



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	9888/1
Permit type:	Purpose Permit
Applicant name:	Golden Grove Operations Pty Ltd
Application received:	16 September 2022
Application area:	10.82 hectares
Purpose of clearing:	Mineral Production and Associated Activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 59/195
Location (LGA area):	Shire of Yalgoo
Colloquial name:	Golden Grove Open Pit Expansion Project

1.2. Description of clearing activities

Golden Grove Operations proposes to clear up to 10.82 hectares of native vegetation within a boundary of approximately 19.44 hectares, for the purpose of mineral production and associated activities. The project is located approximately 115 kilometres south west of Mount Magnet, within the Shire of Yalgoo.

The application is to allow for the extension of the Gossan Hill Run of Mine (ROM) Pad, to allow for greater storage of waste generated from the Goassan Hill underground mine, improve management of potentially acid forming (PAF) waste and greater ore stockpiling capacity (29 Metals, 2022).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	24 November 2022
Decision area:	10.82 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 16 September 2022. DMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix B), relevant datasets (Appendix E), supporting information provided by the applicant including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix D), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- potential land degradation;
- impacts to conservation significant flora; and
- the loss of native vegetation that is suitable habitat for *Leipoa ocellata* (Malleefowl), *Cyclodomorphus branchialis* (gilled slender blue-tongue) and *Egernia stokesii badia* (western spiny-tailed skink).

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

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback;
- undertake clearing within three months of the authorised clearing being undertaken;

- undertake slow, progressive one-directional clearing with an observer (fauna spotter) to allow terrestrial fauna to move into adjacent habitat ahead of the clearing and reduce the risk of fauna injury/fatality;
- where clearing occurs between 1 September and 31 January, within two week prior to the clearing, engage an environmental specialist to identify active Malleefowl mounds and ensure no clearing occurs within 50 metres of the mound; and
- engage a fauna specialist to identify habitat/habitat trees suitable to be used by Western Spiny-tailed Skink (*Egernia stokesii badia*) and retain habitat trees to relocate them to adjacent vegetation to preserve the habitat.

1.5. Site map

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



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

2. Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated

Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- 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 avoidance and mitigation measures such as:

- clearly demarcate the area of vegetation required to be cleared;
- check area for Malleefowl nests prior to clearing activities;
- move through area to be cleared with a loud sound immediately prior to civil equipment entry;
- ensure suitably qualified wildlife spotter/handler is on call during clearing works;
- clearing in accordance with the Golden Grove Land Clearing and Rehabilitation Procedure, including inspection to identify Priority plants;
- topsoil stripping to be avoided in windy conditions;
- topsoil stockpiles will not exceed 2m in vertical height and will not be compacted during stockpiling activities;
- dust suppression during clearing and operational activities; and
- disturbed areas to be rehabilitated progressively as available (Woodman Environmental Consulting, 2013).

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 B) 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 identified that the impacts of the proposed clearing present a risk to biological values (conservation significant fauna and flora). 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 (flora) - Clearing Principles (a) and (c)

Assessment

The Level 2 flora and vegetation survey, undertaken by Woodman Environmental Consulting in 2012, was conducted over a larger study area (2,951 hectares), inclusive of the application area. A total of 114 discrete vascular flora taxa representing 26 families and 53 genera were recorded (Woodman Environmental Consulting, 2013).

The flora and vegetation survey recorded the following seven conservation significant flora within the Study Area and one species, *Grevillea globosa* (Priority 3), within the application area (Woodman Environmental Consulting, 2013):

- *Stylidium scintillans* (Threatened)
- *Drummondita fulva* (Priority 3)
- *Micromyrtus trudgenii* (Priority 3)
- *Polianthion collinum* (Priority 3)
- *Grevillea globosa* (Priority 3)
- *Persoonia pentasticha* (Priority 3)
- *Calotis* sp. Perrinvale Station (Priority 3)
- *Acacia speckii* (Priority 4)

Four additional conservation significant species have been historically recorded within 20 kilometers of the application area: *Amanita lesueurii* – Priority 2; *Haegiela tatei* – Priority 4; *Psammodroma implexa* – Priority 3; and *Rhodanthe collina* – Priority 3 (GIS Database). These species are considered unlikely to occur within the application area given the distance and isolated recording of one individual or because the preferred habitat is not present within the application area (Western Australian Herbarium, 1998-; GIS Database).

The Threatened Flora species, *Stylidium scintillans*, known from 23 records, is a cormaceous ephemeral herb that grows 3 - 9 centimetres high (Woodman Environmental Consulting, 2013). This species has not been recorded within the application area, however it has been recorded approximately 2.5 kilometres from the application area (GIS Database). *Stylidium scintillans* is found inhabiting decaying granite outcropping, breakaway and granite flats with brown, rocky-stoney gritty clay as seen in the local area (Western Australian Herbarium, 1998-). As this habitat type is not found within the application area, it unlikely the proposed clearing will impact on the species (DBCA, 2022).

Drummondita fulva (Priority 3), known from 19 records, is an erect, branching shrub, that grows 0.5 – 1.5 metres high (Western Australian Herbarium, 1998-). This species has not been recorded within the application area, however it has been recorded approximately one kilometre away from the application area (Woodman Environmental Consulting, 2013). *Drummondita fulva* is found inhabiting footslopes, lower to upper slopes and hillcrests (Western Australian Herbarium 1998-; Woodman Environmental Consulting, 2013). As this habitat type is not found within the application area it unlikely the proposed clearing will impact on the species (DBCA, 2022)

Micromyrtus trudgenii (Priority 3), known from 37 records, is an erect, open shrub, grows 1 – 2 metres high (Western Australian Herbarium, 1998-). This species can be found inhabiting tops and slopes of hills and ridges in red-brown loamy clay, yellow-brown soils, gravel, siltstone, quartz, basalt, banded ironstone and dolerite (Western Australian Herbarium, 1998-). The species has not been recorded within the application area, however it has been recorded approximately 0.05 kilometres away (Woodman Environmental Consulting, 2013). *Micromyrtus trudgenii* has been recorded within the same vegetation type (VT11) that is found within the application area (Woodman Environmental Consulting, 2013). Although flora and vegetation surveys have not recorded this species within the application area, their distribution may have spread since the time since the last survey was conducted over ten years ago (October, 2013). The location represents the species northern most extent of its distribution and if present, impacts have the potential to be regionally significant, but are unlikely to be significant at the species level.

Polianthion collinum (Priority 3), known from 23 records, is a rounded shrub that grows up to 1.25 metre high (Western Australian Herbarium, 1998-). The species has not been recorded within the application area, however it has been recorded approximately 0.3 kilometres from the application area (Woodman Environmental Consulting, 2013). The species inhabits areas of low hills and slopes in red clay loam between blocks of banded ironstone (Western Australian Herbarium, 1998-). As this habitat type is not found within the application area, it unlikely the proposed clearing will have a significant impact on the species (DBCA, 2022).

Persoonia pentasticha (Priority 3), known from 10 TPFL populations and 49 collections on Florabase, with two populations found in separate reserves (DBCA, 2022). The species has not been recorded within the application area, however it has been recorded approximately 3.5 kilometres from the application area (Woodman Environmental Consulting, 2013). *Persoonia pentasticha* can be found inhabiting sand and loam soils at the base of granite outcrops (Western Australian Herbarium, 1998-). The species is not a BIF specialist and has a wide distribution of ~154km Page 5 of 5 north-south and ~217km east-west, with some populations located on the edge of the Wheatbelt Region (DBCA, 2022). Although the species is widely distributed, most locations only consist of a few individuals (the largest containing ~50 individuals). Although the species has not been previously recorded within the application area, if present, the impacts are unlikely to be significant due to the scale and extent of the proposed clearing significant (DBCA, 2022).

Calotis sp. Perrinvale Station (Priority 3), known from 24 records, is small annual herb growing to 0.3 metres high (Woodman Environmental Consulting, 2013). The species has not been recorded within the application area, however it has been recorded approximately 3.5 kilometres away (Woodman Environmental Consulting, 2013). *Calotis* sp. Perrinvale Station inhabits orange-brown sand, clay, loam soils on the slopes of BIF outcropping and granite outcropping (Woodman Environmental Consulting, 2013). As this habitat is not found within the application area, it is unlikely the proposed clearing will have a significant impact to the species.

Acacia speckii (Priority 4), known from 39 records, is a bushy, rounded shrub or tree growing between 1.5 – 3 metres high (Western Australian Herbarium, 1998-). The species has not been recorded within the application area, however it has been recorded within 0.5 kilometres from the application area (Woodman Environmental Consulting, 2013). *Acacia speckii* inhabits rocky soils over granite, basalt or dolerite on rocky hills or rises (Western Australian Herbarium, 1998-). As this habitat is not found within the application area, it is unlikely the proposed clearing will have a significant impact to the species. *Acacia speckii* has been recorded within the same vegetation type (VT11) that is found within the application area (Woodman Environmental Consulting, 2013). Although flora and vegetation surveys have not recorded this species within the application area, their distribution may have spread since the time since the last survey was conducted over ten years ago (October, 2013). The vegetation type is likely widespread within the region, it is not significant to *Acacia speckii* or of regional conservation significance (Woodman Environmental Consulting, 2013). The application area does not comprise of rocky hills or rises, and the proposed clearing of the species should it occur within the application area, is not likely to have a significant impact to the conservation status of this species.

Grevillea globosa (Priority 3), known from 47 records, is a spreading non-lignotuberous shrub growing 1 – 3 metres high (Woodman Environmental Consulting, 2013). The species inhabits red loam and yellow sand and has been recorded within the Avon Wheatbelt and the Yalgoo Interim Biogeographic Regionalisation for Australia (IBRA) Regions (Western Australian Herbarium, 1998-). Following a targeted survey for *Grevillea globosa*, the total number of known plants were estimated between 12,700 – 14,670 plants which were distributed over 13 populations ranging between 13 – 3,570+ estimated plants each (DPNRF, 2006). The targeted survey recorded approximately 235 plants within the application area (DPNRF, 2006). *Grevillea globosa* is well represented in the local area and is known from several locations (DBCA, 2022). This species always responds to disturbance, therefore impacts resulting from this proposal are unlikely to be significant (DBCA, 2022).

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on *Grevillea globosa* does not constitute a significant residual impact.

Conditions

No flora management conditions required.

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

Assessment

The desktop fauna assessment undertaken by Phoenix Environmental Services in 2022 identified 246 vertebrate taxa within the local area (Golden Grove Operations, 2022). One habitat type, open mulga (*Acacia aneura* complex) woodland with scattered herbs over a gravelly clay with quartz patches with soils that have more clay on the flats and are stonier on the slopes, has been recorded within the application area (Golden Grove Operations, 2022).

Six conservation significant fauna species have been recorded within the vicinity of the application area:

- *Leipoa ocellata* (Malleefowl) - Vulnerable
- *Cyclodomorphus branchialis* (gilled slender blue-tongue) - Vulnerable
- *Egernia stokesii badia* (western spiny-tailed skink) - Endangered
- *Tyto novaehollandiae novaehollandiae* (masked owl (southwest)) – Priority 3
- *Idiosoma clypeatum* (Northern shield-backed trapdoor spider) – Priority 3
- *Falco peregrinus* (Peregrine falcon) – Other Specially Protected

Malleefowl are found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias (DaWE, 2022). This species requires a sandy substrate with an abundance of leaf litter for breeding (DaWE, 2022). Malleefowl are known to occur in the region and may utilise the area for foraging, but the application area is not likely to represent significant habitat for this species as similar habitat can be found in the adjacent areas. However, this species is known to occur within at least two kilometres from the application area and therefore measures should be taken to identify the presence of any active Malleefowl mounds.

The Masked owl (southwest species) occurs from southern New Guinea to Australia, where this southern species tends to be restricted to the coastal strip east of the Great Dividing Range and around the southern coast to the Pilbara in Western Australia (DELWP, 2003). This species is known to inhabit a wide variety of lowland forests and woodlands that provide mature trees with hollows suitable for nesting and roosting and nearby open areas for foraging (DELWP, 2003). The habitat within the application area is not significant to the species as it can be found in the adjacent areas and as there is only one record of the species within 20 kilometres of the application area, the proposed clearing is not likely to have a significant impact.

The Northern shield-backed trapdoor spider has a widespread distribution in Western Australia's inland arid zone, throughout the Yalgoo and Murchison bioregions (Rix et al., 2018). The species is known to occur on the Branded Ironstone Formation (BIF) that is located to the south of the application area (GIS Database). As this habitat does not occur within the application area it is unlikely that the species will be present and therefore the proposed clearing is not likely to have a significant impact.

The gilled slender blue-tongue are found in the mid-west region of Western Australia between Murchison and Irwin Rivers and extending inland to the Mt Magnet area (Shea & B, 1995). The species is a ground-dwelling lizard with a nocturnal habitat, sheltering by day below low vegetation, leaf-litter, and under fallen timber and beneath rocks (Shea & B, 1995). Rocky areas, such as the BIF south of the application area, represent potentially suitable habitat (Shea & B, 1995). The proposed area to be cleared is not known to be significant habitat for this species and therefore the proposed clearing is not likely to have a significant impact. Potential impacts to fauna may be managed by a fauna management condition (slow directional clearing) to allow for individuals to relocate to the adjacent vegetation.

The western spiny-tailed skink is known to occur in a broad semi-arid area in the south-west Western Australia, between Shark Bay and Minnivale and east to Cue (DAWE, 2022). Most records of this species are in York Gum (*Eucalyptus loxophleba*) woodland with some records in Gimlet (*Eucalyptus salubris*) and Salmon Gums (*Eucalyptus salmonophloia*) woodland (DAWE, 2022). The species is known to refuge in hollow logs in woodland habitat (DAWE, 2022). Given the closest record of this species is approximately 11 kilometres from the application area, and the habitat present within the application area is not known to be significant to the species, the proposed clearing is unlikely to have a significant impact on the species. Potential impacts to fauna may be managed with a fauna condition (slow directional clearing and a fauna spotter) to allow for individuals to relocate to the adjacent vegetation.

The peregrine falcon is found across Australia inhabiting most habitats from rainforests to the arid zone, however, the species preferred habitat includes cliffs and wooded watercourses, nesting on cliff edges, granite outcrops and quarries (Department for Environment and Heritage, 2008). As the application area does not contain significant habitat for this species, the proposed clearing is not likely to impact this species.

Conclusion

Based on the above assessment, the proposed clearing will result in a small amount of disturbance to available fauna habitat.

For the reasons set out above, it is considered that the impacts of the proposed clearing on fauna habitats can be managed by the implementation of management conditions, which are summarised below.

Conditions

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

- Fauna Management – Malleefowl: inspection for active Malleefowl mounds and placement of appropriate buffers;

- Fauna Management: slow directional clearing and a fauna spotter to allow fauna to move into adjacent vegetation ahead of the clearing activity which will minimise impact to individuals; and
- Fauna Management: retain all logs and move them into the adjacent vegetation

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 7 October 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There are two native title claims over the area under application (DPLH, 2022). These claims have been registered with the National Native Title Tribunal on behalf of the claimant groups. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2022). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

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

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

It is noted that the proposed clearing may impact on xxxxxxxxxxxxxxxx, which is/are a protected matter under the Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act). The proponent may be required to refer the project to the (Federal) Department of Agriculture, Water and the Environment for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Agriculture, Water and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
<p>Due to the age of the survey, the applicant was requested to review and provide more information:</p> <ul style="list-style-type: none"> Vegetation and flora values at Golden Grove are well understood, based on multiple studies conducted by various reputable consultants including Mattiske Consulting, Yilgarn Traders, Woodman Environmental Consulting and Maia Consulting No threatened flora are known to be within the proposed ROM expansion area, and the threatened <i>Styloidium</i> species that is known from Golden Grove is unlikely to occur within this area as the habitat is not suitable One Priority 3 species is present in the proposed area, however the species is known to be represented in large numbers locally and will not be significantly impacted The proposal area is not known to be a TEC or PEC, based on the mapped soil types and vegetation units The area is adjacent to mining operations and has been degraded by goat grazing. It is too sparse to provide critical habitat for Malleefowl or other conservation significant fauna species. Whilst considered unlikely to occur, 29 Metals will inspect the area for Malleefowl prior to clearing. 	<p>These comments have been considered during the assessment of the proposed clearing.</p>
<p>The fauna survey which was provided as part of the supporting documentation made comment to a fauna survey conducted by Phoenix Environmental Sciences in 2020. This survey was then requested from the applicant.</p>	<p>The survey area was located south-east of the application area and therefore will be considered in a local area context.</p>

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is located approximately 115 kilometres south west of Mount Magnet within the Shire of Yalgoo. 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 mostly surrounded by mining infrastructure (GIS Database).</p>
Ecological linkage	<p>According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).</p>
Conservation areas	<p>There are no conservation areas located within the application area (GIS Database). The closest conservation area is a DBCA legislated land (Conservation Park) located approximately 10 kilometres east of the application area (GIS Database).</p>
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation association:</p> <p>420: Scrub, open scrub or sparse scrub. Wattle, teatree and other species <i>Acacia</i> spp. <i>Melaleuca</i> spp. (GIS Database).</p> <p>A flora and vegetation survey was conducted over the application area by Woodman Environmental Consulting during October, 2012. The following vegetation association was recorded within the application area (Woodman Environmental Consulting, 2013):</p> <p>VT11: Tall closed to sparse shrubland of mixed <i>Acacia</i> species dominated by <i>Acacia effusifolia</i>, <i>Acacia ramulosa</i> var. <i>ramulosa</i> and <i>Acacia sibina</i> over low isolated clumps of tussock grasses of <i>Monachather paradoxus</i> on yellow to and red-brown loams on plains and slopes.</p>
Vegetation condition	<p>The vegetation survey (Woodman Environmental Consulting, 2013) indicate the vegetation within the proposed clearing area is in 'Good' to 'Very Good' (Trudgen, 1991) condition, described as</p> <ul style="list-style-type: none"> Good: more obvious signs of damage caused by human activities since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds; and 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 <p>The full Trudgen (1991) condition rating scale is provided in Appendix D.</p>

Characteristic	Details
Climate and landform	The region experiences a dry warm Mediterranean climate and a mean annual rainfall of 258 millilitres (BOM, 2022).
Soil description	The soils of the application area are broadly mapped as the following soil types: <ul style="list-style-type: none"> • 270WA: Watson system. Hills, rises and gravelly plains on sedimentary rocks supporting bowgada shrublands with non-halophytic undershrubs; and • 270Ka: Kalli system: Elevated gently undulating red sandplains edged by stripped surfaces on laterite and granite, supporting acacia tall shrublands with wanderrrie grass understoreys (DPIRD, 2022).
Land degradation risk	The proposed area is located within the Watson land system and the Kalli land system (GIS Database). The Watson land system may have stone and gravel mantles which provide effective protection against erosion, and disturbance may initiate erosion (Payne et al., 1998). The Kalli land system is not usually susceptible to accelerate erosion, although vehicular tracks can cause local gullyng on steeper gradients; dense vegetation protects the soil from wind erosion (Payne et al., 1998).
Waterbodies	The desktop assessment and aerial imagery indicate that there are no water courses, Ramsar wetlands or wetlands of national importance (ANCA wetlands) within the application area (GIS Database).
Hydrogeography	The application area is not mapped within a proclaimed groundwater area (GIS Database).
Flora	One Priority Flora has been recorded within the application area, <i>Grevillea globosa</i> (P3) (Woodman Environmental Consulting, 2013; GIS Database). Based on historical records, survey data and site characteristics, seven other conservation significant flora may potentially occur (Woodman Environmental Consulting, 2013; GIS Database). Thirteen introduced flora species have been recorded within the area, however none of these introduced taxa are listed as Declared Pests or as Weeds of National Significance (Woodman Environmental Consulting, 2013).
Ecological communities	The application area is not mapped within a Threatened or Priority Ecological Community (TEC/PEC) (GIS Database). The nearest ecological community is the Minjar and Chulaar Hills vegetation complex (banded ironstone formation), a Priority 1 Ecological Community, which is located approximately 0.6 kilometres west of the application area (GIS Database).
Fauna	Based on historical records and site characteristics, there are six conservation significant fauna species that could potentially occur within the application area (GIS Database). The closest record, <i>Leipoa ocellata</i> , is approximately 2 kilometres from the application area (GIS Database).

B.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent Remaining %	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA Managed Lands
IBRA Bioregion – Yalgoo	5,057,325.85	4,923,840.47	97.36	1,576,718.27	31.34
IBRA Subregion – Talling	3,498,943.53	3,387,092.96	96.80	827,723.40	23.71
Local Government – Shire of Yalgoo	2,794,946.37	2,733,268.13	97.79	628,939.11	22.51
Beard vegetation associations - State					
Veg Assoc No. 420	859,632.11	830,216.12	96.58	121,279.06	14.11
Beard vegetation associations - Bioregion					
Veg Assoc No. 420	621,396.05	620,265.57	99.82	101,785.89	16.38
Beard vegetation associations - subregion					
Veg Assoc No. 420	615,816.17	614,685.69	99.82	101,785.89	16.53

Government of Western Australia (2019)

B.3. Flora analysis table

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

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)
<i>Stylidium scintillans</i>	T	N	~2.5
<i>Drummondita fulva</i>	P3	Y	~1
<i>Micromyrtus trudgenii</i>	P3	Y	~0.05
<i>Polianthion collinum</i>	P3	Y	~0.3
<i>Grevillea globosa</i>	P3	Y	Recorded within the application area
<i>Persoonia pentasticha</i>	P3	Y	~3.5
<i>Calotis</i> sp. Perrinvale Station	P3	Y	~3.5
<i>Acacia speckii</i>	P4	Y	~0.5

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

B.4. Fauna analysis table

Species name	Common name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)
<i>Leipoa ocellata</i>	malleefowl	T	Y	~2
<i>Tyto novaehollandiae novaehollandiae</i>	masked owl (southwest)	P3	N	~2.4
<i>Idiosoma clypeatum</i>	Northern shield-backed trapdoor spider	P3		~5
<i>Cyclodomorphus branchialis</i>	gilled slender blue-tongue	T	Y	~10
<i>Egernia stokesii badia</i>	western spiny-tailed skink	T	N	~11
<i>Falco peregrinus</i>	Peregrine falcon	OS	N	~16

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, OS: other specially protected

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The application area is located within the Talling subregion of the Yalgoo Bioregion of the Interim Biogeographic for Australia (IBRA) (GIS Database). The subregion is rich and diverse in flora and fauna, however most species are wide ranging and usually occur in at least one, and often several, adjoining regions (CALM, 2002). The application area comprises of one vegetation community which is not considered to be of local significance (Woodman Environmental Consulting, 2013).</p> <p>One species of conservation significant flora (Priority 3) has been recorded within the proposed area and seven other conservation significant flora could potentially occur (Woodman Environmental Consulting, 2013; GIS Database).</p>	May be at variance	Yes Refer to Section 3.2.1, above.
<p><u>Principle (b):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."</p> <p><u>Assessment:</u></p>	May be at variance	Yes Refer to Section 3.2.2, above.

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>The area proposed to be cleared may contain suitable habitat for a number of conservation significant fauna species, however the habitat is widespread in the local and regional area (Woodman Environmental Consulting, 2013).</p>		
<p>Principle (c): <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>There are no Threatened flora species recorded within the application area, however, one species has been recorded within 2.5 kilometres and could potentially occur within the application area (Woodman Environmental Consulting, 2013; GIS Database).</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p>Principle (d): <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The application area is not mapped within a Threatened or Priority Ecological Community (TEC/PEC) (GIS Database). The nearest ecological community is the Minjar and Chular Hills vegetation complex (banded ironstone formation), a Priority 1 ecological community, which is located approximately 0.6 kilometres west of the application area (GIS Database).</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p>Principle (e): <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The application area falls within the Yalgoo Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database).</p> <p>Approximately 97% of the pre-European vegetation still exists in the Yalgoo Bioregion IBRA (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation association 420 (GIS Database). This vegetation association has not been extensively cleared as over 96% of the pre-European extent of these vegetation association remains uncleared at both the state and bioregional level (Government of Western Australia, 2019). The application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared (GIS Database).</p>	Not at variance	No
<p>Principle (h): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>There are no conservation areas located within the application area (GIS Database). The closest conservation area is a DBCA legislated land (Conservation Park) located approximately 10 kilometres east of the application area (GIS Database). Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p>Principle (f): <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>Given there are no permanent watercourses or wetlands and associated riparian vegetation recorded within the application area, the proposed clearing is unlikely to impact on native vegetation growing in, or in association with, a watercourse or wetland.</p>	Not at variance	No
<p>Principle (g): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The proposed area to be cleared is for the extension of the Run of Mine (ROM) pad, in an area that has been heavily modified for an industrial mine and disturbed from</p>	May be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>historical disturbances including clearing for exploration, mining, grazing, etc. (Woodman Environmental Consulting, 2013).</p> <p>The proposed area is located within the Watson land system and the Kalli land system (GIS Database). The Watson land system may have stone and gravel mantles which provide effective protection against erosion, and disturbance may initiate erosion (Payne et al., 1998). The Kalli land system is not usually susceptible to accelerate erosion, although vehicular tracks can cause local gullying on steeper gradients; dense vegetation protects the soil from wind erosion (Payne et al., 1998). The potential land degradation may be minimised by implementing staged clearing condition.</p>		
<p><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."</p> <p><u>Assessment:</u></p> <p>Given no water courses, wetlands or Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality (GIS Database).</p>	Not at variance	No
<p><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."</p> <p><u>Assessment:</u></p> <p>Given no water courses, wetlands or Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding (GIS Database).</p>	Not at variance	No

Appendix D. 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 E. Sources of information

E.1. GIS databases

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

- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Bush Forever (Regional Scheme) (DPLH-022)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Interim Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- 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 (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

E.2. References

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4. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , 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	<i>Environmental Protection Act 1986</i> , Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

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

T Threatened species:

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

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

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

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

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

EN Endangered species

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

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

VU Vulnerable species

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

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

Extinct Species:

EX Extinct species

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

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

EW Extinct in the wild species

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

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

Specially protected species:

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

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

MI Migratory species

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

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

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

CD Species of special conservation interest (conservation dependent fauna)

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

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

OS Other specially protected species

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

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

P Priority species:

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

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

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 Priority One - Poorly-known species

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

P2 Priority Two - Poorly-known species

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

P3 Priority Three - Poorly-known species

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

P4 Priority Four - Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special

protection but could be if present circumstances change. These species are usually represented on conservation lands.

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

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

Principles for clearing native vegetation:

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.
- (d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.
- (e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
- (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.
- (j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.