



# Clearing Permit Decision Report

## 1. Application details and outcomes

### 1.1. Permit application details

Permit number:	4695/4
Permit type:	Purpose Permit
Applicant name:	Robe River Limited
Application received:	13 September 2022
Application area:	25 hectares
Purpose of clearing:	Mineral Exploration
Method of clearing:	Mechanical Removal
Tenure:	<i>Iron Ore (Robe River) Agreement Act 1964, Mineral Lease 248SA (AML 70/248)</i>
Location (LGA area/s):	Shire of Ashburton
Colloquial name:	Middle Robe Valley Project

### 1.2. Description of clearing activities

Robe River Limited proposes to clear up to 25 hectares of native vegetation within a boundary of approximately 2,181 hectares, for the purpose of mineral exploration. The project is located approximately 10 kilometres east of the town of Pannawonica within the Shire of East Pilbara.

Clearing permit CPS 4695/1 was granted by the Department of Mines and Petroleum (DMP) on 2 February 2012 and authorised the clearing of up to 25 hectares of native vegetation within a clearing permit boundary of approximately 2,181 hectares for the purpose of mineral exploration.

CPS 4695/1 was amended 23 March 2017, extending the period in which clearing was authorised from 25 February 2017 to 31 December 2022.

On 13 September 2022, the Permit Holder applied to amend CPS 4695/2 to extend the period in which clearing is authorised and the permit duration by three years.

### 1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	28 September 2023
Decision area:	25 hectares of native vegetation

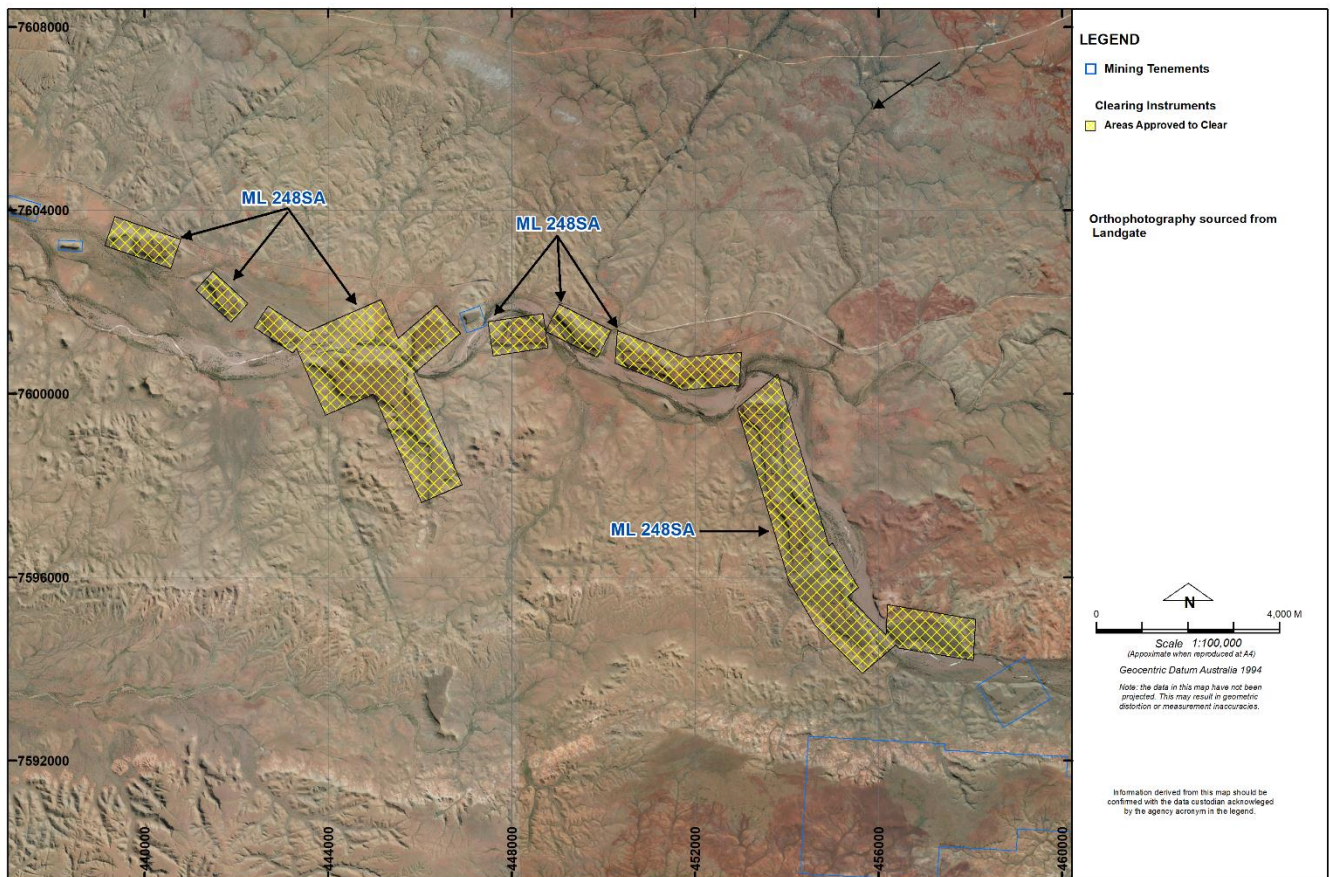
### 1.4. Reasons for decision

This clearing permit application was made in accordance with section 51KA(1) of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 4 October 2022. DMIRS advertised the application for a public comment for a period of 7 days, and no submissions were received.

The assessment has not changed since the assessment for CPS 4695/2. The Delegated Officer determined that the proposed extension to the period in which clearing is authorised is not likely to lead to an unacceptable risk to environmental values.

### 1.5. Site map

A site map of proposed clearing is provided in Figure 1 below.



**Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.**

## 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)
- *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)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

## 3. Detailed assessment of application

### 3.1. Avoidance and mitigation measures

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

Rio Tinto (2023) has stated that the proposed clearing will be planned and undertaken to require as minimal clearing as possible, such as utilising existing tracks. In addition, they have also stated that areas of environmental significance will be avoided, with buffers of between 20 to 50 metres paced around conservation significant flora (Rio Tinto, 2023).

### 3.2. Assessment of impacts on environmental values

A review of current environmental information reveals that the assessment against the clearing principles has not changed from the clearing permit decision report CPS 4695/2.

No new biological information has been provided in support of the amendment application however, a review of previous flora, vegetation, vertebrate and invertebrate fauna surveys has been undertaken (Ecologia, 2013; Rio Tinto, 2023). This review identified the need for further discussion on biological values.

A review of the Robe River Limited Annual Clearing Report for the 1 January to 31 December 2022 reporting period indicated that approximately 21.66 hectares of native vegetation has been cleared out of the approved 25 hectares. Given that the majority of approved clearing area has already been cleared and this amendment not proposing any additional clearing, a clearing permit duration extension of three years is unlikely to lead to supplementary significant impacts on environmental values. The conditions imposed for clearing permit CPS 4695/2 are considered adequate to manage any potential residual environmental impacts and will be retained for the duration of the amended permit (CPS 4695/4).

#### 3.2.1. Biological values (flora) - Clearing Principles (a)

##### Assessment

A flora and vegetation survey was undertaken over the application area and surrounds by Ecologia (2023) during July and August, 2012. Sixty-six flora quadrats were established within the survey area, supplemented by a series of linked field traverses (Ecologia, 2013). A subsequent survey was undertaken by Astron in 2015 (Rio Tinto, 2023). The following four Priority flora species were recorded within the application area during the flora and vegetation surveys (Ecologia, 2013; Rio Tinto, 2023).

*Pentalepis trichodesmoides* subsp. *hispida* (Priority 2) is an upright shrub found in *Triodia* hummock grasslands. The species has been recorded from the Chichester, Hamersley and Roebourne IBRA subregions (Western Australian Herbarium, 1998-). Four records of this species are known to occur in conservation estates, with a further ten records from the WA Herbarium (14 records total) (Western Australian Herbarium, 1998-). Flora and vegetation surveys have recorded 41 individuals within the application area, with 841 individuals occurring within the region (Rio Tinto, 2023). Based on available information, it is considered unlikely that this clearing permit application will have a significant impact on this species. The relatively small scale of clearing (25 hectares) in relation to the permit boundary (2,181 hectares) required for the exploration and associated activities is considered not likely to have a significant impact on the species. Rio Tinto (2023) have advised that exclusion zones with a 50-metre buffer have been placed around records of *Pentalepis trichodesmoides* subsp. *hispida*.

*Gymnanthera cunninghamii* (Priority 3) is a tall shrub species that generally occurs in sandy soils in drainage areas. The species has been recorded from Carnarvon, Gascoyne, Great Sandy Desert and Pilbara regions (Rio Tinto, 2023; Western Australian Herbarium, 1998-). The Western Australian Herbarium (1998-) has 40 records of this species with four records within conservation estates (one record within Kennedy Range National Park, two records in Walyarta Conservation Park, and one record in Nyangumarta Warrarn Indigenous Protection Area) (Rio Tinto, 2023; Western Australian Herbarium, 1998-). Flora and vegetation surveys have recorded 25 individuals within the application area, with 217 individuals occurring within the region (Rio Tinto, 2023). The preferred habitat for this species is common throughout the Pilbara. The relatively small scale of clearing (25 hectares) in relation to the permit boundary (2,181 hectares) required for the exploration and associated activities is considered not likely to have a significant impact on the species.

*Triodia pisoliticola* (previously named *Triodia* sp. Robe River), Priority 3, is a tussock-forming perennial, 0.4-0.9 metres high (Western Australian Herbarium, 1998-). The species is restricted to the far western Hamersley subregion of the Pilbara bioregion and can often be found growing on the edges and tops of mesas (Western Australian Herbarium, 1998-). *Triodia pisoliticola* is known from 64 locations from the WA Herbarium, with other records being from Millstream Chichester National Park, and Karijini National Park (Western Australian Herbarium, 1998-). Flora and vegetation surveys have recorded 1,840 individuals within the application area, with 311,758 individuals occurring within the region (Rio Tinto, 2023). The relatively small scale of clearing (25 hectares) in relation to the permit boundary (2,181 hectares) required for the exploration and associated activities is considered not likely to have a significant impact on the species.

*Rhynchosia bungarensis* (Priority 4) is a compact, prostrate shrub known to occur on pebbly, shingly coarse sand amongst boulders. In the Pilbara, the species has been recorded from the Chichester, Hamersley and Roebourne subregions (Western Australian Herbarium, 1998-). The Western Australian Herbarium (1998-) identifies that the species is widely distributed through the central and western Pilbara, with further records in Carnarvon, Gascoyne and Tanami IBRA regions (Rio Tinto, 2023). Flora and vegetation surveys have recorded 1,319 individuals within the application area, with 13,384 individuals occurring within the region (Rio Tinto, 2023). Rio Tinto (2023) have also placed restrictions with buffers of 20 metres internally and will avoid impacting this species where practical. Based on available information, it is considered unlikely that this clearing permit amendment will have a significant impact on this species.

A review of the Robe River Limited Annual Clearing Report for the 1 January to 31 December 2022 reporting period identifies that the majority of the proposed clearing has already been undertaken, with only 3.34 hectares remaining of the approved 25 hectares. Based on the current environmental information, the extension of the period in which clearing is authorised and the permit duration by three years is unlikely to significantly change the environmental impacts of the proposed clearing. There are no new records of conservation significant fauna, flora or vegetation associated with a Priority or Threatened Ecological Community within the application area (GIS Database). As such, the assessment against the clearing principles has not changed from the previous clearing permit decision reports prepared for CPS 4695/1 and 4695/2.

### Conclusion

Due to the general low impact of the proposed clearing (25 hectares for exploration with only 3.34 hectares remaining), and the existing requirement to revegetate and rehabilitate cleared areas, the above impacts will not require specific flora or fauna management conditions.

There may be impacts to individual priority flora from the proposed clearing. Given the extent and records maintained by Rio Tinto (2023), the loss of individuals within the application area is unlikely to significantly impact the conservation status of these species. The individuals potentially lost through clearing may be reinstated through rehabilitation efforts currently required under the existing permit which will be maintained for CPS 4695/4.

### Conditions

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

- take hygiene steps to minimise the risk of the introduction and spread of weeds; and
- retain cleared vegetation and topsoil and respread this on areas already cleared to undertake revegetation and rehabilitation.

### **3.3. Relevant planning instruments and other matters**

The clearing permit amendment application was advertised on 4 October 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WC99/012) over the area under application (DPLH, 2023). This claim has been determined by the Federal Court on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are numerous registered Aboriginal Sites of Significance within the application area (DPLH, 2023). It is the proponent's responsibility to comply with the *Aboriginal Cultural Heritage Act 2021* 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 Programme of Work 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	<p>The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia (GIS Database). It is surrounded by large areas of uncleared land and mining operations (GIS Database).</p> <p>Approximately 99% of the local area (50-kilometre radius from the centre of the area proposed to be cleared) remains uncleared (GIS Database).</p>
Ecological linkage	<p>The application area is not considered a significant ecological linkage. The vegetation immediately surrounding the application area and the majority of the region remains uncleared (GIS Database).</p>
Conservation areas	<p>The proposed clearing is not located within a conservation reserve (GIS Database). The nearest conservation area is Millstream Chichester National Park, which is located approximately 47 kilometres east-north-east of the application area (GIS Database).</p>
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <p><b>173:</b> Hummock grasslands, shrub steppe; kanji over soft spinifex and <i>Triodia wiseana</i> on basalt; and</p> <p><b>609:</b> Mosaic: Hummock grasslands, open low tree steppe; bloodwood with sparse kanji shrubs over soft spinifex/Hummock grasslands, open low tree steppe; snappy gum over <i>Triodia wiseana</i> on a lateritic crust (GIS Database).</p> <p>A flora and vegetation survey was undertaken over the application area and surrounds by Ecologia (2023) during July and August, 2012. The following vegetation associations were recorded within the application area (Ecologia, 2012):</p> <ul style="list-style-type: none"> <li>• AtPIEs: Sparse <i>Acacia trachycarpa</i> and <i>Petalostylis labicheoides</i> shrubland over sparse <i>Euphorbia schultzei</i> herbland;</li> <li>• EcAtPICv: <i>Eucalyptus camaldulensis</i> woodland over tall sparse <i>Acacia trachycarpa</i> and <i>Petalostylis labicheoides</i> shrubland over sparse <i>Cyperus vaginatus</i> sedgeland;</li> <li>• AoPITw: Tall <i>Acacia orthocarpa</i> and <i>Petalostylis labicheoides</i> shrubland over open <i>Triodia wiseana</i> hummock grassland;</li> <li>• AxTw: Tall <i>Acacia xiphophylla</i> shrubland over <i>Triodia wiseana</i> hummock grassland;</li> <li>• AiTITeCs: Tall sparse <i>Acacia inaequilatera</i> shrubland over <i>Triodia lanigera</i> and <i>Triodia epactia</i> hummock grassland and *<i>Cenchrus setiger</i> tussock grassland;</li> <li>• EcCc: <i>Eucalyptus camaldulensis</i> woodland over open *<i>Cenchrus ciliaris</i> tussock grassland;</li> <li>• EvAtSgTe: Low <i>Eucalyptus victrix</i> woodland over tall open <i>Acacia trachycarpa</i> shrubland over sparse <i>Triodia wiseana</i> hummock grassland and sparse <i>Stemodia grossa</i>;</li> <li>• AsPr: Tall sparse <i>Acacia synchronicia</i> shrubland over low sparse <i>Pluchea rubelliflora</i> shrubland;</li> <li>• AtTeCc: Tall open <i>Acacia trachycarpa</i> shrubland over sparse <i>Triodia epactia</i> hummock grassland and open *<i>Cenchrus ciliaris</i> tussock grassland;</li> <li>• Te: <i>Triodia epactia</i> hummock grassland;</li> <li>• AoTw: <i>Acacia orthocarpa</i> shrubland over <i>Triodia wiseana</i> hummock grassland;</li> <li>• AcTspRTw: <i>Acacia citrinoviridis</i> shrubland over <i>Triodia pisoliticola</i> and <i>Triodia wiseana</i> hummock grassland;</li> <li>• Tw: <i>Triodia wiseana</i> hummock grassland; and</li> <li>• ChAtTw: Open <i>Corymbia hamersleyana</i> woodland over tall <i>Acacia tumida</i> var. <i>pilbarensis</i> shrubland over open <i>Triodia wiseana</i> hummock grassland.</li> </ul> <p>* Denotes weed species.</p>
Vegetation condition	<p>The vegetation survey indicate the vegetation within the proposed clearing area is in Excellent to Completely Degraded (Trudgen, 1991) condition (Rio Tinto, 2017), described as:</p> <ul style="list-style-type: none"> <li>• Excellent to</li> <li>• Completely Degraded</li> </ul> <p>The full Trudgen (1991) condition rating scale is provided in Appendix C.</p>

Characteristic	Details
Climate and landform	The application area is mapped within elevations of 200 to 250 metres AHD (GIS Database). The annual average rainfall (Pannawonica) is 409.4 millimetres (BoM, 2023).
Soil description	The soil is mapped as Gf1 which is described as 'Steep ranges on basic lavas along with dolomites, tuff, banded iron formations, and dolerite dykes, with some narrow valley plains and high-level gently undulating areas of limited extent. The soils are generally shallow and stony and there are large areas without soil cover' (Northcote 1960-68).
Land degradation risk	According to available datasets the application area intersects the McKay, River, Robe and Rocklea Land Systems (Van Vreeswyk et al., 2004; GIS Database). These systems are generally not susceptible to erosion.
Waterbodies & Hydrogeography	Part of the application area crosses the Robe River and several non-perennial watercourses associated with the Robe River are also within the application area (GIS Database). The eastern extent of the application area is located within the Pannawonica Water Reserve Public Drinking Water Source Area (GIS Database). A priority is yet to be set for this water source area; however, the proposed amendment is unlikely to impact on the quality of this water resource (GIS Database).
Flora	There are records of four priority flora within the application area. No threatened flora have been recorded within the application area (Ecologia, 2013; Rio Tinto 2023; GIS Database).
Ecological communities	A search of available databases revealed there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest recorded TEC, <i>Themeda</i> grasslands on cracking clays, is located approximately 83 kilometres south-east of the application area (GIS Database).
Fauna	The application area has a diverse range of fauna habitats and is likely to support a range and abundance of vertebrate fauna species (Ecologia, 2013). The identified fauna habitats are found throughout the Pilbara region and are not restricted to the application area (Ecologia, 2013; Rio Tinto, 2023).

## Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains regionally significant flora.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</u> "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."</p> <p><u>Assessment:</u></p> <p>The application area has a diverse range of fauna habitats and is likely to support a range and abundance of vertebrate fauna species. Multiple shallow caves and shelters were identified in the breakaways of mesas and hills. It is noted that most of the drilling will take place in areas already mined and cleared and that only 3.34 hectares of disturbance remains of the approved 25 hectares.</p>	May be at variance	No
<p><u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is unlikely to contain flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> "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."</p> <p><u>Assessment:</u></p> <p>There are no known federally or state listed Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database). The nearest TEC is <i>Themeda</i> grasslands on cracking clays, categorised as Vulnerable under the BC Act, is located approximately 83 kilometres south-east of the</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
application area (GIS Database). Flora and vegetation surveys of the application area and surrounds did not identify any vegetation representative of a TEC (Ecologia, 2023).		
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><b>Principle (e):</b> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The application area falls within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99% of the pre-European vegetation still exists in the IBRA Pilbara Bioregion (Government of Western Australia, 2019).</p> <p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:  173: Hummock grasslands, shrub steppe; kanji over soft spinifex and <i>Triodia wiseana</i> on basalt; and  609: Mosaic: Hummock grasslands, open low tree steppe; bloodwood with sparse kanji shrubs over soft spinifex/Hummock grasslands, open low tree steppe; snappy gum over <i>Triodia wiseana</i> on a lateritic crust (GIS Database).</p> <p>Approximately 99% of the pre-European extent of these vegetation associations remain uncleared at both the state and bioregional level (Government of Western Australia, 2019).</p> <p>The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not at variance	No
<p><b>Principle (h):</b> <i>“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></p> <p><u>Assessment:</u></p> <p>The application area is not located within any known conservation area (GIS Database). The nearest known conservation area is Millstream Chichester National Park, which is located approximately 47 kilometres east-north-east of the application area (GIS Database). At this distance it is considered unlikely that the proposed clearing will impact on the environmental values of any conservation area.</p>	Not likely to be at variance	No
<b>Environmental value: land and water resources</b>		
<p><b>Principle (f):</b> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>Part of the application area crosses the Robe River and several non-perennial watercourses associated with the Robe River are also within the application area (GIS Database).</p> <p>Vegetation surveys undertaken by Ecologia (2013) 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 Pilbara region. The proposed clearing is not likely to significantly impact on riparian vegetation.</p>	At variance	No
<p><b>Principle (g):</b> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>According to available datasets the application area intersects the McKay, River, Robe and Rocklea Land Systems (GIS Database). These systems are generally not susceptible to erosion.</p>	Not likely to be at variance	No
<p><b>Principle (i):</b> <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.”</i></p> <p><u>Assessment:</u></p> <p>The eastern extent of the application area is located within the Pannawonica Water Reserve Public Drinking Water Source Area (GIS Database). A priority is yet to be set</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
for this water source area; however, the proposed amendment is unlikely to impact on the quality of this water resource (GIS Database). The proposed amendment is not likely to have a significant impact on the quality and quantity of surface or groundwater (GIS Database).		
<u>Principle (j):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."  <u>Assessment:</u> The application area is within the Robe River catchment area in the Onslow Coast basin (GIS Database). Given the size of the area to be cleared (25 hectares (3.34 hectares remaining) in relation to the size of the catchment area (757,138 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.	Not likely to be at variance	No

### 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 Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

#### Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their 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](http://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

- Bureau of Meteorology (BoM) (2023) Bureau of Meteorology Website – Climate Data Online, [Pannawonica](https://www.bom.gov.au/climate/data/). Bureau of Meteorology. <https://www.bom.gov.au/climate/data/> (Accessed 14 September 2023).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Department of Environment Regulation (DER) (2014) *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: [https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2\\_assessment\\_native\\_veg.pdf](https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf)
- Department of Planning, Lands and Heritage (DPLH) (2023) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 14 September 2023).
- Department of Primary Industries and Regional Development (DPIRD) (2023) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. URL: <https://dpiird.maps.arcgis.com/apps/webappviewer/index.html?id=662e8cbf2def492381fc915aaf3c6a0f> (Accessed XX Month 2023).
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## 4. Glossary

### Acronyms:

<b>BC Act</b>	<i>Biodiversity Conservation Act 2016</i> , Western Australia
<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>DCCEEW</b>	Department of Climate Change, Energy, the Environment and Water, Australian Government
<b>DBCA</b>	Department of Biodiversity, Conservation and Attractions, Western Australia
<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>DoEE</b>	Department of the Environment and Energy (now DCCEEW)
<b>DoW</b>	Department of Water, Western Australia (now DWER)
<b>DPaW</b>	Department of Parks and Wildlife, Western Australia (now DBCA)
<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 (now known as Threatened Flora)
<b>DWER</b>	Department of Water and Environmental Regulation, Western Australia
<b>EP Act</b>	<i>Environmental Protection Act 1986</i> , Western Australia
<b>EPA</b>	Environmental Protection Authority, Western Australia
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>PEC</b>	Priority Ecological Community, Western Australia
<b>RIWI Act</b>	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
<b>TEC</b>	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.