

# NEW PURPOSE PERMIT APPLICATION DUKETON GOLD PROJECT – GLOSTER

March 2024

# **EXECUTIVE SUMMARY**

Regis Resources Limited (**Regis**) is applying for a new Native Vegetation Clearing Permit to restructure its existing Native Vegetation Clearing Permit 9614/3 relating to the Gloster Gold Mine at its Duketon Gold Project (DGP).

The Duketon Gold Project occurs between 50 and 120 km north of Laverton, comprises three processing plants (Moolart Well, Garden Well and Rosemont), which process ore from open pits and underground mines. Gloster is approximately 120 km northwest of Laverton.

This Purpose Clearing Permit application is made in accordance with the *Environmental Protection (Clearing of Native Vegetation) Regulations,* for incremental disturbance at Gloster associated with expansion of the existing Gloster Gold Mine. The area requested under this clearing permit is 250 ha.

From past studies, key environmental values present across the areas in this application area:

- Seven land systems Ararak, Bevon, Felix, Nubev, Pan, Steer and Violet.
- Vegetation mapping is dominated by Acacia and to a lesser extent Chenopod vegetation associations, typical of the East Murchison IBRA subregion and Austin Botanical District.
- No Threatened or Priority flora have been recorded.
- No Threatened Ecological Communities or Priority Ecological Communities have been recorded.
- Gloster is within the Borodale Creek (Lake Carey) catchment.
- No riparian vegetation in the application area, per se however there are intermittent ephemeral drainage lines throughout the landscape exemplified by the A24 vegetation association.
- Fauna habitats present include flat mulga open woodland with the project providing no important ecological linkage of fauna movement corridors.
- Conservation significant avian species Princess Parrot, Fork-tailed Swift and Peregrine Falcon and the
  recently added Southern Whiteface may infrequently be seen in the area but unlikely to be impacted by
  clearing.

Environmental management of potential impacts are discussed in Section 4 based on existing site controls.

An assessment has been made of the application areas against the ten Clearing Principles, which are presented on the next page.

Clearing Principle	Assessment	Discussion
<b>1.</b> Native vegetation should not be cleared if it comprises a high level of biological diversity	Proposal is not at variance to this principle	Comparison of aerial photography of the survey area and surrounding areas suggests the area under application is typical of the vegetation throughout the region. Cowan (2001) states that the Eastern Murchison subregion is rich and diverse in both flora and fauna. However, most species are wide ranging and usually occur in at least one, and often several, adjoining sub regions. Additionally, Beard states the Murchison is essentially the Mulga region of Western Australia and those conditions within the Murchison region favour Mulga more generally than in any other part of Western Australia. The application area does not have a high level of biodiversity and is well represented within the local and broader region.
2. Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	Proposal is not at variance to this principle	Clearing the vegetation will not result in the loss of significant habitat for indigenous fauna.
<b>3.</b> Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, Threatened flora.	Proposal is not at variance to this principle	No Threatened flora species pursuant to section 19 of the <i>Biodiversity Conservation Act</i> , or pursuant to section 179 of the EPBC Act were recorded near the application area by Mattiske Consulting Pty Ltd experienced botanists. No Threatened flora have been recorded throughout the DGP despite numerous surveys by experienced botanists from Mattiske Consulting Pty Ltd (2009 to 2023).
<b>4.</b> Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a Threatened Ecological Community.	Proposal is not at variance to this principle	No Threatened Ecological Communities have been recorded near the application area or within the Duketon Gold Project.
5. Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	Proposal is not at variance to this principle	The application area is not considered significant as extensive areas nearby and within the project area remain uncleared. Surveys conducted by Mattiske Consulting Pty Ltd have identified the application area is typical of vegetation throughout the region. The application area forms part of a pastoral station where grazing has already occurred in various densities. The main area associated with this application around Gloster has a past history of disturbance activities (historically called Famous Blue). The application area occurs within the approved envelope for CPS 9614/3.
<b>6.</b> Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	Proposal is unlikely to be at variance to this principle	Minor ephemeral drainage lines exist within the application area but only flow following sporadic rainfall events, particularly after cyclonic rain and hence are unlikely to be at variance with this principle. These channels remain dry for most of the year. No wetlands exist within the application area.

Table ES.1	Assessment of the Proposa	I Against the Ten	<b>Clearing Principles</b>
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Clearing Principle	Assessment	Discussion
<b>7.</b> Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Proposal is not at variance to this principle	The application area has an overall grazing influence from cattle grazing, with several examples of cleared, completely degraded and degraded areas in close proximity to previous mining operations (at Famous Blue), and current mining operations at Gloster.
<b>8.</b> 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.	Proposal is not at variance to this principle	The De La Poer Nature Reserve is the closest reserve to the application area which lies approximately 40 km northeast of Gloster. No impacts on the environmental values of the reserve will occur from clearing in the application area due to the distance from the proposed activities.
<b>9.</b> Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface and underground water.	Proposal is unlikely to be at variance to this principle	Vegetation associations that occur on minor ephemeral drainage lines within the application area receive sporadic, surface water flows following the remnants of cyclones or thunderstorms, which is itself often of poor quality due to high intensity of rainfall. Impacts from proposed clearing activities should seek to minimise incremental suspended solids adding to high intensity runoff.
<b>10.</b> Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	Proposal is not at variance to this principle	The application area occurs on flat, landscape where flooding occurs following sporadic heavy rainfall, typically from cyclonic systems.

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- Apendix 3: Level 1 Fauna Risk Assessment for Gloster Project and Haul Road (Terrestrial Ecosystems 2015)

# 1. INTRODUCTION

## 1.1 **Project Overview**

Regis Resources Limited (Regis) is an Australian mineral exploration and gold mining company with major land holdings in the Northeastern Goldfields of Western Australia. Its Duketon Gold Project (DGP) occurs between 70 km and 120 km north of Laverton (Figure 1). The DGP comprises three processing plants (Moolart Well, Garden Well and Rosemont), which process ore from several pits and underground mines across Regis' Duketon tenement package.

Regis seeks to restructure its existing clearing permit 9614/3 by splitting off the Gloster Gold Mine and Haul Road into this Purpose Permit application.

Regis has been mining at Gloster since 2018, although when previously known as Famous Blue was mined between 1902 and 1910. Regis plans to undertake a pit cutback at Gloster, which will require incremental disturbance around the existing mine, including an extension to the existing waste dump and development of a new waste dump.

This application seeks to obtain a new Purpose Permit to disturb 250 ha to conduct mining.

Table 1 and Figure 2 present tenements to be excised from CPS 9614/3 and included in this new application.

 Table 1:
 Tenements to be Transferred from CPS 9614/3 to the New Clearing Permit

Tenement	Tenement Holder
L38/257	Regis Resources Limited
L38/242	Regis Resources Limited
M38/1268	Regis Resources Limited

# **1.2 Statutory Requirements**

This application does not trigger items listed under the Memorandum of Understanding between the Environmental Protection Authority (EPA) and Department of Energy Mines, Industry Regulation and Safety (DEMIRS). Based on previously approved Mining Proposals and Native Vegetation Clearing Permits (NVCP) in the immediate region and considering the scope, location and environmental setting of the proposal, the proposed clearing and impacts can be adequately managed under the *Mining Act* and *Environmental Protection (Clearing of Native Vegetation) Regulations*.

This document addresses activities within the disturbance envelope, including the ten principles for clearing of native vegetation as set out in Schedule 5 of the *Environmental Protection Act* and is to be read in conjunction with the completed application for a new clearing permit.



Figure 1: Duketon Gold Project Regional Location





# 2. PROJECT DESCRIPTION

# 2.1 Previous Activities

Mining at Gloster (or its previous name Famous Blue) occurred between 1902 and 1910. After a substantial period of dormancy, several periods of exploration were undertaken since the early 1980s. In 1995 Johns's Well Mining NL (the previous name for Regis Resources Limited) acquired the Gloster tenements. Regis commenced mining at Gloster in 2016.

# 2.2 Project Descriptions for the New Permit Application

## 2.2.1 Location

The DGP occurs between ~50 and 120 km north of Laverton (Figure 1). The application area is ~26 km west of the current Moolart Well mine site (Figure 2). The Gloster application area currently forms part of CPS 9614/3.

### 2.2.2 Description of Changes

The tenements described in Table 1 will be removed from CPS 9614 to form part of this new permit.

The primary change involves a cutback of the Gloster pit. This will necessitate rehandle of mine waste to allow mining, expansion of the existing waste rock dump. A second contingent waste dump has been identified on the eastern side of the pit in the event it is required. This mostly occurs on previously disturbed land.

#### 2.2.3 Rehabilitation

Management procedures have been developed for rehabilitation of disturbed areas, and are outlined in Section 4. The most recent version of the Duketon Gold Project Mine Closure Plan was submitted with the Duketon Gold Project Mining Proposal Version 11 in January 2024.

Regis has an active programme to rehabilitate areas once mining activities have been completed. Approximately one third of the Gloster Waste Dump has been rehabilitated following progressive rehabilitation although some of that will need to be distributed for expansion of waste rock dumping.

# 3. REGIONAL ENVIRONMENTAL SETTING

# 3.1 Natural Environment

The DGP is located in the Murchison biogeographic region (bioregion) of the Interim Biogeographic Regionalisation for Australia (IBRA). The Murchison bioregion is subdivided into the East Murchison (MUR 1) and West Murchison (MUR 2) subregions.

The DGP is located in MUR 1 containing the northern parts of the Southern Cross and Eastern Goldfields' terrains of the Yilgarn Craton. The subregion is characterised by expansive elevated red desert sandplains with minimal dune development, internal drainage and salt lakes, which are associated with the occluded palaeodrainage system. Redbrown soils dominate the terrain forming broad plains and breakaway complexes. Vegetation of this region typically consists of Mulga Woodlands rich in ephemeral grass and shrub communities, specifically, hummock grasslands, saltbush shrublands and *Halosarcia* shrublands (Cowan, 2001).

# 3.2 Climate

The climatic region within which the DGP is located is classified as desert, being described as arid, with rainfall averaging less than 250 mm a year (Beard, 1990). Rainfall occurs over summer and winter months and is sporadic with no month being reliably wet or dry (Beard, 1990).

The nearest meteorological station is located at Laverton. The average monthly maximum and minimum temperatures and the average monthly rainfall recorded for Laverton are shown on Figure 3.

The mean maximum monthly temperature at Laverton ranges from 17.8 °C in July to 35.8 °C in January, with the median precipitation being 212 mm per year (Bureau of Meteorology, BoM, 2024). The mean number of rain days receiving >1 mm for Laverton is 29.6 per year.





# 3.3 Geology, Soils and Topography

The Eastern Goldfields region is underlain by rocks of the Yilgarn Craton which are mostly Archaean granitic rocks, often intruded by quartz veins and dolerite dykes. Areas of Archaean migmatite and gneiss are associated with Archaean greenstone belts, which contain a mix of metamorphosed mafic-ultramafic and felsic volcanics and metasediments. The Archaean bedrock has been extensively weathered and is often covered by Tertiary and Quaternary alluvial, colluvial and Aeolian deposits (Beard 1990; Tille 2006).

Topographically, it comprises undulating low hills and extensive sandplains in the eastern half. Soils are predominantly shallow earthy loam overlying red-brown hardpan; shallow stony loams on hills and red earthy sands on the plains (Beard, 1990).

In more recent times, mapping of soils and landscapes has become available at a greater level of detail. The Department of Primary Industries and Regional Development (DPIRD), in its "Soil-landscapes of Western Australia's Rangelands and Arid Interior" (Tille, 2006), describes a range of soil-landscape mapping units. The project falls within the Salinaland Plains Zone of the Murchison Province (Mattiske Consulting Pty Ltd, 2021). The Salinaland Plains Zone is characterised by:

- Sandplains (with hardpan wash plains and some mesas, stony plains and salt lakes) on granitic rocks (and some greenstone) of the Yilgarn Craton.
- Red sandy earths, red deep sands, red shallow loams and red loamy earths with some red-brown hardpan shallow loams, saltlake soils and red shallow sandy duplexes.
- Mulga shrublands with spinifex grasslands (and some halophytic shrublands and eucalypt woodlands).

# 3.4 Land Systems

The Austin Botanical District is the largest of the Eremaean regions and is essentially Mulga woodlands associated with red loams over siliceous hardpans on the plains reducing to scrub on the rises and hills (Pringle *et al.*, 1994). This botanical district is also comprised of Mulga and *Eremophila* shrublands which dominate on stony plains and chenopod communities are more often associated with duplex soils (Pringle *et al.*, 1994).

Land system mapping of the north eastern Goldfields, including the survey area has been prepared by DPIRD (Pringle *et al.*, 1994). This mapping sought to define the topographic characteristics of the north eastern Goldfields. Land systems are grouped into land types according to a combination of landforms, soils, vegetation and drainage patterns. Pringle *et al.* (1994) found that boundaries between plant communities are often sharp and mostly associated with boundaries between landforms and their soils along the slope of the land. Greater diversity in plant communities is often found higher in the landscape where differential weathering and erosion occurs across slope.

Of specific interest are land systems occurring within the application area, which are summarised in Table 2. The dominant land system is the Felix system which covers a large proportion of the mine site. Nubev occurs on the western of the Gloster survey area. Violet, Ararak, Pan and Steer are limited to the haulroad corridor between Gloster and Moolart Well.

Land	Description	Location
System		
Felix	Gently undulating plains with quartz mantles, supporting Acacia-Eremophila	Site and haul road
	shrublands locally with wanderrie grasses.	
Violet	Undulating stony and gravelly plains and low rises supporting mulga and	Haul road
	poverty bush shrublands with minor areas of wanderrie grasses.	
Nubev	Gently undulating stony plains, minor ironstone low rises and drainage floors	Site and haul road
	with chenopod shrublands on drainage floors and mulga and poverty bushes	
	elsewhere	
Ararak	Broad plains with mantles of ironstone gravel supporting mulga shrublands	Haul road
	with wanderrie grasses.	
Pan	Narrow unincised drainage tracts and claypans through sandplain, supporting	Haul road
	mulga shrublands and spinifex hummock grasslands.	
Steer	Gravelly alluvial plains with halophytic shrublands.	Haul road

 Table 2:
 Land Systems Associated with Areas Under this Application

# 3.5 Surface Water

The application area is located within the internally draining Salt Lake Basin (~441,000 km<sup>2</sup>), which extends across much of central Western Australia. The Salt Lake Basin comprises several large and broad sub-parallel southeast trending salt lake drainage systems which extend from a regional divide to the west of Wiluna/Sandstone and drain to either Ponton Creek (Raeside and Rebecca system) or terminate at the edge of sand plains (Carey/Minigwal system).

Gloster is located in the northern headwaters of the Borodale Creek catchment. Borodale Creek terminates in a series of poorly defined soaks at the southern end of Lake Irwin.

There are no significant river systems or Ramsar sites in the application area.

Minor ephemeral drainage lines are scattered across the landscape. In the Gloster area, the ephemeral streams are primarily in a north-south direction and only briefly flow following substantial rainfall events such as the remnants of cyclones and thunderstorms.

# 3.6 Vegetation and Flora

The flora and vegetation survey covering the application area is Mattiske Consulting Pty Ltd (2015) - Flora and Vegetation of the Gloster Project Area (Level 2 Survey).

#### 3.6.1 Threatened and Priority Flora

No Threatened flora species pursuant to section 19 of the *Biodiversity Conservation Act* and as listed by the Department of Biodiversity, Conservation and Attractions (DBCA 2023), or pursuant to section 179 of the EPBC Act or listed by the Department of Climate Change, Energy, the Environment and Water, have been recorded at the DGP.

No priority flora species have been recorded at Gloster.

From past flora and vegetation studies of mining project areas across the DGP, the following species have previously been recorded:

- Frankenia georgei (Priority 1) recorded near Rosemont.
- Lysiandra baeckeoides (Priority 3) recorded near Anchor, Coopers, Russell's Find and Moolart Well.
- *Calytrix praecipua* (Priority 3) recorded south of King of Creation, Dogbolter, Rosemont, Toohey's Well, Russell's Find and Moolart Well.

- *Einadia nutans* subsp. *nutans* (Priority 3) recorded adjacent to the Baneygo haul road.
- *Eremophila pungens* (Priority 4) has been recorded at most projects across the DGP.

#### 3.6.2 Vegetation Associations

As vegetation surveys for the application area were conducted at different times, two vegetation classification schemes have been used. Vegetation associations have either been mapped in accordance with the structural forms of vegetation described by Beard (1990) or based on Aplin's (1979) modification of the vegetation classification system of Specht (1970), to align with the National Vegetation Information Systems (NVIS). Vegetation associations are however broadly similar, with associations being primarily dominated by Mulga/Acacia species and to a lesser extent Chenopods.

The vegetation associations mapped at each of the areas subject to this application are summarised in Table 3 and shown in Figure 4 to Figure 12.

Vegetation	Description	Site or	Mapped
Association		Haul	Area
Code		Road	(ha)
A8	Low open woodland to open shrubland of Acacia ayersiana,	Site and	312.91
	Acacia aneura var. aneura and Acacia aptaneura with Acacia	Haul	
	tetragonophylla over Eremophila latrobei subsp. filiformis,	Road	
	Ptilotus obovatus, Dianella revoluta and Eragrostis eriopoda		
	on orange sandy-loams on flats.		
A12	Open shrubland of Acacia incurvaneura and Acacia	Site and	263.70
	mulganeura over Acacia tetragonophylla and Eremophila	Haul	
	oldfieldii over Ptilotus obovatus, Hibiscus burtonii and	Road	
	Solanum lasiophyllum over mixed grasses on flats to lower		
	slopes with red gravely clay soil and quarts pebbles.		
A20	Open to semi-closed shrubland of Acacia incurvaneura and	Site and	55.13
	Acacia quadrimarginea over Ptilotus obovatus, Baeckea sp.	Haul	
	Melita Station (H. Pringle 2738) and Ptilotus schwartzii over	Road	
	mixed grasses on red clay loams with numerous granitic		
	outcropping on slopes and ridges.		
A21	Scrub to open scrub of Acacia sect. Juliflorae (A. aneura,	Haul road	159.61
	A. ?incurvaneura and A. craspedocarpa) over open low	oniy	
	snrubland of Eremophila spectabilis subsp. brevis over		
	Eriachne neimsil tussock grassland on red-orange sandy to		
4.0.4	Clay loam (sometimes with graver) on hats.	Oite and	054.70
AZ4	Inicket of Acadia Sect. Juliforae (A. ?aneura, A. Incurvaneura	Site and	254.79
	and A. craspedocarpa) with Acacia tetragonophylia over open	Haui	
	obsystus and Malyaceae spp. over Chailanthes sightri subsp.	Road	
	sieberi over tusseek grassland of mixed Poaceae spp. op red		
	orange sandy loam to clay loam in minor drainage lines		
Δ25	Thicket of Acacia sect Juliflorae (A Caneura A incurvaneura	Site and	241.66
723	and A 2 caesaneura) with Acacia tetragononbylla over open	Haul	241.00
	low shruhland of Fremonbila 2spectabilis. Psydrax suaveolens	Road	
	and Solanum lasionhyllum over Fragrostis eriopoda and other	Rodd	
	mixed grasses on red-orange clay loam on flats with quartz		
	and iron pebbles.		
A26	Scrub to open scrub of Acacia sect. Juliflorae (A.	Site and	124.34
	incurvaneura. A. macraneura and A. mulganeura) over open	Haul	
	low shrubland of Ptilotus obovatus and Solanum lasiophyllum	Road	
	over low chenopod shrubland of Maireana triptera and		

#### Table 3:Vegetation Associations in the Gloster Survey Area

	Sclerolaena cuneata on red-orange clay loam on flats and slopes (rarely) with quartz peoples		
A27	Open scrub of Acacia sect. Juliflorae (A. ?aneura and A. incurvaneura) over open low shrubland of Solanum lasiophyllum and Maireana convexa over mixed grasses on red-orange clay loam on flats with guartz and iron pebbles.	Site and Haul Road	171.75
C5	Low open Chenopod shrubland of Maireana pyramidata and Eriochiton sclerolaenoides with emergent Acacia sect. Juliflorae (A. ?aneura and A. pteraneura) and Acacia tetragonophylla over Frankenia setosa and Maireana georgei on red-orange clay-loams on flats with quartz and iron pebbles.	Site and Haul Road	80.80
C6	Low open Chenopod shrubland of Maireana triptera, Sclerolaena eurotioides, Maireana trichoptera and Sclerolaena cuneata with emergent Acacia sect. Juliflorae (A. incurvaneura and A. craspedocarpa) over Ptilotus obovatus and Scrophulariaceae spp. on red-brown clay to clayloams on flats.	Site and Haul Road	30.02
C7	Low open Chenopod shrubland of Sclerolaena eurotioides, Sclerolaena cuneata and Maireana appressa with emergent Acacia incurvaneura over Frankenia laxiflora and Atriplex ?nana over mixed grasses on orange clay-loams on slopes.	Site and Haul Road	3.65
D1	Mulga low forest A over mixed open scrub to dwarf scrub over mixed open low grasses (OES 2007).	Haul road only	3.59



Figure 4: Vegetation Mapping at Gloster Map 1 of 9



Figure 5: Vegetation Mapping at Gloster Map 2 of 9



Figure 6: Vegetation Mapping at Gloster Map 3 of 9











Figure 9: Vegetation Mapping at Gloster Map 6 of 9



Figure 10: Vegetation Mapping at Gloster Map 7 of 9



Figure 11: Vegetation Mapping at Gloster Map 8 of 9



Figure 12: Vegetation Mapping at Gloster Map 9 of 9

# 3.6.3 Vegetation Condition

Other than a large area central to the Gloster survey area which was classified as completely degraded due to past mining and exploration activities, most vegetation was classed as pristine to excellent at the time of the survey.

## 3.6.4 Wetlands and Riparian Vegetation

Ephemeral drainage lines occur across the DGP landscape, which typically only flow after sustained heavy rainfall such as remnants of ex-tropical cyclones. The larger of these ephemeral creeks are named (such as Borodale Creek which is beyond the application area). Nearly all other creeks are unnamed.

The closest vegetation associations to "riparian vegetation" in the application area are those associated with ephemeral drainage lines, such as A24 Thicket of Acacia sect. Juliflorae (*A. ?aneura, A. incurvaneura* and *A. craspedocarpa*) with *Acacia tetragonophylla* over open low shrubland of *Eremophila forrestii* subsp. *forrestii, Ptilotus obovatus* and Malvaceae spp. over *Cheilanthes sieberi* subsp. *sieberi* over tussock grassland of mixed Poaceae spp. on red-orange sandy loam to clay loam in minor drainage lines.

## 3.6.5 Threatened Ecological Communities

No Threatened Ecological Communities (TECs), pursuant to Schedule 1 of the *Biodiversity Conservation Act 2016* and as listed by the DBCA have been recorded in the Gloster survey area or the remainder of the DGP. Similarly no Priority Ecological Communities exist in the Gloster survey area or the remainder of the DGP.

# 3.7 Vertebrate Fauna

The most relevant fauna survey to this the Level 1 Fauna Risk Assessment for the Gloster Project and Haul Road (Terrestrial Ecosystems 2015, Appendix 3)).

#### 3.7.1 Habitats Present

There are four broad habitats:

- Flat open Mulga woodlands over scattered shrubs on stony sandy-clay substrate;
- Flat open Mulga woodland over scattered shrubs on a sandy clay substrate;
- Floodways with few trees and shrubs on a red clay substrate; and
- Highly disturbed areas.

#### 3.7.2 Conservation Significant Species Potentially Present

From Terrestrial Ecosystems (2015), Table 4 identifies potential impact to conservation significant fauna.

# Table 4:Current Conservation Significant Species Potentially Present in the<br/>Application Areas (from Terrestrial Ecosystems 2015)

Species	Conservation		Potential Impact on Species
	Significance		
Sandhill	BC A	\ct	Unlikely to be in the project area so potential for impact
Dunnart	Endangered		on this species is low.
	EPBC A	\ct	
	Endangered		
Northern	Priority 4		Unlikely to be in the project area so potential for impact
Marsupial	-		on this species is low.
Mole			
Mulgara	Priority 4		Unlikely to be in the project area so potential for impact
-	-		on this species is low.

Malleefowl	BC Act Vulnerable EPBC Act Vulnerable	Unlikely to be in the project area so potential for impact on this species is low.
Great Desert Skink	BC Act Vulnerable EPBC Act Vulnerable	May infrequently be seen in the area; however, clearing vegetation is unlikely to impact on this species
Princess Parrot	Priority 4 EPBC Act Vulnerable	May infrequently be seen in the area; however, clearing vegetation is unlikely to impact on this species.
Southern Whiteface*	BC Act Vulnerable EPBC Act Vulnerable	Potentially in the project area, but it will readily move, so any impacts are unlikely to be significant.
Fork-tailed Swift	BC Act Migratory EPBC Migratory	May infrequently be seen in the area; however, clearing vegetation is unlikely to impact on this species.
Peregrine Falcon	BC Act Other Specially Protected	May infrequently be seen in the area; however, clearing vegetation is unlikely to impact on this species.
Branchinella apophysata	Priority 1	Unlikely to be in the project area, so the potential for impact on this species is low.

\*In preparation of Table 4, the Southern Whiteface is a recent inclusion on both the State and Commonwealth conservation significance lists. Given its broad habitat of open woodlands and shrublands with an understorey of grasses and low shrubs and wide distribution of arid and semi-arid interior from the WA coast near Hamelin Bay through the Great Victoria Desert into the arid areas of South Australia, Victoria, NSW and Queensland, the species has been extrapolated (in italics) as potentially present in the other project areas.

# 4. PROJECT IMPACTS AND MANAGEMENT

# 4.1 Managing Environmental Impacts

#### 4.1.1 Approach to Environmental Management

Regis is committed to fulfilling its social and regulatory environmental responsibility. The company plans its mining activities to avoid or minimise impacts to environmental values.

Areas have been reviewed and assessed for potential impacts on the surrounding environment and Aboriginal heritage values.

Development activities will result in the direct loss of native vegetation through clearing. There is also potential for indirect losses from dust, competition from weeds, inadequate topsoil stripping and management and poor machinery control during rehabilitation.

Clearing of native vegetation can also directly affect fauna, for example as a result of deaths caused during clearing operations, and through the loss of habitat.

Management controls addressing each of these aspects are identified in the following sections.

## 4.1.2 Land Clearing

This application applies for 250ha of vegetation disturbance. This will result in direct loss of vegetation, requiring removal of topsoil from disturbance areas.

#### <u>Objectives</u>

- Avoid clearing of native vegetation wherever possible.
- Limit clearing of native vegetation to approved areas.
- Undertake activities in a manner to minimise adverse impacts to vegetation.
- Strip and stockpile topsoil for use in rehabilitation.

#### <u>Management Controls</u>

Management controls that relate specifically to land clearing are detailed below:

- Clearing is managed across by Regis via an internal clearing permit system. As part of the clearing permit system, proposed activities are checked against flora and fauna values, Priority flora locations, Aboriginal heritage, tenure and Mining Proposal footprints.
- Inductions cover the importance of minimising vegetation clearing and disturbance.
- Areas to be cleared will be delineated on project drawings and defined in the field by survey using coloured flagging to indicate the extent of authorised clearing. The site representative, work area supervisor and equipment operator will walk the area to be cleared prior to the commencement of clearing. Conspicuous flagging will be used to identify clearing boundaries.
- Personnel involved in clearing activities will be informed about avoidance areas (flora, fauna, heritage areas and other features) and the conditions that apply to each area. All employees will be competent in managing potential risks to these sensitive areas.

- The Survey Department undertake monthly reconciliations of:
  - Area of land cleared in the past month.
  - Progressive total area of land cleared.
  - Locations of topsoil stockpiles.

The reconciled data is used for record keeping including annual reports for clearing permits.

#### 4.1.3 Flora

No Threatened or Priority flora have been recorded during past surveys of Gloster.

The following measures are designed to minimise adverse impacts on flora and vegetation within the project area and surrounds.

#### <u>Objectives</u>

- Avoid impacts to native vegetation wherever possible.
- Limit disturbance of native vegetation to those areas necessary.
- Design infrastructure to minimise disturbance to Priority Flora species wherever possible.
- Mitigate impacts to native vegetation.
- Rehabilitate disturbance areas as soon as practicable.

#### Management Controls

Management controls that relate specifically to flora are detailed below:

- Internal clearing permits are developed, assessed and approved before clearing can commence (as described in section 4.1.2).
- Vegetation clearing will be minimised, with preferential use of previously disturbed or degraded areas where possible.
- Progressive rehabilitation will be undertaken as soon as practicable.
- Priority Flora locations near vegetation disturbance footprints are avoided from direct and inadvertent impacts wherever possible.
- Site inductions will ensure that personnel have an awareness of Priority Flora expected to occur within the project area.
- Dust suppression will be regularly undertaken on high traffic roads to minimise potential dust related impacts on adjacent vegetation.

#### 4.1.4 Introduced Flora

#### **Objectives**

• Prevent and minimise the introduction and spread of weeds within the project area.

#### Management Controls

Management controls that relate specifically to introduced flora are detailed below:

• All ground engaging, earthmoving and tracked equipment will be cleaned prior to arrival on site to remove all earth, stones or vegetative material, and prior to entering a weed free area to prevent the introduction of weeds, plants and plants and plant pathogens.

- All other general equipment, including light vehicles, will be presented to site in a clean state, free from soil or vegetative material.
- Any new weed infestations will be reported as an environmental incident.
- If substantial populations of weeds are identified, targeted weed spraying will be implemented.
- Work areas will be inspected for weeds on an ongoing basis.

#### 4.1.5 Topsoil and Rehabilitation

Disturbed areas that are not rehabilitated, or inadequately rehabilitated, may result in long-term changes to the landscape through soil erosion and associated sedimentation, introduction of weeds and use of tracks to gain access to restricted areas.

#### **Objectives**

- Meet legislative requirements with respect to the rehabilitation of relevant project sites and to liaise closely with Government bodies to ensure compliance.
- Maintain positive topsoil balances when planning topsoil stripping for new disturbance.
- Encourage re-establishment of self-sustaining ecosystems compatible with surrounding undisturbed areas.

#### Management Controls

Management controls that relate specifically to topsoil management and rehabilitation are detailed below:

- Topsoil will be stripped and stockpiled as part of clearing works.
- Topsoil will be removed to a depth of 100 mm to 300 mm, depending on the nature of the material and existing materials balance.
- Topsoil will be directly transferred to areas being rehabilitated where possible. Where this is not possible, topsoil will be stored in stockpiles for later use.
- Stockpiles will be no higher than 3 m and identified on a site plan.
- No burning of vegetation spoil will occur.
- All disturbed areas no longer required will be landformed and have topsoil applied.
- Where practicable, disturbed areas will be progressively rehabilitated.
- Disused compacted surfaces will be scarified.
- Topsoil and vegetation will be respread over disused areas.
- Large rocks and logs will be placed in rehabilitation areas to simulate fauna habitats.
- Where appropriate, natural drainage patterns will be reinstated.
- Where the establishment of supplementary vegetation cover is necessary, local seed and plants will be used in site rehabilitation.
- The Survey Department undertake monthly reconciliations of:
  - Area of land cleared in the past month.
  - Progressive total area of land cleared.
  - Locations of topsoil stockpiles.

#### 4.1.6 Surface Water

Regis undertakes project activities in a manner that minimises adverse impacts to ephemeral surface water quality and hydrology.

#### **Objectives**

- Avoid impacts to the quality of surface water wherever possible.
- Minimise unavoidable impacts on the quality of surface water.
- Avoid unnecessary disturbance to natural surface water drainage.

#### Management Controls

Management controls that relate specifically to surface water are detailed below:

- Project design seeks to avoid interaction with drainage where possible. Where drainage interception is required, diversions, culverts, overflows and floodways will be designed to protect people and infrastructure from flooding risks. Design of creek crossings for infrastructure corridors have sought to minimise direct disturbance by crossing perpendicular to ephemeral drainage lines. Indirect impacts are minimised by allowing for low flow culverts and floodways to avoid restricting flow.
- The establishment and construction of drainage structures will be monitored to ensure compliance with the design specifications.
- Diversions, culverts, overflows and flood-ways will be incorporated into road design to maintain close-to-natural drainage patterns.
- Culverts will be designed and constructed to minimise the extent of upstream ponding and the need for outlet drains.
- Culverts will be sized to accommodate seasonal flows.
- Pipelines will be buried when crossing drainage features.

#### 4.1.7 Fauna

Most fauna is expected to move into adjacent areas during clearing activities. Whilst some sedentary fauna may be lost, most will shift into neighbouring areas. Migrants increase competition for resources, which may result in the subsequent loss of migrants or local individuals who have been displaced. Impacts associated with clearing vegetation in the project area in a landscape or bioregion context on the vertebrate fauna are likely to be low as there are vast tracts of similar habitat in adjacent areas.

Conservation significant fauna are unlikely to be affected as habitat is too open for terrestrial conservation significant fauna, or in the case of avian species, are either aerial specialists occasionally visiting habitats or opportunistically exploiting conditions (such as after heavy rainfall events).

#### <u>Objectives</u>

- Minimise impacts to native fauna species during disturbance activities.
- Ensure conservation significant fauna are not adversely affected by the project.
- Minimise the spread of pest species.

#### Management Controls

Management controls that relate specifically to fauna are detailed below:

• Habitats with greater conservation value will be planned for avoidance where possible.

- Road kills, including those resulting from travel to and from project areas, will be removed from the road and reported as an environmental incident.
- All fauna deaths and feral animal sightings will be reported to the site environmental representative.
- No pets or other animals will be brought onto the site.
- Firearms will be prohibited on site.
- All trenches will be fitted with ramps (as appropriate), and will be filled/closed when no longer required, to avoid entrapment of fauna.
- An employee induction program outlining fauna and habitat of conservation significance will be implemented.

# 5. CLEARING PRINCIPLES

An assessment of the disturbance identified in this application has been made against the ten Principles for Native Vegetation Clearing (Table 5).

	Table 5:	Assessment of the	e Proposal Ag	gainst the Ten	<b>Clearing Principles</b>
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Clearing Principle	Assessment	Discussion		
1. Native vegetation should not be cleared if it comprises a high level of biological diversity	Proposal is not a variance to thi principle	<ul> <li>Comparison of aerial photography of the survey area and surrounding areas suggests the area under application is typical of the vegetation throughout the region.</li> <li>Cowan (2001) states that the Eastern Murchison subregion is rich and diverse in both flora and fauna. However, most species are wide ranging and usually occur in at least one, and often several, adjoining sub regions. Additionally, Beard states the Murchison is essentially the Mulga region of Western Australia and those conditions within the Murchison region favour Mulga more generally than in any other part of Western Australia.</li> <li>The application area does not have a high level of biodiversity and is well represented within the local and broader region.</li> </ul>		
<b>2.</b> Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	Proposal is not a variance to thi principle	Clearing the vegetation will not result in the loss of significant habitat for indigenous fauna.		
<b>3.</b> Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, Threatened flora.	Proposal is not a variance to thi principle	t No Threatened flora species pursuant to section 19 of the <i>Biodiversity Conservation Act</i> , or pursuant to section 179 of the EPBC Act were recorded near the application area by Mattiske Consulting Pty Ltd experienced botanists.		
		No Threatened flora have been recorded throughout the DGP despite numerous surveys by experienced botanists from Mattiske Consulting Pty Ltd (2009 to 2023).		
<b>4.</b> Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a Threatened Ecological Community.	Proposal is not a variance to thi principle	<ul> <li>No Threatened Ecological Communities have been recorded near the application area or within the Duketon</li> <li>Gold Project.</li> </ul>		
<b>5.</b> Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	Proposal is not a variance to thi principle	The application area is not considered significant as extensive areas nearby and within the project area remain uncleared. Surveys conducted by Mattiske Consulting Pty Ltd have identified the application area is typical of vegetation throughout the region. The application area forms part of a pastoral station where grazing has already occurred in various densities. The main area associated with this application around Gloster has a past history of disturbance activities (historically called Famous Blue). The application area occurs within the approved envelope for CPS 9614/3.		

Clearing Principle	Assessment	Discussion
<b>6.</b> Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	Proposal is unlikely to be at variance to this principle	Minor ephemeral drainage lines exist within the application area but only flow following sporadic rainfall events, particularly after cyclonic rain and hence are unlikely to be at variance with this principle. These channels remain dry for most of the year. No wetlands exist within the application area.
<b>7.</b> Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Proposal is not at variance to this principle	The application area has an overall grazing influence from cattle grazing, with several examples of cleared, completely degraded and degraded areas in close proximity to previous mining operations (at Famous Blue), and current mining operations at Gloster.
<b>8.</b> 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.	Proposal is not at variance to this principle	The De La Poer Nature Reserve is the closest reserve to the application area which lies approximately 40 km northeast of Gloster. No impacts on the environmental values of the reserve will occur from clearing in the application area due to the distance from the proposed activities.
<b>9.</b> Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface and underground water.	Proposal is unlikely to be at variance to this principle	Vegetation associations that occur on minor ephemeral drainage lines within the application area receive sporadic, surface water flows following the remnants of cyclones or thunderstorms, which is itself often of poor quality due to high intensity of rainfall. Impacts from proposed clearing activities should seek to minimise incremental suspended solids adding to high intensity runoff.
<b>10.</b> Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	Proposal is not at variance to this principle	The application area occurs on flat, landscape where flooding occurs following sporadic heavy rainfall, typically from cyclonic systems.

# 6. **REFERENCES**

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# APPENDICES

# APPENDIX 1: TENEMENT SUMMARY REPORTS FOR L38/242, L38/257, M39/1268





## MINING TENEMENT SUMMARY REPORT

#### **MISCELLANEOUS LICENCE 38/242**

Status: Live

#### TENEMENT SUMMARY

Area: 673.36000 HA

Death Reason :

Commence : 09/03/2016

Mark Out : N/A

Death Date :

Received : 29/10/2015 11:55:00

Term Granted : 21 Years

#### **CURRENT HOLDER DETAILS**

#### Name and Address

REGIS RESOURCES LIMITED HETHERINGTON EXPLORATION & MINING TITLE SERVICES, C/- HETHERINGTON EXPLORATION & MINING TITLE SERVICES, SUITE 404, GROUND FLOOR, 50 ST GEORGES TERRACE, PERTH, WA, 6000, xxxxx@hemts.com.au, xxxxx977

#### DESCRIPTION Locality: Banjawarn Datum: Datum situated at Zone 51,6950824 North, 410615 East Boundary: thence 6951567 North, 412814.8 East 6951639 North, 415953 East 6950332 North, 422544.2 East 6949295 North, 424352.8 East 6949323 North, 432692 East 6949023 North, 432693 East 6948995 North, 424273.4 East 6950047 North, 422437.7 East 6951345 North, 415894.7 East 6951267 North, 412814.8 East 6950524 North, 410620.2 East 6950824 North, 410615 East Back to Datum Area : Туре **Dealing No** Start Date Area Granted 09/03/2016 673.36000 HA Applied For 29/10/2015 673.36000 HA SHIRE DETAILS Shire No Shire Start End Area LAVERTON SHIRE 4970 29/10/2015 673.36000 HA





## MINING TENEMENT SUMMARY REPORT

#### **MISCELLANEOUS LICENCE 38/257**

Status: Live

#### TENEMENT SUMMARY

Area: 18.75720 HA

Death Reason :

Mark Out : N/A

Death Date :

**Commence**: 09/09/2016

**Received :** 06/05/2016 09:08:54

Term Granted : 21 Years

#### **CURRENT HOLDER DETAILS**

#### Name and Address

REGIS RESOURCES LIMITED HETHERINGTON EXPLORATION & MINING TITLE SERVICES, C/- HETHERINGTON EXPLORATION & MINING TITLE SERVICES, SUITE 404, GROUND FLOOR, 50 ST GEORGES TERRACE, PERTH, WA, 6000, xxxxx@hemts.com.au, xxxxx977

		DE	SCRIPTION		
Locality:	Gloster				
Datum:	m: Datum situated at Zone 51 6950066.939 North, 409183 871 East				
Boundary:	6950157.841 North North, 409519.29 I East 6950066.939 Datum	n, 409513.131 East 69493 East 6949295.908 North, 4 North, 409183.871 East B	30.211 09396.349 ack to		
Area :	Туре	Dealing No		Start Date	Area
	Granted			09/09/2016	18.75720 HA
	Applied For			06/05/2016	18.75720 HA
		SHI	RE DETAILS		
Shire		Shire No	Start	End	Area
LAVERTON	N SHIRE	4970	06/05/2016		18.75720 HA





## MINING TENEMENT SUMMARY REPORT

#### MINING LEASE 38/1268

Status: Live

#### TENEMENT SUMMARY

Area: 907.40000 HA

Death Reason :

**Death Date :** 

Mark Out : 06/05/2015 08:30:00

Received : 08/05/2015 14:50:00

Commence : 20/11/2015

Term Granted : 21 Years

#### **CURRENT HOLDER DETAILS**

#### Name and Address

REGIS RESOURCES LIMITED HETHERINGTON EXPLORATION & MINING TITLE SERVICES, C/- HETHERINGTON EXPLORATION & MINING TITLE SERVICES, SUITE 404, GROUND FLOOR, 50 ST GEORGES TERRACE, PERTH, WA, 6000, xxxxx@hemts.com.au, xxxxx977

DESCRIPTION							
Locality: Datum:	Famous Blue Datum situated at Zone 51, 6950524.779 North,410620.172 East						
Boundary:	6950518.793 North 409881.362 East 6950277.814 North 409947.857 East 6950067.046 North 409184.243 East 6949295.372 North 409396.690 East 6949083.279 North 408625.549 East 6948558.561 North 408770.352 East 6948554.269 North 408123.563 East 6949524.005 North 407443.162 East 6951932.858 North,406779.675 East 6952411.988 North,408512.397 East 6951640.438 North 408725.981 East 6951781.993 North 409238.740 East 6951481.559 North 409240.882 East 6951887.886 North 409740.762 East 6951887.293 North 409441.111 East 6952362.757 North 409290.291 East 6952372.930 North 410588.395 East Back to Datum Identical to Prospecting Licences 38/3769 to 38/3774.						
Area :	<b>Type</b> Surveyed Granted Applied For	Dealing No		Start Date 26/07/2016 20/11/2015 06/05/2015	<b>Area</b> 907.40000 HA 905.32000 HA 905.28930 HA		
SHIRE DETAILS							
<b>Shire</b> LAVERTON	I SHIRE	<b>Shire No</b> 4970	<b>Start</b> 08/05/2015	End	<b>Area</b> 907.40000 HA		

# APPENDIX 2: FLORA AND VEGETATION OF THE GLOSTER PROJECT AREA (LEVEL 2 SURVEY; MATTIKSE CONSULTING PTY LTD 2015).

# APENDIX 3: LEVEL 1 FAUNA RISK ASSESSMENT FOR GLOSTER PROJECT AND HAUL ROAD (TERRESTRIAL ECOSYSTEMS 2015)