Government of Western Australia
Department of Mines, Industry Regulation and Safety

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	7794/5
Permit type:	Purpose Permit
Applicant name:	Beacon Mining Pty Ltd
Application received:	23 February 2022
Application area:	389.9 hectares
Purpose of clearing:	Mineral production and associated activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 16/34
	Mining Lease 16/115
	Mining Lease 16/529
	Mining Lease 16/561
	Miscellaneous Licence 16/120
	Miscellaneous Licence 16/122
Location (LGA area/s):	Shire of Coolgardie
Colloquial name:	Jaurdi Hills Project

1.2. Description of clearing activities

Beacon Mining Pty Ltd (Beacon) proposes to clear up to 389.9 hectares of native vegetation within a boundary of approximately 748.2 hectares, for the purpose of mining related infrastructure. The project is located approximately 50 kilometres west of Kalgoorlie, within the Shire of Coolgardie.

The application is to allow for the construction of an open pit, waste landforms, infrastructure corridor, in-pit tailing storage facility (TSF), processing facility, access tracks and bore fields.

Clearing permit CPS 7794/1 was granted by the Department of Mines, Industry Regulation and Safety on 7 December 2017 and was valid from 30 December 2017 to 31 December 2022. The permit authorised the clearing of up to 389.9 hectares of native vegetation within a boundary of approximately 399.6 hectares, for the purpose of mineral production.

CPS 7794/2 was granted on 11 July 2019, amending the permit to increase the permit boundary to 403.3 hectares, to add Miscellaneous Licence 16/122, and allow for a proposed access track to the proposed bore fields.

CPS 7794/3 was granted on 21 January 2021, amending the permit to increase the permit boundary to 672.494 hectares, to allow for the continued implementation and expansion of the project.

Beacon applied to amend CPS 7794/3 on 7 July 2020 to include an additional tenement (Mining Lease 16/561) to the clearing permit. However, the tenement was pending grant and as such, the clearing permit application (CPS 7794/4) was withdrawn.

This application is to amend CPS 7794/3 to include an additional tenement (Mining Lease 16/561) to the clearing permit and to increase the duration of the clearing Permit until 31 December 2027.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	28 June 2022
Decision area:	389.9 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51KA of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 23 February 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 A), relevant datasets (Appendix E), supporting information provided by the applicant (Appendix E), the clearing principles set out in Schedule 5 of the EP Act (Appendix B), 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 impacts to Priority Flora;
- impacts to potential Malleefowl habitat; and
- potential land degradation in the form of erosion.

The assessment has not changed since the assessment of CPS 7794/3. The Delegated Officer determined that the proposed clearing is not likely to lead to an unacceptable risk to environmental values and that the existing permit conditions are adequate to avoid, minimise and mitigate environmental impacts.

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 includes:

- *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 2021)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

No evidence of avoidance or mitigation measures was provided to support the clearing permit amendment application. Although the clearing permit boundary has increased to include an additional tenement (M16/561), the proposed clearing area has not increased. As such, the standard avoidance and mitigation condition is considered sufficient to manage the residual impacts of the proposed clearing.

3.2. Assessment of impacts on environmental values

A review of current environmental information (Appendix B) reveals that the assessment against the clearing principles has not changed significantly from the Clearing Permit Decision Report CPS 7794/3.

3.2.1. Biological values (flora and fauna) - Clearing Principles (a) & (b)

Assessment

VP Environmental Pty Ltd (VP, 2021) conducted a reconnaissance flora/vegetation survey across tenement M16/561 (amendment area) on 26 March 2021. Four vegetation types were identified within the amendment area, which were represented by a total of 18 families and 70 taxa. Vegetation types identified were common and widespread. None of the vegetation types were identified as being significant. No conservation significant flora was identified within the amendment area during the field survey (VP, 2021; GIS Database).

An additional two flora and vegetation surveys have previously been conducted over the entire application area (excluding the amendment area) on 17 September 2017 by Native Vegetation Solutions (NVS) (NVS, 2017) and on 12 May 2020 by NVS (NVS, 2020). During both surveys, one Priority species, *Eremophila praecox* (P2), was recorded with one individual recorded on two counts approximately 200 metres from each other (NVS, 2017; NVS, 2020). *Eremophila praecox* is known from approximately 31 locations and has a restricted known range of approximately 110 kilometres north-south and 70 kilometres east-west in Western Australia (DBCA, 2020). Within a local context, the clearing of *Eremophila praecox* within the amendment area or application area would be considered a significant impact if it resulted in the loss of this species in the local area (DBCA, 2020). Potential impacts to *Eremophila praecox* are currently managed by the implementation of a flora management condition.

VP (2021) conducted a basic terrestrial fauna survey over the amendment area on 26 of March 2021. The survey identified no conservation significant fauna within the amendment area, which is consistent with previous fauna surveys that have been conducted across the general application area (Terrestrial Ecosystems, 2017; NVS, 2018; Terrestrial Ecosystems, 2020). Three broad fauna habitats that are typical in the wider region were identified within the amendment area. No unique fauna habitats (caves, rocky outcrops/ pools etc.) occur within the survey area.

A Level 1 vertebrate fauna risk assessment was conducted by Terrestrial Ecosystems (2020) for CPS 7794/3 amendment area which included a site visit to assess habitat on 12 May 2020. Two broad fauna habitats were recorded within the survey area: Eucalypt woodland with mixed shrubs and grasses understorey; and open Eucalypt woodland with mixed shrubs and grasses understorey (Terrestrial Ecosystems, 2020). Some of the taller mature Salmon Gums were noted to have hollows that would support nesting birds and retreats for mammals and reptiles (Terrestrial Ecosystems, 2020). There is a possibility that the Peregrine Falcon (OS), the mallee form of the Western Rosella (P4) and the Central Long-eared Bat (P4) may infrequently be seen in the application area (Terrestrial Ecosystems, 2020). However, it was assessed that the proposed clearing was unlikely to increase the potential impacts to these species as the area authorised to be cleared has not increased, which remains valid for this assessment.

During the fauna survey conducted by Terrestrial Ecosystems (2017) for the original application area, Malleefowl (*Leipoa ocellata*) was identified as the species most likely to be impacted by proposed clearing given the presence of some suitable habitat throughout the application area. Database searches recorded Malleefowl as potentially occurring in the area, and Malleefowl have been recorded within 1 kilometre of the application area (Terrestrial Ecosystems, 2017). The fauna survey did not identify any evidence (mounds or tracks) that Malleefowl are currently utilising the area proposed to be cleared, and the species is mobile enough to move away from noise and disturbance. Potential impacts to Malleefowl is therefore considered to be low (Terrestrial Ecosystems, 2017). Potential impacts to Malleefowl as a result of the proposed clearing is currently managed by the implementation of a fauna management condition.

The fauna habitats recorded within the application area are considered to be well represented throughout the region, (Terrestrial Ecosystems, 2017) and the local area retains large amounts of native vegetation (GIS Database). Based on this, the vegetation proposed to be cleared is unlikely to represent significant habitat for fauna in a regional context.

VP identified four introduced flora species as potentially occurring within a 20km radius of the amendment area (VP, 2021):

- *Schinus molle var. areira*
- *Carrichtera annua* (Ward's Weed)
- *Cucumis myriocarpus* (Prickly Paddy Melon)
- *Cylindropuntia* spp. (Pricky Pear)

One of these species; *Cylindropuntia* spp. is listed as a declared pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) and as a Weed of National Significance (WoNS) by the Department of Agriculture, Water and the Environment (DAWE). One introduced species (*Cucumis myriocarpus* - Prickly Paddy Melon) was identified within the amendment area during the field survey (VP, 2021). This taxon is not listed as a declared pest under the BAM Act or a WoNS by DAWE. This species was identified at a single location. Weeds have the potential to out-compete native flora and reduce the biodiversity of an area. Potential impacts to biodiversity as a result of the introduction of weeds may be minimised by the continued implementation of a weed management condition.

Conclusion

Based on the above assessment, the proposed clearing will result in no change to the outcomes of assessment CPS 7794/3 for this environmental value. As such, the Delegated Officer has determined to retain the conditions relating to biological values set out in CPS 7794/3 to manage potential impacts to Priority Flora (*Eremophila praecox*) and Malleefowl habitat for the duration of the extended permit timeframe.

Conditions

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

- Fauna Management (Malleefowl) - Where clearing authorised under this Permit is to occur between 1 September and 31 January, the Permit Holder shall engage a fauna specialist to conduct a Malleefowl search within two weeks prior to undertaking clearing activities and identified active mounds are to be avoided.

- Flora Management - no clearing of the identified *Eremophila praecox* flora occurs, unless first approved by the CEO. No clearing occurs within 10 metres of identified *Eremophila praecox*, unless first approved by the CEO.

- Weed Control – take hygiene steps to minimise the risk of the introduction and spread of weeds.

3.2.2. Land and water resources - Clearing Principle (f)

Assessment

There are no permanent or ephemeral inland waters within the survey area. No permanent drainage lines occur within the survey area however an ephemeral drainage line intersects the far south-western corner of the amendment area (VP, 2021). A portion (approximately 25%) of a minor non-perennial lake intersects the south-eastern corner of the amendment area (GIS, Database). The total area of the non-perennial lake is approximately 1.727 hectares (GIS Database).

Some ephemeral drainage lines pass through the application area (GIS Database). Drainage lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall (CALM, 2002). Vegetation mapping indicates that vegetation growing around drainage lines is not confined to these areas and is not growing exclusively in association with drainage lines (NVS, 2017). Most of the drainage lines in the application area have previously been disturbed due to existing mining activity in the application area (GIS Database).

Conclusion
Potential impacts to vegetation growing in association with watercourses may be minimised by the implementation of a watercourse management condition.

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

- Avoid clearing of riparian vegetation and where a watercourse or wetland is to be impacted by clearing, maintain the existing surface water flow.

3.3. Relevant planning instruments and other matters

The clearing permit amendment application was advertised on 4 March 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.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by various mining (prospecting and exploration) and pastoral land uses.
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	The application area is not located within any vested or proposed conservation areas (VP, 2021; GIS Database). The nearest DBCA managed land is the former Credo Pastoral Lease, which is location approximately 20 kilometres north-west of the amendment area (GIS Database).
Vegetation description	The vegetation of the amendment area is broadly mapped as the following Beard vegetation associations, which are consistent with the original application area: 8: Medium woodland; salmon gum and gimlet; and 468: Medium woodland; salmon gum and goldfields blackbutt (GIS Database). Three flora and vegetation surveys have been conducted over the application area in total. These have been conducted by NVS in September 2017, NVS in May 2020 and VP Environmental in July 2021. A summary of all the vegetation types identified within the amendment and original application area are outlined in Appendix D.
Vegetation condition	The vegetation survey (VP, 2021) indicate the vegetation within the proposed amendment area is in Good to Very Good (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix C.
Climate and landform	The climate of application area region is characterised as an arid to semi-arid climate with annual rainfall of approximately 200-300 mm (CALM, 2002). Mean maximum temperature ranges from 33.6°C in January to 16.8°C in July. Mean rainfall ranges from 32.4mm in February to 13.5mm in September with majority of the rainfall occurring during summer and winter months (BoM, 2022). The landform of the application area is relatively flat with elevations ranging between 380 – 420 metres AHD (GIS Database).
Soil description	The soil is mapped as Mx43 across the entire application area, which is described as gently undulating valley plains and pediments; some outcrop of basic rock (GIS Database).
Land degradation risk	The application area lies within the Gumland, Coolgardie, Doney and Jaurdi land systems (VP, 2021). The Gumland and Coolgardie systems range from undulating alluvial plains to uplands and low hills supporting Eucalyptus woodlands with halophytic understorey (DPIRD, 2020). The Doney system is described as calcareous plains with Eucalyptus woodlands adjacent to salt lakes and the Jaurdi system is described as basalt hills and ridges supporting Acacia shrublands and scattered woodlands (DPIRD, 2020).
Waterbodies	There are no permanent watercourses or wetlands within the amendment area (VP, 2021; GIS Database). A number of perennial drainage lines pass through the application area (GIS Database).
Hydrogeography	There are no Public Drinking Water Source Areas within or in close proximity to the amendment area (GIS Database).
Flora	Two Threatened Flora and five Priority Flora taxa were identified as potentially occurring within a 20km radius of the amendment area (VP, 2021). Of these, two species are considered possible to occur within the amendment area (VP, 2021): • *Eremophila praecox* (P2) • *Gompholobium cinereum* (P3)
Ecological communities	No known Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) are known to occur within a 50km radius of the survey area (GIS Database; VP, 2021).
Fauna	Five Threatened Fauna, three Migratory Fauna and four Priority Fauna were identified as potentially occurring within 20km radius of the amendment area (VP, 2021). Of these, four species are considered possible to occur within the application area (VP, 2021):

Characteristic	Details
	• Malleefowl (*leiopa ocellata*) (Vu) • Peregrine Falcon (*Falco peregrinus*) (OS) • Western Rosella (*Platycercus icterotis xanthogenys*) (P4) • Central Long-eared Bat (*Nyctophilus major tor*) (P3)

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The additional area proposed to be cleared does not contain any known Priority Ecological Communities, Priority flora or Threatened or Priority fauna. One Priority 2 species (*Eremophila praecox)* has previously been recorded on two accounts within the original application area, which is currently managed by a flora management condition.	Not likely to be at variance (as per CPS 7794/3)	Yes *Refer to Section 3.2.1, above.*
Principle (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."* Assessment: The amendment area contains three broad fauna habitats that are typical in the wider region. No fauna habitats were identified during the survey that are likely to be suitable for conservation significant fauna (VP, 2021). Advice received from DBCA in 2020 (DBCA, 2020) for CPS 7794/3 indicates that suitable habitat for Malleefowl (*leiopa ocellata*) (Vu) may be present across the application area. Impacts to potential Malleefowl habitat are currently managed by a fauna management condition.	May be at variance (as per CPS 7794/3)	Yes *Refer to Section 3.2.1, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: There are two Threatened flora species (*Gastrolobium graniticum* and *Thelymitra stellata*) recorded within 20 kilometres of the permit area, however, they are considered unlikely to occur within the application area due to a lack of suitable habitat. No Threatened flora species were recorded within the amendment area during the field survey (VP, 2021).	Not likely to be at variance (as per CPS 7794/3)	No
Principle (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."* Assessment: The area proposed to be cleared does not contain vegetation representative of any known threatened ecological community (GIS Database; VP, 2021).	Not likely to be at variance (as per CPS 7794/3)	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (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."* Assessment: The application area is within the Coolgardie Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 97.96% of the pre-European vegetation still exists in the Murchison Bioregion (Government of	Not at variance (as per CPS 7794/3)	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 8 and 468 (GIS Database). Approximately 98.53% of the pre-European extent of these vegetation associations remains uncleared at both the state and bioregional level (Government of Western Australia, 2019). As such, the vegetation within the proposed area to be cleared is not considered significant as remnant.		
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance to the nearest conservation area (approximately 20 kilometres), the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance (as per CPS 7794/3)	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: No permanent watercourses or wetlands occur within the amendment area. Several non-perennial drainage lines and a minor non-perennial lake intersect the south-eastern corner of the permit area (GIS Database).	May be at variance (as per CPS 7794/3)	Yes *Refer to Section 3.2.2, above.*
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: There is a moderate land degradation risk over the application area due to the low rounded hills of the Coolgardie system and the hills and ridges of the Jaurdi system being susceptible to erosion when cleared of the supporting vegetation (DPIRD, 2020). Conclusion: Potential land degradation impacts as a result of the proposed clearing may be minimised by the continued implementation of a staged clearing condition. Conditions: The Permit Holder shall not clear native vegetation unless the purpose for which the clearing is authorised is enacted within three months of the authorised clearing being undertaken.	Not likely to be at variance (as per CPS 7794/3)	No
Principle (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."* Assessment: Given no permanent water courses, wetlands or Public Drinking Water Sources Areas are recorded within (or nearby) the application area, the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance (as per CPS 7794/3)	No
Principle (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."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. Furthermore, given no permanent water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to contribute to waterlogging.	Not likely to be at variance (as per CPS 7794/3)	No

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed

vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Vegetation descriptions from various surveys across the application area

Survey	Vegetation Type
Flora and Vegetation survey conducted by Native Vegetation Solutions (NVS) in September 2017	**A. *Eucalyptus griffithsii* and *Eucalyptus campaspe* over *Acacia acuminata* over mixed sclerophyll shrubland** Open Shrub Mallee of *Eucalyptus griffithsii* and *Eucalyptus campaspe* over *Acacia acuminata* and *Eremophila oldfieldii* subsp. *angustifolia* over *Dodonaea lobulata, Scaevola spinescens, Beyeria sulcata* var. *sulcata* and *Ptilotus obovatus*; **B. *Eucalyptus campaspe* and *Eucalyptus clelandiorum* woodland** Low Woodland of *Eucalyptus campaspe* and *Eucalyptus clelandiorum* over *Eremophila oldfieldii* subsp. *angustifolia, Eremophila interstans* subsp. *virgata* and *Senna artemisioides* subsp. *filifolia* over *Atriplex nummularia* subsp. *spathulata, Eremophila scoparia, Acacia erinacea, Eremophila pustulata, Olearia muelleri* and *Ptilotus obovatus*; **C. *Eucalyptus griffithsii* woodland over Chenopod shrublands** Open Tree Mallee of *Eucalyptus griffithsii* over *Eremophila alternifolia* and *Atriplex nummularia* subsp. *spathulata* over *Senna artemisioides* subsp. *filifolia, Atriplex stipitata* and *Ptilotus obovatus*; **D. Open Chenopod shrubland** Tall Open Shrubland of *Eremophila interstans* subsp. *virgata* and *Atriplex nummularia* subsp. *spathulata* over *Eremophila scoparia* and *Senna cardiosperma* over *Atriplex stipitata*; **E. *Eucalyptus salmonophloia* woodland** Woodland of *Eucalyptus salmonophloia* with occasional *Eucalyptus transcontinentalis* over occasional *Eucalyptus oleosa* subsp. *oleosa* over *Eremophila scoparia, Exocarpos aphyllus, Eremophila caperata, Eremophila interstans* subsp. *virgata* and *Eremophila ionantha* over *Olearia muelleri, Senna artemisioides* subsp. *filifolia*, *Atriplex vesicaria, Atriplex stipitata, Senna cardiosperma, Acacia hemiteles, Ptilotus obovatus* and *Scaevola spinescens*; **F. Mixed *Eucalyptus* woodland over sclerophyll shrubland** Low Woodland of *Eucalyptus clelandiorum, Eucalyptus salubris, Eucalyptus oleosa* subsp. *oleosa, Eucalyptus griffithsii* and occasional *Casuarina pauper* over *Eremophila interstans* subsp. *virgata, Santalum acuminatum, Eremophila caperata* and *Eremophila oldfieldii* subsp. *angustifolia* over *Senna artemisioides* subsp. *filifolia, Eremophila glabra* subsp. *glabra, Olearia muelleri, Acacia hemiteles, Eremophila pustulata* and *Eremophila parvifolia* subsp. *auricampi*;

	G. Eucalyptus thicket in open depressions Low Open Forrest of *Eucalyptus clelandiorum, Eucalyptus salubris* and *Eucalyptus oleosa* subsp. *oleosa* over *Senna artemisioides* subsp. *filifolia, Acacia merrallii, Exocarpos aphyllus* and *Eremophila scoparia* over *Acacia colletioides, Eremophila ionantha* and *Eremophila decipiens* subsp. *decipiens*; **H. *Eucalyptus oleosa* subsp. *oleosa* over Chenopod shrublands** Open Shrub Mallee of *Eucalyptus oleosa subsp. oleosa* with occasional *Eucalyptus yilgarnensis* over *Eremophila interstans* subsp. *virgata* and *Eremophila scoparia* over *Cratystylis subspinescens, Cratystylis conocephala, Eremophila decipiens* subsp. *decipiens* and *Eremophila parvifolia* subsp. *auricampi*; and **I. *Eucalyptus* over *Melaleuca sheathiana* over *Cratystylis conocephala* on calcrete rises** Low Woodland of *Eucalyptus clelandiorum* over *Melaleuca sheathiana, Acacia hemiteles* and *Exocarpos aphyllus* over *Cratystylis conocephala, Westringia rigida, Grevillea acuaria, Acacia colletioides* and *Eremophila scoparia.*
Flora and vegetation survey conducted by NVS in May 2020.	***Eucalyptus salmonophloia* woodland** Woodland of *Eucalyptus salmonophloia* over occasional *Eucalyptus oleosa* subsp. *oleosa* over *Eremophila scoparia, Exocarpos aphyllus* and *Eremophila ionantha* over *Olearia muelleri, Senna artemisioides* subsp. filifolia, *Atriplex vesicaria, Atriplex stipitata, Senna cardiosperma, Acacia hemiteles, Ptilotus obovatus* and *Scaevola spinescens*; ***Mixed Eucalyptus* woodland over sclerophyll shrubland** Low Woodland of *Eucalyptus transcontinentalis, Eucalyptus oleosa* subsp. *oleosa* and *Eucalyptus salubris* over *Eremophila interstans* subsp. *interstans, Santalum acuminatum, Eremophila caperata* over *Senna artemisioides* subsp. *filifolia, Eremophila glabra* subsp. *glabra, Olearia muelleri, Acacia hemiteles* and *Eremophila scoparia*; and ***Acacia acuminata* shrubland with emergent *Eucalyptus griffithsii*** Thicket of *Acacia acuminata* with emergent *Eucalyptus griffithsii* over *Acacia hemiteles, Acacia ligulata, Senna artemisioides* subsp. *filifolia* and *Atriplex vesicaria.*
Flora and vegetation survey conducted by VP Environmental Pty Ltd in June 2021 (Amendment area).	**CLP-EW1** Mid woodland of *Eucalyptus salmonophloia* over mid shrubland of *Eremophila scoparia/ Senna artemisioides* subsp. *filifolia* over low shrubland of *Grevillea acuaria* on clay-loam plain; **CLP-MWS1** Low mallee woodland of *Eucalyptus oleosa* subsp. *oleosa/ E. griffithsii* over mid shrubland of *Eremophila caperata/ E. interstans* subsp. *virgata* and low open shrubland of *Olearia muelleri* on clay-loam plain; **OD-OS1** Mid closed shrubland of *Cratystylis subspinescens* over low shrubland of *Frankenia interioris* in open depression; and **RS-EW1** Low woodland of *Eucalyptus clelandiorum* over tall shrubland of *Melaleuca sheathiana* and low open shrubland of *Cratystylis conocephala/ Maireana triptera/ Westringia rigida* on calcrete rise.

Appendix E. Sources of information

E.1.GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Pre-European Vegetation Statistics
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – 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

BoM (2022) Climate Statistics for Australian Locations. A Search for Climate Statistics, Australian Government Bureau of Meteorology. <http://www.bom.gov.au>.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.

Department of Biodiversity Conservation and Attractions (DBCA) (2020) Advice received in relation to Clearing Permit Application CPS 7794/3. Species and Communities Branch, Department of Biodiversity, Conservation and Attractions, Western Australia, September 2020.

Department of Environment Regulation (DER) (2013) *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf

Department of Planning, Lands and Heritage (DPLH) (2022) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS (29 May 2022).

Department of Primary Industries and Regional Development (DPIRD) (2020) Advice received in relation to Clearing Permit Application CPS 7794/3. Deputy Commissioner of Soil and Land Conservation, Department of Primary Industries and Regional Development, Western Australia, August 2020.

Environmental Protection Authority (EPA) (2016) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf

Environmental Protection Authority (EPA) (2016) Technical Guidance – Terrestrial Fauna Surveys. Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf

Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Native Vegetation Solutions (NVS) (2017) Jaurdi hills Level 2 Flora and Vegetation Survey . Report prepared for Beacon Minerals Ltd, by Native Vegetation Solutions, September 2017.

Native Vegetation Solutions (NVS) (2018) Threatened Flora and Malleefowl Mound Targeted Search: Jaurdi Gold Project Production Borefield and Access Tracks. Prepared for Beacon Mining Limited.

Native Vegetation Solutions (NVS) (2020) Reconnaissance Flora and Vegetation Survey of the Jaurdi Gold Project (M16/529) – May 2020. Report prepared for Beacon Minerals Ltd by Native Vegetation Solutions, July 2020.

Terrestrial Ecosystems (2017) Level 1 Vertebrate Fauna Risk Assessment for the Jaurdi Hills Mining Area. Report prepared for Beacon Minerals Ltd, by Terrestrial Ecosystems, August 2017.

Terrestrial Ecosystems (2020) Vertebrate Fauna Assessment – Jaurdi Gold Project (M16/529). Report prepared for Beacon Mining Pty Ltd by Terrestrial Ecosystems, June 2020.

VP Environmental (VP) (2021) Flora and Fauna Assessment M16/561 – Jaurdi Gold Project. Report prepared for Beacon Mining Pty Ltd by VP Environmental, March 2021.

4. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DoEE	Department of the Environment and Energy (now DAWE)

DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

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

T **Threatened species:**

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

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

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

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

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

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

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

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

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

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

Extinct Species:

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

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

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

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

Specially protected species:

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

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

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

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

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

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

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

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

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

P **Priority species:**

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

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

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

P1 **Priority One - Poorly-known species**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural

or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

(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.