
125 in Murchison	776,697	775,469	99	6
540 in Murchison	70,368.51	70,294.34	99	<1%
125 in Coolgardie	545,717	506,802	93	7
540 in Coolgardie	75,810	73,619	97	na
Local Area				
20 kilometre radius	48,991	48,991	100	-

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

Proposed clearing is at variance this Principle

Minor non-perennial watercourses are mapped within the application area as well as a lake. Each of the watercourses originates within or in close proximity to the application area. A reconnaissance survey by Botanica Consulting in October 2018 identified 4 vegetation types associated with open or closed depressions. Two of these vegetation types occurs within Lot 37.

Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall (Kern, 1995). Given the lack of identified riparian vegetation associated with the watercourses, the mapped watercourses are likely to represent these minor creek lines.

A reconnaissance survey by Botanica Consulting in October 2018 identified three introduced taxa within the survey area.

Given the above, the proposed clearing includes vegetation growing in association with a wetland or watercourse and is at variance to this Principle. Given the presence of weeds within the application area it is likely that these weeds will spread along the watercourse areas and degrade their environmental value.

Watercourse management conditions to protect the quality of these watercourses and minimise the spread of weeds through these surface water expression areas are likely to minimise the impacts to watercourses and wetlands.

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

Proposed clearing is not likely to be at variance to this Principle

The application area is mapped within the following rangeland soil systems:

- Carnegie Land System is described as salt lakes with fringing saline alluvial plains, kopi dunes and sandy banks, supporting halophytic shrublands and acacia tall shrublands and
- Moriarty Land System is described as low greenstone rises and stony plains supporting chenopod shrublands with patchy eucalypt overstoreys.

Minor non-perennial watercourses and lake beds are mapped within the application area. Each of the watercourses originates within or in close proximity to the application area. Rainfall is mapped as 300 millimetres per year with an evapotranspiration rate of 300 millimetres per year.

As assessed within Principle (f), creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. One significant wetlands (lake) is present within the application area.

The proposed clearing is for mineral exploration and therefore it is unlikely that the clearing will leave large areas of exposed soils. Given the above, the proposed clearing is not likely to be at variance to this Principle.

Further, the applicant has agreed to revegetate temporarily cleared areas reducing any potential impacts associated with land degradation from the exposure of soils through vegetation clearing.

(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.

Proposed clearing is not likely to be at variance to this Principle

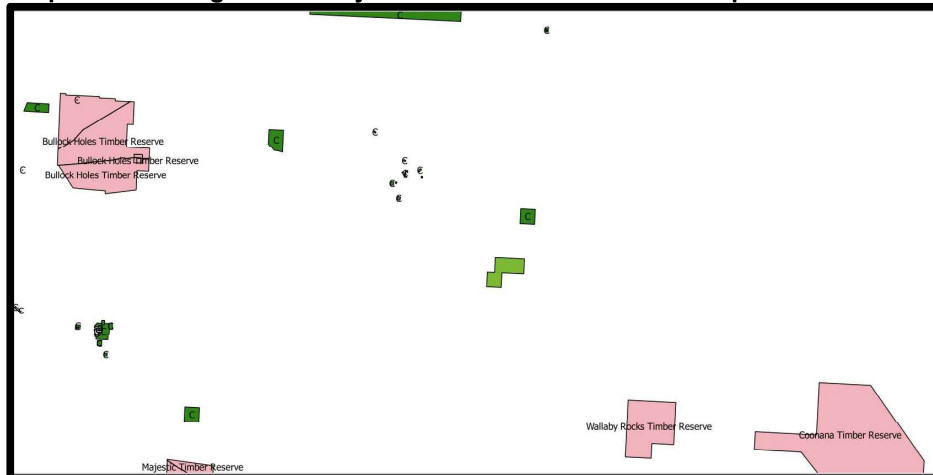


Figure 3: Lot 37 (light green) in relation to nearby conservation areas (dark green and pink, labelled)

The application area does not include, nor is it adjacent to any managed or unmanaged conservation areas. One unmanaged conservation area occurs within 10km of the application area. The closest managed conservation area is Wallaby Rock Timber Reserve, managed by DBCA, located approximately 24 kilometres south east of the application area.

Given this, the proposed clearing is not likely to be at variance to this Principle.

(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.

Proposed clearing is not likely to be at variance to this Principle

As assessed within Principle (e), the local area is extensively vegetated retaining approximately 100 per cent native vegetation. As assessed within Principle (f), creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. One significant wetland (lakebed) is present within the application area.

Given the extent of native vegetation within the local area, the proposed clearing is not likely to deteriorate the quality of underground water.

Given the nature of the watercourses and a local lake within the application area, the proposed clearing is not likely to impact on the quality of surface water.

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

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

Proposed clearing is not likely to be a variance to this Principle

As assessed within Principles (e), (f) and (g), the local area is extensively vegetated retaining approximately 100 per cent native vegetation, creek lines in the region are dry for most of the year only flowing briefly immediately following significant rainfall. One significant wetland (lakebed) is present within the application area. Annual rainfall within the region is low at 300 millimetres.

Given that there are a number of methods for water dispersal within the application area it is unlikely that the proposed clearing will cause, or exacerbate, the incidence or intensity of flooding and therefore is not likely to be at variance to this Principle.

Planning instruments and other relevant matters.

One Aboriginal sites of significance have been mapped within the application area, Lake Yindarlgooda, Mammu Tjukurrpa – Mythological.

The clearing permit application was advertised on the DWER website on 13 March 2019 with a 21 day submission period. No submissions were received.

The applicant amended the purpose for clearing during the assessment process to only include Mineral Exploration.

4. References

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
Government of Western Australia (2018) 2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of February 2018. WA Department of Parks and Wildlife, Perth.
CPS 8371/1, 27 August 2019

Botanica Consulting (2018) Reconnaissance Flora/Vegetation & Fauna Survey East Locations 40, 39, 37, 36, 35, and 32, December 2018. DWER ref:A1766468.

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

Kern, A.M. (1995) Hydrogeology of the Kalgoorlie 1:250 000 Sheet. Geological Survey of Western Australia, 1:250 000 Hydrogeological Series Explanatory Notes, 16p, Western Australia.

Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au/> (Accessed February 2019).

GIS Database List

- SAC Bio datasets (February 2019)
- Hydrography, linear
- Aboriginal Sites of Significance
- RIMV Areas
- Hydrography, linear
- Groundwater Salinity
- Pre-European vegetation
- DPaW Estate
- Soils, statewide
- Salinity Risk