

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number: 9608/1

Permit type: Purpose Permit

Applicant name: Redcliffe Project Pty Ltd

Application received: 11 February 2022

Application area: 250.3 hectares within a total boundary of 1672.6 hectares

Purpose of clearing: Mineral production and associated activities

Method of clearing: Mechanical Removal
Tenure: Mining Lease 37/233

Mining Lease 37/1276 Mining Lease 37/1286 Mining Lease 37/1295 Mining Lease 37/1348

Location (LGA area/s): Shires of Leonora and Laverton

Colloquial name: Redcliffe Gold Project (RGP)

1.2. Description of clearing activities

Redcliffe Project Pty Ltd (Redcliffe) proposes to clear up to 250.3 hectares of native vegetation within a boundary of approximately 1672.6 hectares, for the purpose of mineral production and mining related infrastructure. The project is located approximately 50 kilometres northeast of Leonora, within the Shires of Leonora and Laverton.

The application is to allow for mining of the Hub and Golden Terrace South (GTS) open pits and the construction of associated infrastructure including waste rock dumps, an accommodation camp, administration offices and dewatering infrastructure (Dacian, 2022).

1.3. Decision on application and key considerations

Decision: Grant

Decision date: 19 May 2022

Decision area: 250.3 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 11 February 2022. DMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds;
- potential impacts to conservation significant fauna and their habitats;
- · potential land degradation in the form of erosion; and
- potential impacts to ephemeral watercourses and associated vegetation.

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;

- engage a fauna specialist to search for active Malleefowl mounds if clearing during the breeding season and avoidance if mounds are found:
- restricted clearing within suitable denning and refuge habitat for conservation significant fauna;
- avoid clearing riparian vegetation and maintain the existing surface water flow of watercourses; and
- commence construction no later than six months after undertaking clearing to reduce the risk of 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 510 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 quide to the assessment of applications to clear native vegetation (DER, December 2013)
- Procedure: Native vegetation clearing permits (DWER, October 2021)
- Technical guidance Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance Terrestrial Fauna Surveys for Environmental Impact Assessment (EPA, 2016)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that clearing has been restricted to previously disturbed and completely degraded areas where possible, such as existing tracks, exploration drill pads and historically disturbed areas due to previous mining activities and pastoral lease grazing occurrences. Furthermore, Dacian have outlined the following clearing, topsoil disturbance and watercourse management measures (Dacian, 2022):

- All clearing to be undertaken in accordance with a Native Vegetation Clearing Permit;
- Designated access routes and mining activities will be clearly delineated in the field;
- Vehicles and other equipment will travel on designed access routes and mining infrastructure areas;
- Disturbed areas will be rehabilitated progressively where possible and in accordance with the Mine Closure Plan;
- All vehicles and other mobile equipment will be inspected to determine that they are free of weed seeds and soil prior to be permitted to operate on site;
- Clearing of vegetation in proximity to ephemeral creeks will be minimised and where road crossings or other
 disturbances are unavoidable, surface water management measures will be implemented to minimise and prevent
 significant impacts to natural surface water flows and downstream habitats; and
- Flood and surface water diversion bunds will be constructed around all vulnerable mine areas to prevent downstream sedimentation and impacts to surface and groundwater quality that may result from the proposed clearing.

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.

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 (Appendix B) identified that the impacts of the proposed clearing present a risk to biological values (fauna and potential fauna habitats) and land degradation. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (biological diversity) - Clearing Principles (a)

<u>Assessment</u>

The clearing permit application area is located within the Eastern Murchison subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Murchison Bioregion (GIS Database). The vegetation is dominated by mulga woodlands CPS 9608/1

rich in ephemerals; hummock grasslands, saltbush shrubland and *Tecticornia* shrublands (CALM, 2002). The sub-region is rich and diverse in both its flora and fauna but most species are wide ranging and usually occur in adjoining regions (CALM, 2002).

One Priority Ecological Community (PEC), the Nambi calcrete groundwater assemblage type on Carey paleodrainage, exists approximately 34 kilometres north of the application area. This PEC is a subterranean fauna community. No terrestrial PECs were identified within 50 kilometres of the application area (Phoenix, 2021; GIS Database).

A detailed flora survey was conducted over the application area by Botanica Consulting in July 2021 (Dacian, 2022). From the desktop component of the survey, 90 vascular flora species were identified as occurring within 40 kilometres of the survey area, representing 50 genera from 25 families. Of these, 16 conservation significant flora species (P1 – P4) were identified. During the field survey, 122 flora taxa were identified within the application area. However, no Threatened or Priority flora species were recorded within the application area (Botanica, 2021).

A search of relevant databases and historical surveys in the Eastern Murchison bioregion, were used to identify conservation significant fauna that may occur within a 100 kilometre radius of the application area. The identified fauna assemblage included 277 vertebrate fauna species. 27 of these species are listed as conservation significant, comprising nine Threatened or Specially Protected under the BC/EPBC Acts, 15 bird species listed as Migratory and two species listed as Priority (Phoenix, 2021).

Evidence of *Leipoa ocellata* (Malleefowl, VU) and potential evidence of *Dasyurus geoffroii* (Chuditch, VU) was recorded during the field survey (Dacian, 2022). Evidence of Malleefowl presence was recorded from visual sightings of a fresh track and signs of foraging activity in leaf litter on the boundary of the proposed area to be cleared, however no direct fauna sightings or nest mounds were recorded (Phoenix, 2021). Two potential Chuditch scats were found in north-west portion of the application area during the field survey (Phoenix, 2021). The scats appear recent but did not retain identifiable DNA sequences, and thus, could not be confirmed.

One species, *Falco peregrinus* (Peregrine Falcon, OS) has previously been recorded within the survey area in 2010 (Phoenix, 2010) and may utilise parts of the application area to breed or forage in the walls of disused mine pits and forage sites for this cliff-dwelling species. No evidence of this species was identified during the field survey (Phoenix, 2021). Given the highly mobile nature of these species, the proposed clearing is not likely to impact the conservation status of this species.

Eight introduced flora (weed) species were identified from the desktop survey as potentially occurring in the vicinity of the survey area, representing six families. One species, *Cylindropuntia* spp. (Prickly Pear) is listed as a Declared Pest on the Western Australian Organism List (WAOL) under the *Biosecurity and Agriculture Management* (BAM) Act 2007 and as a Weeds of National Significance (WONS). In addition, *Tamarix aphylla* (Athel Tamarisk) is also listed as a WONS. No weed species were recorded within the application area during the field survey. However, weeds are known disturbance invaders, and there is a risk that weeds can be spread into the area and become established as they have the potential to out-compete native flora and reduce the biodiversity of an area.

Conclusion

Given there are no nearby PECs; there were no recorded Threatened or Priority flora species within the application area; and there are known records of declared weed species in the vicinity to the application area, it is considered that the impacts of the proposed clearing on biodiversity can be managed by taking steps to minimise the risk of the introduction and spread of weeds. Potential impacts to conservation significant fauna and their suitable habitats are further discussed in section 3.2.2 below.

Conditions

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

• take hygiene steps to minimise the risk of the introduction and spread of weeds.

3.2.2. Biological values (fauna) - Clearing Principle (b)

Nine broad habitat types were identified within the application area during the field survey and are described as (Phoenix, 2021):

- 1. <u>Breakaway and upper slope with open shrubland</u> hills capped with weathered volcanic rock forming breakaway with overhangs, caves and/or boulder piles, with open mid shrubland of mulga, other *Acacia* and mixed shrubs;
- Open/sparse shrubland on slopes and stony plains Slopes, low hills and plains with clay loam soils and some low outcrop, mantle of rock fragments usually present with open to very sparse shrubland including mulga and often Casuarina;
- 3. <u>Open shrubland on lower slopes and plains</u> Nearly level ground with open mid to tall mulga shrubland on clay loam soils with quartz and ironstone pebble mantle;
- 4. <u>Groved mulga on lower slopes, minor drainages and plain</u> Mulga woodland and tall shrubland forming dense stands interspersed with open areas, on clay loam soils usually with quartz and ironstone mantle; minor drainage lines without distinct channel;
- 5. <u>Mulga woodland/tall shrubland on drainage</u> Mulga woodland and tall shrubland (mallees variably present) over patchy dense low to mid shrubs, along drainage lines with distinct channels;
- 6. <u>Mulga tall shrubland on sandplain</u> Mulga woodland and tall shrubland over patchy dense low to mid shrubs, on deep sandy soils with ironstone pebbles;
- 7. <u>Mallee over mulga shrubland with hummock grass on sandplain</u> Scattered mallees over mulga mid-tall shrubland over *Triodia* on level sandy loam with few or no pebbles;

- 8. Mine pit with deep pool Disused mine pits with permanent pools, sparse low-mid vegetation on walls; and
- 9. Other cleared/disturbed Mine pits, spoil heaps and former infrastructure sites totally cleared of original vegetation.

The most restricted and potentially significant fauna habitats are breakaways with caves and overhangs (habitat type 1); large persistent pools located within old mine pits (habitat type 8); and mallee-mulga-*Triodia* vegetation on sandplain (habitat type 7) (Phoenix, 2021).

Habitat suitability for Malleefowl has been assessed at 32 locations within the application area during a targeted Malleefowl survey (Phoenix, 2021). From the survey, 12.9% of habitat within the application area was assessed as high suitability for nesting and foraging, 38.7% of habitat was assessed as medium suitability for foraging and dispersal and 48.5% of habitat was assessed as low suitability (Phoenix, 2021). Targeted searches in high and medium suitability habitats found no evidence of current or former nesting activity by this species (Phoenix, 2021). Habitat types 6 and 7 are considered high suitability and habitat types 3, 4 and 5 are considered medium suitability for Malleefowl (Phoenix, 2021).

Habitat type 1 was assessed as highly suitable foraging, dispersal, and possible denning habitat for Chuditch. Searches along breakaway areas (habitat type 1) recorded skeletal remains of indeterminate age, and two recent (but not fresh) potential scats of this species. The evidence does not indicate a current resident population, but is consistent with sporadic presence of dispersing individuals (Phoenix, 2021). Habitat type 1 has also been assessed as being highly suitable for Short Range Endemic (SRE) fauna.

The fauna survey also identified evidence of current and former presence of Brushtail Possum, *Trichosurus vulpecula*. The evidence included bones found at breakaway cave sites and distinctive tracks observed during the targeted Malleefowl transects. This widespread species is not listed as conservation significant but has declined or disappeared from most arid parts of its former range (Abbott, 2012), and no recent records were identified from the desktop search area. The presence of the Brushtail Possum within the application area is considered an extension of its accepted current range by several hundred kilometres. As such, this record is considered regionally significant (Phoenix, 2021). Furthermore, scats of a small dasyurid marsupial were indeterminate to species but possibly represent Long-tailed Dunnart, *Sminthopsis longicaudata* (Priority 4), which has been assessed as likely to occur in habitat 1 (with similar habitat requirements to Chuditch) (Phoenix, 2021).

Conclusion

Based on the above, the proposed clearing may result in impacts to highly suitable Malleefowl habitat (Habitat types 6 and 7). Although there is no current evidence of breeding, it is possible that Malleefowl mounds could be constructed in areas of suitable habitat in future breeding seasons, over the five year duration of the clearing permit. As such, searches should be conducted in areas of suitable habitat (habitat types 6 & 7) as a precaution if clearing during the breeding season (1 September – 31 January).

Furthermore, habitat type 1 is considered to be comprised of important habitat for potential Chuditch individuals or populations, with the area possibly being utilised for both foraging and sheltering purposes. Habitat type 1 is also considered a highly suitable habitat for SRE fauna, Brushtail possum, Long-Tailed Dunnart and for the general refuge of local fauna.

As such, the Delegated Officer has determined that the proposed clearing requires management conditions in relation to this environmental value.

Conditions

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

- Fauna Management Malleefowl
 - Undertake fauna inspection(s) for active Malleefowl mounds in Habitat types 6 and 7 prior to clearing between 1 September and 31 January; and
 - No clearing within 50 metres of an identified active mound.
- Restricted clearing within habitat type 1
 - No clearing of native vegetation within habitat type 1, unless prior approval is granted by the Delegated
 Officer.

3.2.3. Land and water resources - Clearing Principle (g & f)

The application area lies within the Bevon, Bullimore, Desdemona, Jundee, Monk, Nubev, Violet and Wyarri land systems (GIS Database). These land systems have been mapped and described in technical bulletins produced by the former Department of Agriculture (now the Department of Primary Industries and Regional Development) with some areas susceptible to erosion due the presence of natural drainage lines, relatively low gravel contents, clay/silt materials and sloping landforms.

Martinick Bosch Sell Pty Ltd (MBS) conducted a soil and landform assessment across the application area and identified areas that may be subject to erosion as a result of potential clearing activities. The areas that were identified as having a high to moderate erosion risk are within the Hub and GTS area (Jundee, Monk and Bevon land systems) (MBS, 2021).

The Bevon land system is described as gently inclined foot slope (4%) below a limonite hill supporting samphire low shrubland (Pringle et. al., 1994). This land system may be susceptible to soil erosion if the vegetation cover is removed or the soil surface is disturbed (Pringle et. al., 1994).

The Jundee land system is described as hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly groved mulga shrublands. Soil erosion can be initiated where tracks and diversion structures harvest water on sloping land (Payne et al., 1998).

The Monk land system is described as hardpan plains with occasional sandy banks supporting mulga tall shrublands and wanderrie grasses (Botanica, 2021).

Localised erosion may occur from the creation of tracks and removal of vegetation in any of the Land Systems over the application area, but particularly, over the Jundee, Monk and Bevon Land Systems, which constitute a moderate portion of the proposed clearing area. It is not anticipated that the removal of vegetation will contribute significantly to increased amounts of wind or water erosion in adjacent areas (MBS, 2021).

There are no major river systems in the vicinity of the proposed mining areas and any watercourses or drainages that do exist are ephemeral and only flow periodically, following significant rainfall. Dillon Creek is the main ephemeral creek in the project area, and it runs through tenement M37/1348, whilst creeks associated with this drainage system run through M37/1286. Impacts to riparian vegetation have the potential to impact the natural flow of the watercourse, the quality of water and consequently, the health of native vegetation downstream.

Conclusion

Based on the above assessment, the Delegated Officer has determined that the proposed clearing requires further management conditions to compliment the avoidance and management measures outlined by Dacian in relation to this environmental value.

Conditions

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

- no clearing of native vegetation unless mineral production and/or associated activities commences within 6 months of the authorised clearing being undertaken;
- avoid clearing riparian vegetation; and
- · maintain the existing surface flow of watercourses.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 22 February 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 registered native title claim over the area under application (DPLH, 2022). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There is one registered Aboriginal Site of Significance that overlaps the North-West portion of the application area and one site approximately one kilometre east of the application (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.

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.

Other relevant authorisations required for the proposed land use include:

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

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by pastoral (cattle grazing), mining and exploration land uses.
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages.
Conservation areas	According to available databases, the application area is not in, or in the vicinity of (40 kilometre radius), any registered conservation area.
Vegetation description	The vegetation of the application area is broadly mapped as the following Beard vegetation associations: 18: Low woodland; mulga (<i>Acacia aneura</i>); and 109: Hummock grasslands, shrub steppe; <i>Eucalyptus youngiana</i> over hard spinifex (GIS Database).
	A flora and vegetation survey was conducted over the application area by Botanica Consulting during July, 2021. The following vegetation associations were recorded within the application area (Botanica, 2021):
	QRP-AFW1 - Low open forest of Acacia caesaneural A. incurvaneura over tall open shrubland of Acacia ramulosa/ A. tetragonophylla and low shrubland of Ptilotus obovatus/ low tussock grassland of Eragrostis eriopoda on quartz-rocky plain.
	SLP-AFW2 - Open mallee shrubland of <i>Eucalyptus youngiana/</i> Low open forest of <i>Acacia caesaneura/ A. incurvaneura</i> over mid hummock grassland of <i>Triodia scariosa</i> on sand-loam plain.
	SLP-AFW1 – Low open forest of Acacia caesaneura/ A. incurvaneura over mid shrubland of Eremophila forrestii subsp. forrestii/ Eremophila margarethae and low tussock grassland of Eragrostis eriopoda on sand-loam plain.
	DD-AFW1 - Acacia incurvaneura, A. tetragonophylla and A. burkittii low woodland over Eremophila citrina, Senna artemisioides subsp. artemisioides and Grevillea deflexa sparse shrubland over Ptilotus obovatus var. obovatus, Lepidium platypetalum and Roepera eremaea low sparse shrubland.
	OD-AFW1 - Low open forest of Acacia caesaneura/ A. incurvaneura over tall shrubland of Acacia ramulosa/ A. tetragonophylla and low tussock grassland of Eragrostis eriopoda in drainage line.
	B-AFW1 - Low woodland of <i>Acacia quadrimarginea</i> over tall shrubland of <i>Acacia ramulosa</i> var. <i>linophylla/ Thryptomene decussata</i> and low open shrubland of <i>Calytrix uncinata/ Eremophila latrobei</i> on breakaway.
	B-MWS1 - Mid open mallee forest of <i>Eucalyptus carnei</i> over mid sparse shrubland of <i>Eremophila pantonii</i> and low shrubland of <i>Olearia muelleri/ Ptilotus obovatus</i> on breakaway.
	RH-AFW1 - Low open forest of Acacia incurvaneura/ A. quadrimarginea over tall shrubland of Acacia ramulosa and low shrubland of Ptilotus obovatus/ low tussock grassland of Eragrostis eriopoda on rocky hillslope.
Vegetation condition	The vegetation survey (Botanica, 2021) indicates the vegetation within the proposed clearing area is in Good to Very Good (Trudgen, 1991) condition, with some areas completely degraded due to existing mining operations and access tracks.
	The full Trudgen (1991) condition rating scale is provided in Appendix C.
Climate and landform	The climate of the area is characterised by low annual rainfall and a large temperature range (Dacian, 2022). The mean annual rainfall is 254 millimetres (BoM, 2022), which was recorded in Leonora. The mapped elevation of the application area is approximately 500 metres AHD (GIS Database).

Characteristic	Details
Soil description	The soil is mapped as BE15 and BE3 (GIS Database). BE15 is described as gently undulating to low hilly pediments with stony and gravelly pavements, and traversed by numerous seasonal streams: chief soils seem to be shallow earthy loams with shallow red earths, both underlain by red-brown hardpan. BE3 is described as broken slopes and ridges characterised by breakaways, generally on gneissic granites and allied rocks; ironstone gravel pavement variably present: chief soils seem to be shallow earthy loams with some shallow soils, both underlain by a red-brown hardpan (Northcote et al., 1960-68).
Land systems	The application area is mapped over the Violet, Bevon, Jundee, Monk, Bullimore, Desdemona, Nubev and Wyarri land systems.
Waterbodies	The desktop assessment and aerial imagery indicate that several minor, non-perennial watercourses transect the area proposed to be cleared, including Dillon Creek.
Hydrogeography	The application is not within any Public Drinking Water Source Areas (GIS Database). The application area is within the Goldfields proclaimed groundwater area under the <i>Rights In Water and Irrigation Act 1914</i> (GIS Database). The mapped groundwater salinity is 1,000-3,000 milligrams per litre total dissolved solids (GIS Database).
Flora	There are records of two Priority flora species within 20 kilometres of the application area boundary (GIS Database), which include <i>Eremophila shonae</i> subsp. <i>diffusa</i> (P3) and <i>Eremophila simulans</i> subsp. <i>megacalyx</i> (P3). There are no records of Threatened or Priority flora within the application area (GIS Database). No Threatened or Priority flora were recorded within the application area during the field survey (Botanica, 2021). Whilst no Priority flora species were identified, the application area is considered 'possible' habitat for 10 priority flora species and 'likely' habitat for one priority species. These priority flora species are listed in section A.2. below.
Ecological communities	According to available databases, there are no records of Threatened Ecological Communities (TECs) within the application area or within 50 kilometres of the application area. One Priority Ecological Community, the Nambi Calcrete groundwater assemblage was identified approximately 34 kilometres north of the application area. This PEC is a subterranean fauna community. No other PECs were identified within 50km of the study area (GIS Database).
Fauna	According to available databases, one Priority fauna species, <i>Ardeotis australis</i> (P4) has been recorded approximately 10 kilometres from the application area. No other Threatened or Priority fauna have been recorded within, or in the vicinity of (40 kilometre radius), the application area (GIS Database).
	Evidence of two Threatened fauna species, <i>Leipoa ocellata</i> (Malleefowl) (VU) and <i>Dasyurus geoffroii</i> (Chuditch) (VU), was recorded during the fauna survey, indicating current or recent presence of these species within the application area for foraging and dispersal (Phoenix, 2021). No Malleefowl mounds were identified during the targeted Malleefowl survey (Phoenix, 2021).

A.2. Flora analysis table

The following priority flora species are considered likely or possible to occur within the application area based on suitable habitat present. However, these species were not identified during the field survey (Botanica, 2021; Dacian, 2022).

DBCA Rank	Taxon	Habitat	Comments	Likelihood
tematics.	Acacia websteri	Red sand, clay or loam. Low-lying areas, flats.	Recorded within 40 km, habitat may be present	Possible
P1	Philotheca tubiflora	Rocky rises & hills, outcrops	Recorded within 40 km, habitat may be present	Possible
	Stenanthemum patens	Rocky hillside.	Recorded within 40 km, habitat may be present	Possible
	Acacia sp. Marshall Pool (G. Cockerton 3024)	723	Little known, records within 30km.	Possible
P3	Calytrix praecipua	Skeletal sandy soils over granite or laterite. Breakaways, outcrops.	Recorded within 40 km, habitat may be present	Possible
	Cratystylis centralis	Red sandy loam with ironstone gravel. Flat plains, breakaway country.	Recorded within 40 km, habitat may be present	Possible
	Eremophila annosicaulis	On stony loams (ironstone laterite).	Recorded within 40 km, habitat may be present	Possible
	Eremophila shonae subsp. diffusa	Stony yellow or red sandy soils	Recorded within 10 km, habitat may be present	Possible
	Eremophila simulans subsp. megacalyx	21	Recorded within 20 km, habitat may be present	Possible
	Hybanthus floribundus subsp. chloroxanthus	Dark red-brown soil, never sandy, rich in iron oxide, laterite. Rocky areas, creek banks, along drainage lines.	Recorded within 40 km, habitat may be present	Possible
P4	Hemigenia exilis	Laterite. Breakaways, slopes.	Recorded within 40 km, habitat likely to be present	Likely

(Botanica, 2021)

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	Not likely to be	Yes
biodiversity." <u>Assessment:</u>	at variance	Refer to Section 3.2.1, above.
During the field survey, evidence of conservation significant fauna, <i>Leipoa ocellata</i> (Malleefowl) (VU), <i>Sminthopsis longicaudata</i> (Long-Tailed Dunnart) (P4) and potential evidence of <i>Dasyurus geoffroii</i> (Chuditch) (VU) was recorded within the application area. No Threatened or Priority flora were recorded within the application area (Phoenix, 2021; Dacian, 2022; GIS Database)		
Principle (b): "Native vegetation should not be cleared if it comprises the whole or a	May be at	Yes
part of, or is necessary for the maintenance of, a significant habitat for fauna." Assessment:	variance	Refer to Section 3.2.2, above.
The area proposed to be cleared contains potential foraging and dispersal habitat for		0.2.2, abovo.
conservation significant fauna.		
Principle (c): "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."	Not likely to be at variance	No
Assessment:		
No Threatened flora species were recorded within the application area during the field survey (Botanica, 2021). In addition, no Threatened flora species were identified from desktop searches within a 40 kilometre radius of the application area (GIS Database;		

Assessment against the clearing principles	Variance level	Is further consideration required?
Botanica, 2021). As such, the area proposed to be cleared is unlikely to be necessary for the continued existence of Threatened flora.		
<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."	Not likely to be at variance	No
<u>Assessment:</u> There are no known Threatened Ecological Communities (TECs) located within the application area or within a 40 kilometre radius of the application area (GIS Database). The nearest TEC is approximately 150 kilometres west of the application area (GIS Database).		
Environmental value: significant remnant vegetation and conservation areas		
<u>Principle (e):</u> "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."	Not at variance	No
Assessment:		
The application area falls within the Murchison Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99.73% of the pre-European vegetation still exists in the Murchison Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 18 and 109 (GIS Database). Approximately 99% of the pre-European extent of these vegetation associations remains uncleared at both the state and bioregional level (Government of Western Australia, 2019).		
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: There are no conservation areas in the vicinity of the application area. The nearest DBCA managed land is a conservation area for flora and fauna (unnamed), which is located approximately 100 kilometres south of the application area (GIS Database). Given the distance to the nearest conservation area, the proposed clearing is unlikely	Not likely to be at variance	No
to impact on the environmental values of the area. Environmental value: land and water resources		
Principle (f): "Native vegetation should not be cleared if it is growing in, or in	At variance	Yes
association with, an environment associated with a watercourse or wetland."		Refer to Section
Assessment: Dillon Creek, an ephemeral watercourse, and its tributaries intersects the application area.		3.2.3, above.
<u>Principle (g):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."	May be at variance	Yes Refer to Section
Assessment:		3.2.3, above.
The mapped soils are susceptible to water erosion. The proposed clearing is likely to have an impact on land degradation following rainfall events.		
<u>Principle (i):</u> "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."	Not likely to be at variance	No
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).		
As such, the proposed clearing is unlikely to result in significant changes to surface water flows or groundwater quality.		

Assessment against the clearing principles	Variance level	Is further consideration required?
<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."	Not likely to be at variance	No
Assessment:		
The climate of the region is semi-arid, with a low average rainfall of approximately 250 millimetres per year (BoM, 2022). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (BoM, 2022).		
There are no permanent water courses or waterbodies within the application area (GIS Database). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.		

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):

- Aboriginal Heritage Places (DPLH-001)
- Contours (DPIRD-073)
- Clearing Regulations Schedule One Areas (DWER-057)
- DBCA Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)

- 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
- Regional Parks (DBCA-026)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality Wind Erosion Risk (DPIRD-016)
- 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 (WA Herb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)
- Western Ringtail Possum Habitat Suitability (DBCA-049)

D.2. References

- Abbott (2012) Original distribution of *Trichosurus vulpecula* (Marsupialia:Phalangeridae) in Western Australia, with particular reference to occurrence outside the southwest. Journal of the Royal Society of Western Australia 95: 83-93.
- BoM (2022) Bureau of Meteorology Website Climate Data Online, Meekatharra. Bureau of Meteorology. http://www.bom.gov.au/climate/data/ (Accessed 03 May 2022).
- Botanica Consulting (Botanica) (2021) Detailed Flora and Vegetation Survey of the Redcliffe Gold Project. Unpublished report prepared for Dacian Gold Limited.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Dacian Gold Limited (Dacian) (2022) Redcliffe Gold Project Purpose Permit Application Assessment of clearing principles on Leases M37/233, M37/1276, M37/1286, M37/1295 and M37/1348. Dacian Gold Limited, February 2022.
- Department of Planning, Lands and Heritage (DPLH) (2022) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS (Accessed 04 May 2022).
- Department of Primary Industries and Regional Development (DPIRD) (2022) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. URL: https://maps.agric.wa.gov.au/nrm-info/ (Accessed 03 May 2022).
- Environmental Protection Authority (EPA) (2016) Technical Guidance Terrestrial Fauna Surveys. Available from: https://www.epa.wa.gov.au/sites/default/files/Policies and Guidance/Tech%20guidance-https://www.epa.wa.gov.au/sites/default/files/Policies and Guidance/Tech%20guidance-
 https://www.epa.wa.gov.au/sites/default/files/Policies and Guidance/Tech%20guidance-
- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics
- Martinick Bosch Sell Pty Ltd (MBS) (2021) Redcliffe Gold Project Soil and Landform Assessment. Unpublished report prepared for Dacian Gold Limited.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68) Atlas of Australian Soils, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press: Melbourne.
- Payne, A.L., Van Vreeswyk, A.M.E., Pringle, H.J.R., Leighton, K.A and Hennig, P (1998) Technical Bulletin No. 90: An inventory and condition survey of the Sandstone-Yalgoo-Paynes Find area, Western Australia. Department of Agriculture, Western Australia, South Perth.
- Phoenix Environmental Services (Phoenix) (2010) *Redcliffe Gold Project stygofauna survey*. Phoenix Environmental Sciences Pty Ltd, Balcatta, WA. Unpublished report prepared for Pacrim Energy Ltd,
- Phoenix Environmental Services (Phoenix) (2021) Fauna and Habitat Survey for the Redcliffe Gold Project. Unpublished report prepared for Dacian Gold Limited.
- Pringle, H.J.R, Van Vreeswyk, A.M.E. and Gilligan, S.A. (1994) An inventory and condition survey of rangelands in the northeastern Goldfields, Western Australia, Technical Bulletin No. 87., Department of Agriculture, South Perth, Western
- 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.

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:

(g)

- (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.

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
- (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.

induction of interisity of nooding.

CPS 9608/1 Page 14

quality of surface or underground water.

CPS 9608/1	Page 15