



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 8052/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Galaxy Lithium Australia Limited

### 1.3. Property details

Property: Mining Lease 74/244  
Local Government Area: Shire of Ravensthorpe  
Colloquial name: Mt Cattlin Project

### 1.4. Application

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

### 1.5. Decision on application

Decision on Permit Application: Granted  
Decision Date: 30 August 2018

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

**Vegetation Description** The vegetation of the application area is broadly mapped as the following Beard vegetation associations:

352: Medium woodland; York gum; and  
934: Shrublands; mallee scrub (*Eucalyptus nutans*) (GIS Database).

A flora and vegetation survey was conducted over the application area by botanists from Mattiske Consulting Pty Ltd (Mattiske) during December 2017. Previous flora and vegetation surveys by ENV Australia in April 2008 and Botanica Consulting in 2008 partly overlapped the application area. The following vegetation associations were recorded within the application area (Mattiske, 2018):

**W1:** *Eucalyptus* spp. mid mallee woodland dominated by *Eucalyptus myriadena* subsp. *myriadena* over *Templetonia retusa*, *Rhagodia ?crassifolia* and *Dodonaea ptarmicaefolia* mid sparse shrubland over *Austrostipa puberula*, *Austrostipa elegantissima* and *Rytidosperma caespitosum* isolated grasses on brown clay-loam soils on slopes.

**W2:** *Eucalyptus oleosa* subsp. *corvina* mid mallee woodland over *Daviesia scoparia* mid sparse shrubland over *Acacia erinacea*, *Rhagodia ?crassifolia* and *Sclerolaena uniflora* low sparse shrubland on brown clay-loam soils on slopes.

**W3:** *Eucalyptus myriadena* subsp. *myriadena* and *Eucalyptus cernua* mid mallee woodland over *Acacia bifaria* (P3), *Rhagodia ?crassifolia* and *Senna artemisioides* subsp. *filifolia* low sparse shrubland over *Austrostipa puberula* isolated grasses on brown clay-loam soils on slopes.

**W4:** *Eucalyptus* spp. mid mallee woodland dominated by *Eucalyptus myriadena* subsp. *myriadena* over *Acacia redolens*, *Rhagodia ?crassifolia* and *Olearia muelleri* low sparse shrubland over *Austrostipa exilis*, *Austrostipa* sp. and *Rytidosperma caespitosum* low sparse grassland on brown clay-loam soils on slopes.

**W5:** *Eucalyptus* spp. mixed mid mallee woodland over *Templetonia retusa* mid sparse shrubland over *Austrostipa puberula* and *Rytidosperma caespitosum* low sparse grassland on pale brown gravelly clay-loam soils on slopes.

**S1:** *Acacia sulcata* var. *platyphylla*, *Santalum acuminatum* and *Melaleuca elliptica* mid open shrubland over *Dodonaea caespitosa*, *Astroloma* sp. and *Hibbertia* sp. low sparse shrubland over *Lepidosperma diurnum* and *Neurachne alopecuroidea* isolated clumps of sedges and grasses on red-brown clay loam soils on rocky slopes adjacent to creeklines and drainage lines.

**CR:** *Dodonaea ptarmicaefolia*, *Melaleuca cuticularis* and *Melaleuca elliptica* mid sparse shrubland over *Tecticornia ?pergranulata* subsp. *pergranulata* low sparse chenopod shrubland, with occasional emergent *Eucalyptus occidentalis*, on red-brown clay-loam soils on creeklines.

#### Clearing Description

Mt Cattlin Project.  
Galaxy Lithium Australia Limited proposes to clear up to 80 hectares of native vegetation, within a boundary of approximately 189 hectares, for the purpose of mineral production. The project is located approximately 1 kilometre north of Ravensthorpe, within the Shire of Ravensthorpe.

<b>Vegetation Condition</b>	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994); To: Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).
<b>Comment</b>	The vegetation condition was derived from a vegetation survey conducted by Mattiske (2018).  The proposed clearing is for an expansion of the Mt Cattlin Lithium Project.

### 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**

The application area is located within the Fitzgerald subregion of the Esperance Plains Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Fitzgerald subregion primarily consists of dry sclerophyllous woodland, coastal woodlands and heath (CALM, 2002). The area has a rich diversity of flora and fauna species; with the Fitzgerald Biosphere Reserve, where the application area is located, containing over 250 rare and geographically restricted plant and animal species (CALM, 2002). Of the 2,000 vascular plant species native to the area, approximately 75% are endemic (CALM, 2002). The Fitzgerald River Ravensthorpe area is also one of Australia's National Biodiversity Hotspots (Department of Environment and Energy, 2018).

A flora and vegetation survey of the application area recorded seven vegetation communities within the application area (Mattiske, 2018). None of the vegetation communities were identified as being a Threatened or Priority Ecological Community (TEC/PEC) (Mattiske, 2018). The vegetation within the application area has been subject to previous disturbances. Disturbances include logging, current and historical mining, recreational use, storms and introduced species (Ninox, 2018). Areas of vegetation on the western side of the permit area were more degraded as they are adjacent to existing mining, roads, tracks and historical disturbances (Mattiske, 2018). Areas of excellent condition vegetation occurred within the eastern side of the application area and had very small populations of weeds compared to the western side (Mattiske, 2018).

The flora survey recorded a total of 138 flora species from 85 genera and 35 families (Mattiske, 2018). The majority of the taxa recorded were widespread both locally and more broadly within the IBRA subregion (Mattiske, 2018). None of the species recorded were identified as being a species of Threatened flora (Mattiske, 2018). The Priority 3 flora species *Acacia bifaria* was recorded within the application area (Mattiske, 2018). A total of 462 living and 21 deceased *A. bifaria* individuals were recorded within the application area (Mattiske, 2018). This species is generally found growing on clay, rocky loam, sandy soils, undulating plains, roadsides and low lying areas (Western Australian Herbarium, 2018). It was not restricted to one vegetation community within the application area and was spread across the permit area (Mattiske, 2018). The large numbers of individuals recorded potentially represents an important local population of the species (Mattiske, 2018). This species has also been recorded within Overshot Hill Nature Reserve, Fitzgerald River National Park and many of the remnant vegetation patches surrounding Ravensthorpe (Mattiske, 2018). It is likely that this species is also present in adjacent areas of vegetation given there is similar habitat present (GIS Database). The proposed clearing of 80 hectares within a larger permit boundary of approximately 188 hectares will not clear all of the plants recorded within the permit boundary.

A total of 31 introduced weed species were recorded during the flora survey (Mattiske, 2018). This included the declared pest species *Asparagus asparagoides* and *Gomphocarpus fruticosus* (Mattiske, 2018). Weed species have the potential to outcompete native species and result in a reduction in biodiversity of the area. Potential impacts from weeds may be minimised by the implementation of a weed management condition.

The application area is located within a Dieback (*Phytophthora cinnamomi*) risk zone (DBCA, 2018b). Dieback is a major threat to plant biodiversity in the south west of Western Australia because the plant pathogen *P. cinnamomi* kills susceptible plants by attacking their root systems. It is important to limit the spread of dieback and this can be achieved through strict hygiene measures (DBCA, 2018b). Potential impacts from dieback may be minimised by the implementation of a dieback management condition.

The fauna survey of the application area identified seven broad fauna habitats (Ninox, 2018). Many of these habitats have been impacted by weeds and previous disturbances, in particular on the western side of the application area. However, there are areas of fauna habitat that are less impacted and contain a range of microhabitats such as abundant leaf litter and tree hollows. These microhabitats will support a higher level of faunal diversity than surrounding areas of cleared farmland and degraded vegetation (Ninox, 2018).

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

<b>Methodology</b>	CALM (2002) DBCA (2018b) Department of Environment and Energy (2018) Mattiske (2018) Ninox (2018) Western Australian Herbarium (2018)
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GIS Database:  
- IBRA Australia  
- Imagery  
- Pre-European Vegetation

**(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**

A Level 1 fauna survey was conducted over the application area by Ninox Wildlife Consulting (Ninox) in December 2017. The fauna survey identified the following fauna habitats within the permit area:

- **Tall Woodlands on Slopes:** Tall Woodlands of mixed *Eucalyptus* sp., dominated by *Eucalyptus myriadena*, to 5 metres with diverse understorey ranging from grasses to dense shrubs on rock hill slopes. Lower woodlands occur on the rocky steeper slopes and generally support a denser shrub understorey. Woodlands on crests and hilltops are more open with a sparse understorey;
- **Mid Mallee Woodlands:** Mid Mallee Woodlands of mixed *Eucalyptus* sp., dominated by stands of *Eucalyptus myriadena* and *E. cernua* with diverse understorey but often with sparse low shrubs. They are dominant on the crests of the hills among the rockier ground;
- **Woodlands with Salmon Gum:** Salmon Gum (*Eucalyptus salmonophloia*) Woodland to 15 metres on the southern boundary of the project area with variable but relatively dense shrub layer to 2 metres on clay loams;
- **Creeklines:** Creepline systems varied from relatively dense but narrow riparian habitat community of tall *Melaleuca* sp. and *Dodonea* sp. to 3 metres and occasional tall *Melaleuca* sp. or *Eucalyptus* sp. trees to 15 metres;
- **Roadside Vegetation:** Roadside vegetation along the Old Newdegate Road of remnant low *E. myriadena* woodland heavily infested with introduced grasses. The vegetation forms very narrow strips separating the road from adjoining cereal crop field;
- **Open Shrubland:** Open shrublands generally representing areas undergoing natural regeneration. Trees are dispersed throughout the project area; and
- **Cleared Areas:** Cleared areas including strategic firebreak and exploration tracks.

The Tall Woodlands on Slopes habitat contained trees with hollows (Ninox, 2018). These hollows are not large enough or suitable for Black Cockatoo nesting, however, they may be suitable for a variety of other bird species, western pygmy possums and a variety of bat species (Ninox, 2018). The areas of understorey of this habitat provide suitable habitat for ground dwelling species such as Quenda, Western Brush Wallabies and native rodents (Ninox, 2018). A recently constructed Malleefowl (*Leipoa ocellata* – Vulnerable) mound was recorded in this habitat approximately 200 metres outside of the permit boundary (Ninox, 2018). The abundant leaf litter and clay in this habitat also make it suitable habitat for reptiles including the Ravensthorpe Range Slider (*Lerista viduata* – Priority 1) (Ninox, 2018).

The Mid Mallee Woodland habitat also has a substantial leaf litter coverage across the habitat (Ninox, 2018). The growth form of this vegetation is not capable of creating large hollows needed for Black Cockatoos, however, it provides suitable foraging habitat for species that feed on *Eucalyptus* flowers (Ninox, 2018).

Within the Creeklines habitat, several hollows were observed in older trees growing along Cattlin Creek (Ninox, 2018). These hollows did not have any signs of use and were estimated to be too small to be suitable for Black Cockatoos (Ninox, 2018).

All of the habitats reflected varying levels of disturbance from prolonged natural and man-made disturbances (Ninox, 2018). Disturbances include logging, current and historical mining, recreational use, storms and introduced species (Ninox, 2018). Areas close to current exploration activity in the south-east of the permit area are the most disturbed (Ninox, 2018). The mixed woodlands at the tops of the hills are in the best condition as they have a relatively intact understorey and ground leaf litter cover (Ninox, 2018).

The application area has the potential to support several fauna species of conservation significance. The following species were all considered to have a likely or high potential of occurrence within the application area (Ninox, 2018):

- Carnaby's Cockatoo (*Calyptorhynchus latirostris* – Endangered);
- Malleefowl (*Leipoa ocellata* – Vulnerable);
- Rainbow Bee-eater (*Merops ornatus* – Migratory);
- Peregrine Falcon (*Falco peregrinus* – Schedule 7);
- Western Brush Wallaby (*Notamacropus irma* – Priority 4); and
- Central Long-eared Bat (*Nyctophilus major tor* – Priority 3).

Carnaby's Cockatoo have suffered a population decline and reduction in distribution due to a reduction in available habitat. The availability of suitable nesting hollows is critical for this species. Within the application area, Salmon Gums may produce suitable hollows if the trees become large enough. No suitable hollows have been observed within the Salmon Gums within the application area (Ninox, 2018). There are also no previous

observations of Carnaby's Cockatoos breeding within the application area (Bamford Consulting Ecologists, 2018). Areas of suitable foraging habitat are also important for this species and Salmon Gums are a species that is utilised for foraging (Ninox, 2018). The previous fauna surveys have not recorded evidence of foraging within the application area however, it is likely that it may occur as locals have observed black cockatoos within the area (Bamford Consulting Ecologists, 2018; Ninox, 2018). A literature review of the previous surveys by Bamford Consulting Ecologists (2018) concluded that whilst this species may forage within the area, the value of the foraging habitat is low due to the absence of species favoured for foraging and the distance to the nearest known breeding roosts.

A recent Malleefowl mound (less than 3 years old) was recorded within 200 metres of the application area (Ninox, 2018). The presence of this mound indicates that a remnant population of Malleefowl persist in the local area (Ninox, 2018). Whilst there were no mounds recorded within the application area, the tall woodlands on Slopes habitat contains abundant leaf litter which could be used in nest construction (Ninox, 2018). Areas should be inspected prior to clearing to ensure that no new mounds have been constructed. Potential impacts to Malleefowl may be minimised by the implementation of a Malleefowl management condition.

The Rainbow Bee-eater, Peregrine Falcon, Western Brush Wallaby and Central Long-eared Bat are all likely to utilise the application area as part of a larger range and the vegetation within the application area is not likely to be significant habitat for these species.

The application area sits within a larger remnant of vegetation that forms part of a green belt sitting between Overshot Hill Nature Reserve in the north-west, Ravensthorpe Range to the north-east and remnant vegetation south of Ravensthorpe (Ninox, 2018). The local area (10 kilometre radius) has been significantly cleared for agricultural activities and all remaining remnants in the area have the potential to act as ecological linkages between the larger remnants (Ninox, 2018). Whilst the proposed clearing of 80 hectares within a larger boundary of approximately 188 hectares will not remove the linkage of this remnant, it will contribute to the continued decline in the condition of this remnant. The proposed clearing has the potential to increase the spread of weed species and facilitate the movement of feral predators which will reduce the value of the linkage.

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

**Methodology** Bamford Consulting Ecologists (2018)  
Ninox (2018)

**(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 databases, there are no records of any Threatened (rare) flora species within the application area (GIS Database). The flora survey of the application area did not record any species of Threatened flora (Matiske, 2018).

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

**Methodology** Matiske (2018)

GIS Database:  
- Threatened and Priority Flora

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

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

According to available databases, there are no records of any Threatened Ecological Communities (TECs) within the application area (GIS Database). The TEC '*Proteaceae Dominated Kwongan Shrublands of the Southeast Coastal Floristic Province of Western Australia*' has been mapped within 2 kilometres of the application area (GIS Database). The flora survey did not identify any vegetation communities that were considered to be representative of this TEC (Matiske, 2018).

The application area contains Eucalypt woodlands, however it is located south of the extent of the '*Eucalypt Woodlands of the Western Australian Wheatbelt*' TEC (Department of the Environment and Energy, 2016; Matiske, 2018). The vegetation and flora survey did not identify any of the vegetation communities as being a TEC (Matiske, 2018).

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

**Methodology** Department of Environment and Energy (2016)  
Matiske (2018)

GIS Database:

- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Comments Proposal may be at variance to this Principle**

The application area falls within the Esperance Plains Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) of which approximately 51.53% of the pre-European vegetation remains (see table) (Government of Western Australia, 2018; GIS Database).

The vegetation of the application area has been mapped as Beard vegetation associations 352 and 934, with the majority of the area mapped as Beard vegetation association 352 (GIS Database). Vegetation association 352 has been extensively cleared with approximately 19.61% remaining at a state level and approximately 28.78% remaining at a bioregional level (Government of Western Australia, 2018). This is below the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). However, the proposed clearing of up to 80 hectares of Beard vegetation association 352 will have a minimal impact with the remaining only reducing to 19.60%. Beard vegetation association 934 is not below this level with approximately 45.72% and 46.38% remaining at a state and bioregional level respectively (Government of Western Australia, 2018).

The application area forms part of a larger remnant of vegetation that acts as an ecological linkage between two intact areas of vegetation north and south of the application area (GIS Database). The clearing permit boundary spans approximately half of the width of this corridor (GIS Database). The condition of the vegetation is more degraded in the western side of the application area with areas of vegetation in 'excellent' condition concentrated on the eastern side (Mattiske, 2018). Whilst the clearing of 80 hectares within the larger permit boundary of approximately 188 hectares will not prevent the remnant from acting as an ecological corridor, it will contribute to the continued decline in the condition of the remnant through increased edge effects. In particular, it will increase the amount of weeds within the eastern portion of the remnant which had very small populations of weeds (Mattiske, 2018).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DBCA managed lands (and post clearing %)
IBRA Bioregion – Esperance Plains	2,899,941	1,494,449	~51.53	Least Concern	28.85 (55.07)
IBRA Subregion – Fitzgerald	1,570,678	865,777	~55.12	Least Concern	28.21 (50.73)
Local Government – Shire of Ravensthorpe	982,194	605,475	~61.65	Least Concern	20.00 (31.95)
Beard vegetation associations – WA					
352	724,269	142,019	~19.61	Vulnerable	1.80 (8.92)
934	9,282	4,244	~45.72	Depleted	11.90 (25.81)
Beard vegetation associations – Esperance Plains Bioregion					
352	22,817	6,566	~28.78	Vulnerable	0.10 (0.33)
934	8,343	3,869	~46.38	Depleted	12.04 (25.75)
Beard vegetation associations – Fitzgerald Subregion					
352	22,817	6,566	~28.78	Vulnerable	0.10 (0.33)
934	8,320	3,863	~46.43	Depleted	12.08 (25.79)

\* Government of Western Australia (2018)

\*\* Department of Natural Resources and Environment (2002)

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

**Methodology** Commonwealth of Australia (2001)  
Department of Natural Resources and Environment (2002)  
Government of Western Australia (2018)  
Mattiske (2018)

GIS Database:  
- IBRA Australia  
- Imagery  
- Pre-European Vegetation

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

**Comments Proposal is at variance to this Principle**

There are several ephemeral watercourses within the application area (GIS Database). The most significant watercourse is Cattlin Creek which runs through the western side of the permit boundary. The habitat associated with Cattlin Creek contained areas of dense vegetation and some older trees which contained hollows (Ninox, 2018). These hollows did not have any evidence of use by bird species and are too small to be used by Black cockatoos (Ninox, 2018). The proposed clearing will impact Cattlin Creek as the mining of a new open pit will require the diversion of the creek (Tetris Environmental, 2018a). The diversion of the creek is subject to a bed and banks permit under the *Rights in Water and Irrigation Act 1914* and a mining proposal under the *Mining Act 1978*.

The clearing of riparian vegetation in the application area is likely to impact on the movement of fauna through the landscape and could also impact on riparian vegetation further downstream if the flow of water is impeded. The Cattlin Creek diversion will be revegetated with seed sourced from the vegetation units associated with Cattlin Creek (Mattiske, 2018; Tetris Environmental, 2018b). The basis of design for the creek diversion was the existing hydraulic behaviour in Cattlin Creek, in order to maintain water flow volume and quality (Advisian, 2018). Although there will be a temporary disruption, the creek diversion should be constructed in a manner that minimises impact to downstream riparian vegetation.

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

**Methodology** Advisian (2018)  
Mattiske (2018)  
Ninox (2018)  
Tetris Environmental (2018a)  
Tetris Environmental (2018b)

GIS Database:  
- 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**

The application area lies within the Ravensthorpe 2 subsystem (DPIRD, 2018). The Ravensthorpe 2 subsystem is described as undulating plain, low hills, colluvial slopes on Archean greenstone metasediments and ultramafics. The soils are described as alkaline red shallow duplexes, gravels, cracking and non-cracking clays (DPIRD, 2018). The application area contains Cattlin Creek which is subject to infrequent high intensity rainfall events that generate large volumes of runoff (DPIRD, 2018).

Surface water runoff is liable to cause erosion on slopes within the application area after clearing, if not appropriately managed (DPIRD, 2018). Potential impacts from erosion may be minimised by the implementation of a staged clearing condition.

The likelihood of other forms of land degradation is considered to be low (DPIRD, 2018).

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

**Methodology** DPIRD (2018)

**(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 may be at variance to this Principle**

The application area is not within any conservation areas managed by the Department of Biodiversity Conservation and Attractions (GIS Database). The nearest conservation area is the Overshot Hill Nature Reserve which is located approximately 3 kilometres north-west of the application area (GIS Database). The application area forms part of a remnant which provides an ecological linkage to the Nature Reserve. Whilst the clearing will not remove the entire linkage, it will contribute to the continued decline in the condition of the remnant. In particular, impacts to riparian vegetation associated with Cattlin Creek may reduce the quality of the linkage as this extends outside of the application area to link with the Nature Reserve (GIS Database).

The application area is located within the Fitzgerald Biosphere Reserve, which has recently been reinstated as a UNESCO internally listed site for its natural features (DBCA, 2018a). However, the application area is not within the core area of Fitzgerald River National Park.

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

**Methodology DBCA (2018a)**

GIS Database:  
- DPaW Tenure  
- Imagery

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

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

There are several ephemeral watercourses that pass through the application area (GIS Database). The most significant watercourse is Cattlin Creek which passes through the western side of the permit boundary. Cattlin Creek has minor streamflow throughout the wet winter months and is dry during summer, except for significant rainfall events generally associated with cyclonic activity (Advisian, 2018). The average total dissolved solids along Cattlin Creek was 35,500 milligrams per litre. The quality of the water within Cattlin Creek is saline due to impacts from cleared agricultural lands which it flows through prior to entering the permit boundary (Advisian, 2018). The proposed clearing of riparian vegetation is not likely to lead to a further increase in salinity.

Site inspections by Advisian (2018) identified evidence of scour, erosion and sedimentation of Cattlin Creek and its minor tributaries upstream of the application area due to clearing and agricultural activities. There are existing significant uncontrolled sources of sediment entering Cattlin Creek as a result of the large scale clearing for agriculture in the Jerdacuttup River catchment area (Advisian, 2018). The proposed clearing may lead to an increase in sedimentation further downstream if the clearing is not well managed. Potential impacts to surface water quality may be minimised by the implementation of a staged clearing condition.

The application is not within a Public Drinking Water Source Area (PDWSA) (GIS Database). The groundwater within the application area ranges from 7,000-14,000 milligrams per litre of total dissolved solids. The proposed clearing of 80 hectares within a larger permit boundary of approximately 188 hectares, is not likely to cause a significant impact on the quality of the groundwater in the local area.

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

**Methodology Advisian (2018)**

GIS Database:  
- Hydrography, Linear  
- Public Drinking Water Source Areas

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

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

The climate of the region is temperate Mediterranean, with the an average rainfall for Ravensthorpe approximately 430.7 millimetres per year (CALM, 2002; BoM, 2018).

There are several ephemeral watercourses within the application area (GIS Database). The banks of Cattlin Creek are steep sided in parts and the clearing of riparian vegetation along the banks may cause an increase in runoff into the creek. The current mine plan will require that Cattlin Creek is diverted around an open pit (Tetris Environmental, 2018a). The proposed clearing of 80 hectares within a larger boundary of approximately 188 hectares is only a small portion of the catchment of Cattlin Creek and is not likely to have a

significant increase on the incidence and intensity of flooding.

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

**Methodology** BoM (2018)  
CALM (2002)  
Tetris Environmental (2018a)

GIS Database:  
- Hydrography, Linear

### **Planning Instrument, Native Title, previous EPA decision or other matter.**

#### **Comments**

The clearing permit application was advertised on 14 May 2018 by the Department of Mines, Industry Regulation and Safety (DMIRS), inviting submissions from the public. The application was re-advertised for an additional 21 days on 2 July 2018 due to the amount of proposed clearing increasing from 55 hectares to 80 hectares. There were twelve submissions received in relation to this application. One submission raised no objection to the clearing. One submission raised issues regarding Aboriginal Heritage. In relation to the clearing, the other submissions raised concerns about Cattlin Creek and riparian vegetation, significant vegetation within the application area including Salmon Gum woodlands, conservation significant flora, Carnaby's Cockatoos, Malleefowl, Chuditch, fauna species richness, impact on the UNESCO listed Fitzgerald Biosphere Reserve, its use as a wildlife corridor, introduction of weeds, lack of local knowledge in the flora and fauna surveys, Aboriginal Heritage and European Heritage. Other issues that were raised that do not relate to the clearing were objections to the closure of Floater Road, dust, noise, lack of community consultation, pollution, impact on tourism and impact to local farmers. Written responses were provided, and the issues relevant to the clearing have been addressed under the relevant Clearing Principles.

Several public submissions recommended the clearing permit application be referred to the Environmental Protection Authority (EPA). In September 2008, the former Department of Mines and Petroleum (now DMIRS) referred the Ravenshorpe Spodumene Project to the EPA under section 38 of the *Environmental Protection Act 1986*. On 3 November 2008, the EPA advised that the project would be 'Not assessed – No advice given – Managed under Part V of the EP Act (Clearing)'. Based on the assessment against the Clearing Principles and advice from the Department of Water and Environmental Regulation, DMIRS did not formally refer this clearing permit for an expansion to the EPA.

Two submissions noted that the proposed clearing may impact on protected matters under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). One of the submissions specified the clearing would impact the EPBC listed Threatened Ecological Community '*Eucalypt Woodlands of the Western Australian Wheatbelt*'. The vegetation and flora survey did not identify any of the vegetation communities as being this EPBC listed TEC (Mattiske, 2018). If other protected matters are to be impacted then the proponent may be required to refer the project to the (Federal) Department of the Environment and Energy for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of the Environment and Energy for further information regarding notification and referral responsibilities under the EPBC Act.

The permit area is within the South West Native Title Settlement area (DPLH, 2018). This settlement resolves Native Title rights and interests over an area of approximately 200,000 square kilometres within the south west of Western Australia. 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 is one registered Aboriginal Site of Significance (Site ID 26270) within the application area (DPLH, 2018). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of 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.

**Methodology** DPLH (2018)  
Mattiske (2018)



#### 4. References

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#### 5. Glossary

##### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>DAA</b>	Department of Aboriginal Affairs, Western Australia (now DPLH)
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia (now DPIRD)
<b>DBCA</b>	Department of Biodiversity Conservation and Attractions, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia (now DBCA and DWER)
<b>DEE</b>	Department of the Environment and Energy, Australian Government
<b>DER</b>	Department of Environment Regulation, Western Australia (now DWER)
<b>DMIRS</b>	Department of Mines, Industry Regulation and Safety, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia (now DMIRS)
<b>DPIRD</b>	Department of Primary Industries and Regional Development, Western Australia
<b>DPLH</b>	Department of Planning, Lands and Heritage, Western Australia
<b>DRF</b>	Declared Rare Flora
<b>DoE</b>	Department of the Environment, Australian Government (now DEE)
<b>DoW</b>	Department of Water, Western Australia (now DWER)
<b>DPaW</b>	Department of Parks and Wildlife, Western Australia (now DBCA)
<b>DSEWPaC</b>	Department of Sustainability, Environment, Water, Population and Communities (now DEE)
<b>DWER</b>	Department of Water and Environmental Regulation, Western Australia

EPA	Environmental Protection Authority, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (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	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

### **Definitions:**

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

<b>T</b>	<p><b>Threatened species:</b> Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).</p> <p><b>Threatened fauna</b> is that subset of ‘Specially Protected Fauna’ declared to be ‘likely to become extinct’ pursuant to section 14(4) of the <i>Wildlife Conservation Act 1950</i>.</p> <p><b>Threatened flora</b> is flora that has been declared to be ‘likely to become extinct or is rare, or otherwise in need of special protection’, pursuant to section 23F(2) of the <i>Wildlife Conservation Act 1950</i>.</p> <p>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.</p>
<b>CR</b>	<p><b>Critically endangered species</b> Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
<b>EN</b>	<p><b>Endangered species</b> Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
<b>VU</b>	<p><b>Vulnerable species</b> Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
<b>EX</b>	<p><b>Presumed extinct species</b> Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.</p>
<b>IA</b>	<p><b>Migratory birds protected under an international agreement</b> Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.</p>
<b>CD</b>	<p><b>Conservation dependent fauna</b> Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.</p>
<b>OS</b>	<p><b>Other specially protected fauna</b> Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.</p>

P

**Priority species**

Species which are poorly known; or

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

P1

**Priority One - Poorly-known species:**

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

P2

**Priority Two - Poorly-known species:**

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

P3

**Priority Three - Poorly-known species:**

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

P4

**Priority Four - Rare, Near Threatened and other species in need of monitoring:**

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.