Government of Western Australia
Department of Mines, Industry Regulation and Safety

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	9614/1
Permit type:	Purpose Permit
Applicant name:	Regis Resources Limited
Application received:	17 February 2022
Application area:	1,330 hectares
Purpose of clearing:	Mineral Production and Associated Activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Leases 38/114, 38/160, 38/237, 38/250, 38/283, 38/292, 38/302, 38/303, 38/316, 38/317, 38/319, 38/339, 38/341, 38/343, 38/344, 38/352, 38/354, , 38/407, 38/498, 38/499, 38/500, 38/589, 38/630, 38/802, 38/837, 38/939, 38/940, 38/943, 38/1091, 38/1092, 38/1247, 38/1249, 38/1250, 38/1251, 38/1257, 38/1258, 38/1259, 38/1260, 38/1261, 38/1262, 38/1263, 38/1264, 38/1268, 38/1269, 38/1270, 38/1277; Miscellaneous Licences 38/20, 38/29, 38/133, 38/182, 38/201, 38/202, 38/203, 38/204, 38/206, 38/216; 38/226, 38/234, 38/364, 38/365, 38/238, 38/239, 38/242, 38/348, 38/315, 38/364, 38/365
Location (LGA area/s):	Shire of Laverton
Colloquial name:	Duketon Gold Project

1.2. Description of clearing activities

Regis Resources Limited proposes to clear up to 1,330 hectares of native vegetation within a boundary of approximately 20,872 hectares, for the purpose of mining related infrastructure. The project is located approximately 47 kilometres north of Laverton, within the Shire of Laverton.

The application is to allow for expansion of mining operations at the Duketon Gold Project.

The majority of the application area has had previous clearing permit approval under clearing permit CPS 6657/10. Clearing permit CPS 6657/10 authorised the clearing of up to 5,148 hectares of clearing within a permit boundary 15, 217 hectares for the purpose of mineral production and associated activities.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	1 September 2022
Decision area:	1,330 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 17 February 2022 DMIRS advertised the application for a public comment for a period of 21 days, and one submission was received raising no objection.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix D), supporting information provided by the applicant including the results of a flora and vegetation survey (Appendix D), the clearing principles set out in Schedule 5 of the EP Act (Appendix B), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3).

The assessment identified that:

- the clearing has the potential for the introduction and spread of weeds into adjacent vegetation, which could impact on
- the quality of the adjacent vegetation and its habitat values;
- the clearing is not likely to have a significant impact on habitat for Priority flora species;
- the vegetation is not likely to represent significant habitat for fauna species; and

- the clearing will impact several minor ephemeral drainage lines however, it will not impact surface water flow at a broad level.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:
- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback;
- staged clearing to minimise wind erosion.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:
- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:
- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)

The key guidance documents which inform this assessment are:
- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016) (Delete if flora surveys not included)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

No evidence of avoidance or mitigation measures was provided to support the application.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix B) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with standard avoid and minimise / hygiene / staged clearing / erosion management conditions.

3.2.1. Biological values / Significant remnant vegetation and conservation areas / Land and water resources

Assessment

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

Level 2 flora and vegetation surveys have been conducted by Mattiske Consulting Pty Ltd over the majority of the application area (Mattiske, 2016, 2017a, 2017b; Regis, 2022). No Threatened flora species were recorded within the application area, although three Priority flora species were identified within the broader survey area (Mattiske, 2016; Regis, 2022). The two Priority 3 taxa, *Calytrix praecipua* (P3) and *Phyllanthus baeckeoides* (P3) were both recorded from a single location within the broader survey area, with both being individual plants. The Priority 4 taxon, *Eremophila pungens* (P4) was recorded from nine locations within the broader survey area. This does not represent an extension to the current known populations of the priority flora, with populations being recorded in previous surveys within the Duketon Gold Project (Mattiske, 2016). Based on available survey data and records,

large scale impacts to flora species of conservation significance (including Priority flora species) are considered unlikely, therefore it is not anticipated that the proposed clearing will adversely impact on Priority flora species at a population or species level.

The fauna habitats present within the application area are common and widespread in the landscape and bioregion, with vast tracts of similar habitat in adjacent areas (Regis, 2022; Terrestrial Ecosystems, 2016a; 2016b; 2017). The vegetation within the application area is not considered to be providing, or contributing to, important ecological linkages or fauna movement corridors (Terrestrial Ecosystems, 2016a; 2016b; 2017).

No fauna species of conservation significance were recorded within the application area during fauna surveys (Terrestrial Ecosystems, 2016a; 2016b; 2017), however a number of species were identified as having the potential to persist or occur within the application area and surrounds. Following further analysis of these species and the habitat present, Terrestrial Ecosystems (2012; 2016a; 2016b; 2017) considered that the proposed clearing (and previous clearing activities undertaken under clearing permit CPS 6657/10) is unlikely to impact on any species of conservation significance. Conservation significant species identified as potentially occurring in the vicinity are either migratory, able to relocate easily into neighbouring areas, or preferred habitat is not present (Terrestrial Ecosystems, 2012; 2016a; 2016b; 2017).

Ten introduced flora have previously been recorded in the vicinity of the application area (Regis, 2022). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the continued implementation of a weed management condition.

Numerous non-perennial watercourses have been mapped within the application area (GIS Database) and a number of the vegetation communities identified within the application area are considered to be growing in association with minor drainage lines (Mattiske, 2016; Regis, 2022). Potential impacts to vegetation growing in association with a watercourse or wetland as a result of the proposed clearing may also be minimised by the implementation of a watercourse management condition.

Fourteen land systems have been mapped within the application area; Ararak, Bevon, Brooking, Felix, Gransal, Hootanui, Jundee, Nubev, Steer, Sunrise, Teutonic, Tiger, Violet and Windarra (GIS Database). Several of these land systems are susceptible to erosion in areas where perennial shrub cover is substantially reduced or the soil surface is disturbed (Pringle et al*.,* 1994). Potential land degradation as a result of the proposed clearing may be minimised by the continued implementation of a staged clearing condition.

The application area is located within an arid environment with an average annual rainfall of approximately 235.2 millimetres and experiences mean annual evaporation of approximately 3,400 millimetres (BoM, 2022). Although there are a number of minor ephemeral watercourses located in the application area, it is likely these drainage lines would only flow for short periods following significant rainfall events (Regis, 2022). Considering there are no permanent watercourses within the application area, the proposed clearing is unlikely to impact on surface water quality.

Groundwater quality within the application area is considered to be brackish (1,000-3,000 milligrams per litre total dissolved solids) (GIS Database).

Conclusion

Based on the above assessment, the proposed clearing may have on surface water flow, and there is potential for localised impacts associated with weeds and erosion if areas are cleared of vegetation.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- A staged clearing condition to ensure that only areas that are needed are cleared at any one time.
- A watercourse management condition to minimise impacts to surface water flow.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 17 February 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. The clearing permit application was re-advertised on 29 July 2022 due to the proponent requesting to increase the amount of proposed clearing and the permit boundary during the assessment. One submission was received in relation to this application raising no objection.

There are no native title claims over the area under application (DPLH, 2022). 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 numerous registered Aboriginal Sites of Significance within the application area (DPLH, 2022). 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.

Other relevant authorisations required for the proposed land use include:

- A Mining Proposal / Mine Closure Plan approved under the *Mining Act 1978*.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by the active Duketon Gold project The proposed clearing area is a small isolated remnant in a highly cleared landscape.
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	The nearest conservation area is De La Poer Range Nature Reserve located approximately 20 kilometres north-east of the application area (GIS Database).
Vegetation description	The vegetation of the application area is broadly mapped as the following Beard vegetation associations: Beard vegetation association 18: Low woodland; mulga (*Acacia aneura*); Beard vegetation association 39: Shrublands; mulga scrub (GIS Database). A total of 30 vegetation communities were identified within the application area during Level 2 flora and vegetation assessments (Mattiske, 2016; 2017a; 2017b; Regis, 2017). The following vegetation associations were recorded within the application area Mattiske, 2016, 2017a, 2017b; Regis, 2022: • Ash01: *Acacia aptaneura, Acacia ayersiana* and *Acacia tetragonophylla* tall sparse shrubland; • Ash02: *Acacia ayersiana* and *Acacia tetragonophylla* tall sparse shrubland over *Senna* sp. Meekatharra mid sparse shrubland on red-brown clay soils with quartz and ironstone pebbles. • Ash03: *Allocasuarina* sp., *Acacia ?effusifolia* and *Acacia aneura* tall sparse shrubland over *Acacia tetragonophylla*, *Senna artemisioides* and *Senna* sp. Meekatharra (E. Bailey 1-26) mid sparse shrubland on red-brown clay soils with ironstone and quartz rock on slopes. • Ash04: *Acacia aneura* and *Acacia tetragonophylla* tall sparse shrubland over *Ptilotus obovatus* and *Ptilotus schwartzii* low isolated shrubs. • Ash05: *Acacia aneura* and *Grevillea berryana* tall sparse shrubland over *Eremophila latrobei, Eremophila glutinosa* and *Eremophila punctata* mid sparse shrubland over *Ptilotus schwartzii* low isolated shrubs. • Ash06: *Acacia aneura* sparse shrubland over *Eremophila latrobei* subsp*. latrobei* and *Dodonaea viscosa* subsp. *mucronata* low sparse shrubland over *Eriachne mucronata* and *Cymbopogon ambiguous* low isolated grasses. • Ash07: *Acacia burkittii* and *Acacia tetragonophylla* low sparse shrubland on red-brown clay soils with quartz and ironstone rocks on lower slopes. • Ash08: *Acacia tetragonophylla, Acacia aneura* and *Acacia craspedocarpa* tall sparse shrubland over *Senna artemisioides* subsp. *filifolia* and *Santalum spicatum* mid sparse shrubland over *Dactyloctenium radulans* and *Cheilanthes sieberi* isolated grasses; • Ash09: *Acacia craspedocarpa* and *Santalum spicatum* mid isolated shrubs on red-brown clays soils with quartz and ironstone rocks on flats. • Ash10: *Hakea preissii, Acacia ayersiana* and *Acacia aneura* tall sparse shrubland over *Maireana triptera* low isolated chenopod shrubs on red-brown clay soils with quartz and ironstone pebbles on flats and slopes. • Ash11: *Acacia aneura, Acacia ayersiana, Acacia caesaneura* tall sparse shrubland over *Eremophila forrestii* mid sparse shrubland over *Triodia scariosa* dense grassland. • Ch01: Sparse chenopod shrubland of *Maireana georgei*, *Eriochiton sclerolaenoides* and *Frankenia setosa*, with isolated shrubs of *Acacia* section Juliflorae (*A. aneura, A. pteraneura*) and *Hakea preissii* over isolated samphire shrubs of *Tecticornia* sp. on redorange clay-loams on flats with quartz and ironstone pebbles. • Ch02: *Senna artemisioides* subsp. *filifolia* mid sparse shrubland over *Maireana sedifolia* and *Ptilotus obovatus* low sparse chenopod shrubland on red-brown clay soils with quartz and ironstone pebbles on flats. • Ch03: *Hakea preissii* mid sparse shrubland over *Dissocarpus paradoxus*, *Rhagodia spinescens* and *Tecticornia disarticulata* low sparse chenopod shrubland on orange to red clay soils with scattered quartz rocks on flats. • EW01: *Eucalyptus camaldulensis* mid open woodland over *Acacia ?effusifolia*, *Acacia burkittii* and *Acacia tetragonophylla* tall sparse shrubland over *Senna artemisioides* subsp. *filifolia, Senna cardiosperma* and *Alternanthera nodiflora* low sparse shrubland on orange-brown coarse gravelly clays with rocks in major drainage channels. • SSh01: *Senna artemisioides, Senna* ?sp. *Meekatharra, Senna stowardii* and *Eremophila forrestii* low sparse shrubland over low isolated *Maireana triptera* shrubs.

Characteristic	Details
	• A2: Low open woodland of *Acacia incurvaneura* with *Grevillea berryana* and mixed *Eremophila* spp., over *Ptilotus obovatus* over *Eragrostis setifolia* and *Eriachne mucronata* on orange sandy/clay-loams on flats. • A6: Low open woodland of *Acacia aneura* var. *aneura* with *Acacia aptaneura*, *Acacia ayersiana* and *Grevillea berryana* over *Eremophila punctata* and *Eremophila latrobei* subsp. *latrobei* over *Eriachne mucronata* on orange sandy-loams with numerous chert outcropping on slopes and ridges. • A7: Low open woodland of *Acacia* sect. Juliflorae (*A. aneura, A. incurvaneura* and *A. pteraneura*) over *Acacia craspedocarpa*, *Acacia tetragonophylla*, *Santalum spicatum*, *Eremophila georgei* and *Senna artemisioides* subsp. *filifolia* over *Sida calyxhymenia*, *Ptilotus obovatus* and *Eriachne mucronata* on orange sandy-loams in minor drainage lines. • A8: Low open woodland to open shrubland of *Acacia ayersiana*, *Acacia aneura* var. *aneura* and *Acacia aptaneura* with *Acacia tetragonophylla* over *Eremophila latrobei* subsp. *filiformis, Ptilotus obovatus, Dianella revoluta* and *Eragrostis eriopoda* on orange sandy-loams on flats. • A12: Open shrubland of *Acacia incurvaneura*, *Acacia ayersiana* and *Acacia mulganeura* over *Eremophila* species over *Ptilotus obovatus*, *Hibiscus burtonii* and *Solanum lasiophyllum* over mixed grasses on flats to lower slope with red gravely clay soil and quartz pebbles. • A13: Semi-closed to open shrubland of *Acacia mulganeura*, A*cacia incurvaneura, Acacia tetragonophylla* and *Acacia craspedocarpa* over *Ptilotus obovatus*, *Hibiscus burtonii* and *Solanum lasiophyllum* on flats with red clay soil and quartz pebbles. • A16: Closed to open shrubland of *Acacia incurvaneura, Acacia burkittii, Acacia tetragonophylla* and *Acacia craspedocarpa* over *Senna artemisioides* subsp. x *artemisioides* over *Ptilotus obovatus* and *Hibiscus burtonii* over *Cheilanthes sieberi* subsp. *sieberi* and mixed grasses on minor creek lines with red clay soils. • A20: Open to semi-closed shrubland of *Acacia incurvaneura* and *Acacia quadrimarginea* over *Ptilotus obovatus*, *Baeckea* sp. Melita Station (H. Pringle 2738) and *Ptilotus schwartzii* over mixed grasses on red clay loams with numerous granitic outcropping on slopes and ridges. • A22: Thicket of *Acacia* sect. Juliflorae (*Acacia incurvaneura, Acacia mulganeura*) over low shrubland of mixed *Eremophila* spp. with *Psydrax* spp. over tussock grassland with *Cheilanthes sieberi* subsp. *sieberi* on red clay loam flats. • A23: Scrub of *Acacia* sect. Juliflorae (*Acacia incurvaneura, Acacia mulganeura, Acacia pteraneura*) with *Acacia burkittii* and *Acacia tetragonophylla* over open low shrubland of *Eremophila* species over *Eragrostis setifolia* and *Eriachne mucronata* tussock grassland, on hard, red clay loam, flats. • A27: Open scrub of *Acacia* sect. Juliflorae (*A. aneura* and *A. incurvaneura*) over open low shrubland of *Solanum lasiophyllum* and *Maireana convexa* over mixed grasses on red-orange clay loam on flats with quartz and iron pebbles. • A28: Scrub to open scrub of *Acacia* sect. Juliflorae (*A. aneura*, *A. incurvaneura* and *A. pteraneura*) over open low shrubland of *Cratystylis subspinescens*, *Ptilotus obovatus, Senna artemisioides* subsp. *sturtii*, *Solanum lasiophyllum* over *Maireana pyramidata* on red-orange clay loam on flats and slopes with quartz and iron pebbles. • C1: Low open Chenopod shrubland of *Maireana pyramidata* and *Cratystylis subspinescens* with emergent *Acacia* sect. Juliflorae (*Acacia incurvaneura* and *Acacia pteraneura*) and *Acacia craspedocarpa* over *Hakea preissii* over *Frankenia fecunda, Maireana georgei, Maireana planifolia*, *Maireana tomentosa, Sclerolaena cuneata* and *Sclerolaena eriacantha* on orange clay-loams on flats. • C5: Low open Chenopod shrubland of *Maireana pyramidata* and *Eriochiton sclerolaenoides* with emergent *Acacia* sect. Juliflorae (*A. aneura* and *A. pteraneura*) and *Acacia tetragonophylla* over *Frankenia setosa* and *Maireana georgei* on red-orange clay-loams on flats with quartz and iron pebbles.
Vegetation condition	The vegetation survey indicates the vegetation within the proposed clearing area is in 'Excellent' to 'Completely Degraded' (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix C.
Climate and landform	The application area is mapped within elevations of 480 to 560 metres AHD (GIS Database). The annual average rainfall (Laverton) is 235.2 millimetres (BoM, 2022).
Soil description	The soil is mapped as soil unit BE8 which is described as 'Partially dissected pediments extending out from areas of unit Fa7; there may be a surface cover of gravels. Earthy loams are dominant; with red-brown hardpan at shallow depth are also present as well as small areas of (Dr2.72) and (Dr2.52) soils (Northcote 1960-68).

Characteristic	Details
Land degradation risk	The application area has been mapped as the Ararak, Bevon, Brooking, Felix, Gransal, Hootanui, Jundee, Nubev, Steer, Sunrise, Teutonic, Tiger, Violet and Windarra land systems (GIS Database). There is the potential for soil erosion to occur within these land systems.
Waterbodies	The desktop assessment and aerial imagery indicated that numerous minor, non-perennial watercourses transect the area proposed to be cleared (GIS Database).
Hydrogeography	The mapped groundwater salinity is 1,000-3,000 milligrams per litre total dissolved solids which is described as brackish (GIS Database).
Flora	A total of three Priority flora species have been recorded within the survey area, however none were identified within the application area and have been found in larger populations in the surrounding region (Regis, 2022).
Ecological communities	There are no known Threatened or Priority Ecological Communities within the application area (GIS Database).
Fauna	There are no significant habitat features within the application area (Regis, 2022).

A.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Calytrix praecipua	Priority 3	Y	Y	Y	>1km	29	Y
Pyllanthus baeckeoides	Priority 3	Y	Y	Y	>1km	27	Y
Eremophila pungens	Priority 4	Y	Y	Y	>1km	~850	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

A.3. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
Princess Parrot (*Polytelis alexandrae*)	Vulnerable	Y	Y	>20km	Y
Fork-tailed Swift (*Apus pacificus)*	Migratory	Y	Y	>20km	Y
Peregrine Falcon (*Falco peregrinus)*	Other Specially Protected Species	Y	Y	>20km	Y
Long-tailed Dunnart (*Sminthopsis longicaudata)*	P 4	Y	Y	>20km	Y
Brush-tailed Mulgara (*Dasycercus blythi*)	P 4	Y	Y	>20km	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: There are no Threatened or Priority Ecological Communities located within the application area (GIS Database). There are no records of any conservation significant flora within the application area. There is potential habitat for four Priority flora species, however, the application area is not likely to represent significant habitat for these species and none were recorded within the application area (Regis, 2022). The fauna habitats within the application area are common in the local area and are not likely to support a high level of faunal diversity (Regis, 2022).	Not likely to be at variance	Yes Refer to Section 3.2.1, above.
Principle (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."* Assessment: The area proposed to be cleared is not likely to contain foraging, roosting, breeding, critical, or significant habitat for conservation significant fauna (Regis, 2022).	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act (Regis, 2022).	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (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."* Assessment: There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the permit area (GIS Database). The flora and vegetation surveys over the permit area have not identified any TECs (Regis, 2022).	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
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."* Assessment: The application area is broadly mapped as Beard vegetation associations 18 and 39, within the Murchison Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99% of the pre-European extent of these vegetation associationa remain uncleared at both the state and bioregional level (Government of Western Australia, 2019)	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (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."* Assessment: The nearest conservation area is De La Poer Range Nature Reserve located approximately 20 kilometres north-east of the application area (GIS Database). Given the distance between the application area and De La Poer Range Nature Reserve, the proposed clearing is not likely to impact on a conservation area.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Available datasets show the application area is intersected by numerous minor, ephemeral watercourses (GIS Database). Vegetation surveys undertaken by Mattiske Consulting (Mattiske, 2016; 2017a; 2017b; Regis, 2022) recorded vegetation growing in association with minor drainage lines. It was noted in these surveys that the vegetation types recorded are common and widespread across the Murchison region. The proposed clearing is not likely to significantly impact on riparian vegetation. Any potential impacts to riparian vegetation may be minimised through the implementation of a watercourse management condition.	At variance	Yes *Refer to Section 3.2.1, above.*
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The application area has been mapped as the Ararak, Bevon, Brooking, Felix, Gransal, Hootanui, Jundee, Nubev, Steer, Sunrise, Teutonic, Tiger, Violet and Windarra land systems (GIS Database). The soil is mapped as soil unit BE8 which is described as 'Partially dissected pediments extending out from areas of unit Fa7; there may be a surface cover of gravels. Earthy loams are dominant; with red-brown hardpan at shallow depth are also present as well as small areas of (Dr2.72) and (Dr2.52) soils (Northcote 1960-68). The proposed clearing has the potential to cause soil erosion by breaking protective stony mantles and exposing underlying soils that may be susceptible to erosion. Potential impacts from soil erosion may be minimised by the implementation of a staged clearing condition.	May be at variance	Yes Refer to Section 3.2.1, above.
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."* Assessment: There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). The proposed clearing is unlikely to result in significant changes to surface water flows or to cause deterioration in the quality of underground water.	Not likely to be at variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment:	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
The climate of the region is semi-arid, with a low average rainfall of approximately 235.2 millimetres per year (BoM, 2022). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall. Given these climatic conditions, surface water is unlikely to persist in the proposed permit boundary for extended periods of time.		

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Sources of information

D.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)

- Pre-European Vegetation Statistics
- Interim Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

D.2. References

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Terrestrial Ecosystems (2016b) Level 1 Fauna Risk Assessment for the Tooheys Project. Report prepared for Regis Resources Limited, by Terrestrial Ecosystems, December 2016.

Terrestrial Ecosystems (2017) Level 1 Fauna Risk Assessment for the Proposed Haul Road to the Banyego Project. Report prepared for Regis Resources Limited, by Terrestrial Ecosystems, July 2017.

4. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia

DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DoEE	Department of the Environment and Energy (now DAWE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, 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:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T **Threatened species:**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

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 in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN **Endangered species**
Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU **Vulnerable species**
Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct Species:

EX **Extinct species**
Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW **Extinct in the wild species**
Species that *"is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI **Migratory species**
Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes 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 fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD **Species of special conservation interest (conservation dependent fauna)**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS **Other specially protected species**
Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P **Priority species:**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species 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.

Principles for clearing native vegetation:

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

(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.

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

(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.

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

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

(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.

(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.

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