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:	9778/1
Permit type:	Purpose Permit
Applicant name:	Silver Lake (Integra) Pty Ltd
Application received:	20 June 2022
Application area:	124.39 hectares
Purpose of clearing:	Mineral production and associated activities
Method of clearing:	Mechanical
Tenure:	Mining Lease 28/43 Mining Lease 28/171 Mining Lease 28/208 Mining Lease 28/289
Location (LGA area/s):	City of Kalgoorlie-Boulder
Colloquial name:	Tank, Atreides and French Kiss Project

1.2. Description of clearing activities

Silver Lake (Integra) Pty Ltd proposes to clear up to 124.39 hectares of native vegetation within a boundary of approximately 2,098 hectares, for the purpose of mineral production and associated activities. The project is located approximately 110 kilometres south east of Kalgoorlie-Boulder, within the City of Kalgoorlie-Boulder.

This clearing permit application replaces CPS 7429/2 which expired on 30 June 2022. Silver Lake has applied for the uncleared balance of 7429/2, which covered the same area as this application.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	2 August 2022
Decision area:	124.39 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 20 June 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 (Appendix A) including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Glossary), 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;
- impacts to conservation significant flora;
- the loss of native vegetation that is suitable habitat for the peregrine flacon, malleefowl, rainbow bee-eater, central long-eared bat and several potential short range endemic invertebrate species;
- the loss of vegetation growing in association with a watercourse;
- potential land degradation in the form of water erosion.

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 managed by conditions and is not likely to lead to an unacceptable risk to environmental values.

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

- avoid, minimise and reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- commence construction no later than three months after undertaking clearing to reduce the risk of erosion;
- avoid clearing watercourses where possible, and ensure the surface flow of any disturbed watercourses is maintained.

1.5. Site map

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

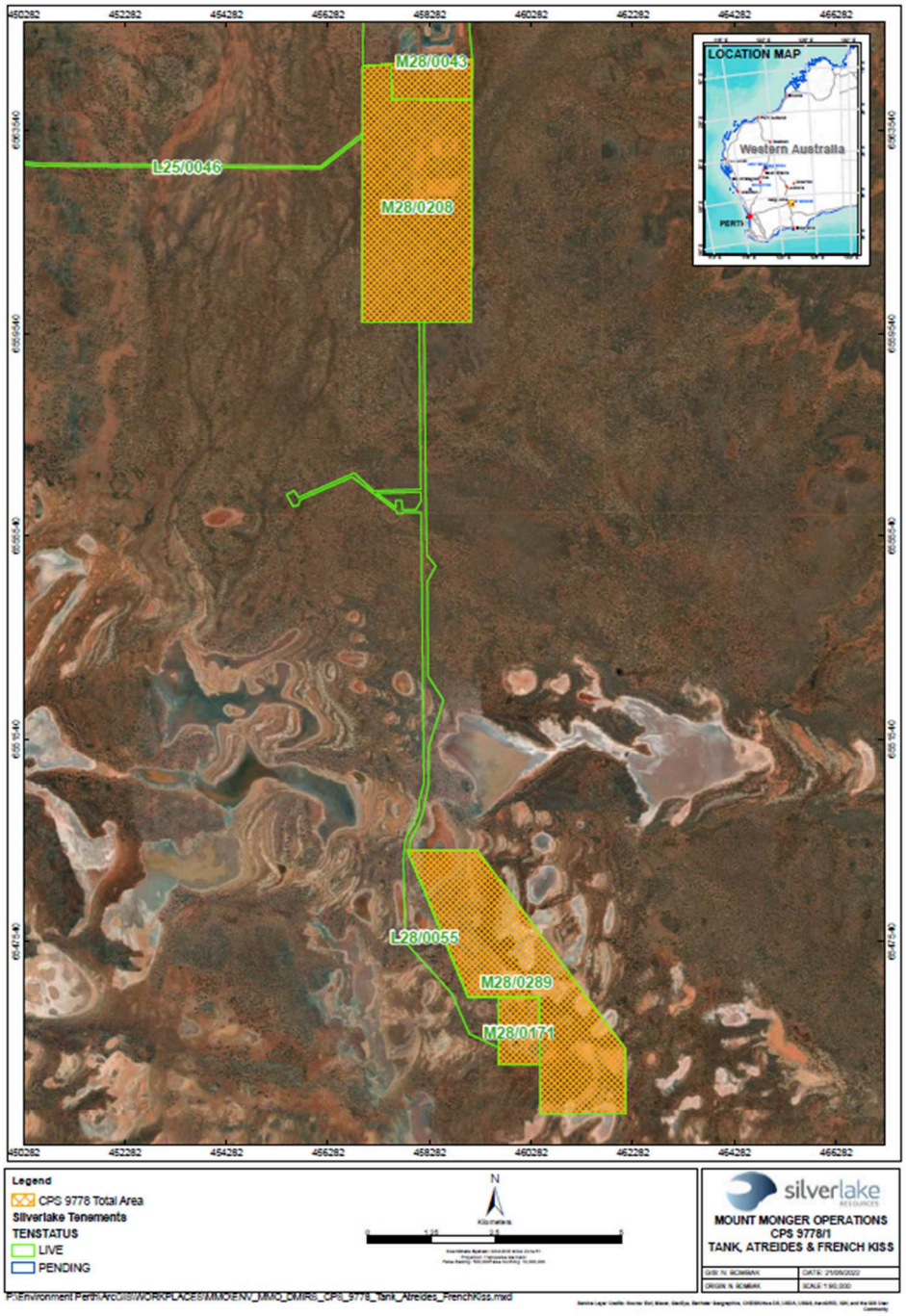

Figure 1. Map of the application area. The orange hatched area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.

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 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)

Relevant agreements (treaties) considered during the assessment include:

- Japan-Australia Migratory Bird Agreement
- China-Australia Migratory Bird Agreement
- Republic of Korea-Australia Migratory Bird Agreement

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, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values. As suggested by the Delegated Officer, Silver Lake (Integra) Pty Ltd agreed to reduce the amount of proposed clearing from 295 hectares to 124.39 hectares. This reduction was to account for the 170.61 hectares of clearing that was completed under previous permits 7429/1 and 7429/2 for the period 2017/2018 to 2021/2022.

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 priority flora) and land and water resources. 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 Principle (a)

Assessment

The following Priority flora species were identified by Botanica (2016) as likely to be found within the application area:

- *Cryptandra crispula* (Priority 3)
- *Melaleuca coccinea* (Priority 3)

The flora survey undertaken by Botanica (2016) over the application and adjacent area recorded no species of Priority flora.

Cryptandra crispula is known from 15 records listed by the Western Australian Herbarium (1998-). Records indicate that the most common habitat for the species is sandplains, with soil descriptions including deep yellow sandy soil, red soil, aeolian sand and sandy soil (Western Australian Herbarium 1998-). Only one per cent of the Botanica (2016) survey area, which aligns closely with the application area, is considered to consist of “sandplain” landforms. Three quadrats were surveyed within sandplain landforms and no records of *Cryptandra crispula* were identified. Given the small proportion of potential habitat, it is considered unlikely that clearing within the application area would have a negative impact on the species.

Melaleuca coccinea is known from 33 records listed by the Western Australian Herbarium (1998-). Based on mapping of the application area, there is likely to be suitable habitat features and soil types for this species (GIS Database). Given that no records were identified during the Botanica (2016) survey it is considered unlikely that clearing within the application area would have a significant negative impacts on the species.

The desktop study by Botanica (2016) did not include four Priority flora species that were identified in a subsequent desktop study by the Delegated Officer of available GIS databases (2022) with similar search parameters (40 kilometre radius from the application area). Of these four Priority species, two were identified as having suitable habitat features and suitable soil types within the application area:

- *Austrostipa turbinata* (Priority 3)
- *Eremophila arachnoides* subsp. *tenera* (Priority 3)

Given these two species were not identified in the Botanica (2016) desktop study it is unlikely they were specifically searched for during the targeted flora survey. However, the survey was conducted in accordance with technical guidelines and it is considered that the survey effort was adequate (EPA, 2016). Therefore, it is less likely that these species are present and the potential impacts from the proposed clearing activities are considered minimal.

There were two species of weeds recorded within the survey area; *Mesembryanthemum crystallinum* (Iceplant), and *Oncosiphon suffruticosum* (Calomba Daisy) (Botanica, 2016). Weeds have the potential to out-compete native flora and reduce the biodiversity of an area, therefore hygiene measures are needed to ensure clearing activities do not introduce or spread weeds into non-infested areas.

Conclusion
For the reasons set out above, it is considered that the impacts of the proposed clearing on habitat for Priority flora is not likely to be significant. There is potential for weeds being present within the application area and the proposed clearing has the potential to exacerbate the spread of weeds.

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

- Take hygiene steps to minimise the risk of the introduction and spread of weeds.

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

Assessment
A Level 1 fauna survey was undertaken over the application area in November 2016 (Botanica, 2016). The survey identified the following broad scale terrestrial fauna habitats:

- Clay-loam plains
- Sandplains
- Dunes
- Closed depressions
- Playas
- Rocky plains

The majority, approximately 60 per cent, of the application is comprised of clay-loam plains with eucalypt woodlands (Botanica, 2016).

The following conservation significant fauna species have been identified as possible or known to occur within the application area (Botanica, 2016):

- *Falco peregrinus* (peregrine falcon) – Other specially protected fauna (BC Act)
- *Leipoa ocellata* (malleefowl) – Vulnerable (BC Act)
- *Merops ornatus* (rainbow bee-eater) – Migratory (EPBC Act)
- *Nyctophilus major tor* (central long-eared bat) – Priority 3 (BC Act)

The peregrine falcon potentially utilises some sections of the survey area as part of a much larger home range. No potential nest sites were observed, therefore it is unlikely to breed in the survey area and likely only occurs occasionally. No significant impact on this species or its preferred habitat is anticipated (Botanica, 2016).

No evidence of malleefowl presence was observed during the fauna or botanical surveys. The species has also not been recorded during any of the more detailed surveys carried out in nearby areas. Available information therefore suggests that a breeding population of this species is very unlikely to be present in the general area, though it is possible that transient, nonbreeding individuals may occasionally occur (Botanica, 2016).

The rainbow bee-eater was observed several times during the survey period (Botanica, 2016). Due to the species having a wide distribution range and is listed by the IUCN as ‘least concern’ the potential impacts of clearing within the application area are considered to be low (DCCEEW, 2022).

Suitable roost sites were identified by Botanica (2016) for the central long-eared bat, however no targeted surveys were undertaken to confirm the species presence. Silver Lake (Integra) Pty Ltd has advised that all large trees will be avoided wherever possible during clearing, including hollow bearing trees (Appendix A). Given that the suitable habitat types for this species occurs over 2,456 hectares of the clearing footprint, the potential impacts from clearing 124.39 hectares are considered to be low.

Four invertebrate species which are potential short range endemic (SRE) species have been recorded in surveys nearby to the application area (Botanica, 2016). Silver Lake (Integra) Pty Ltd has advised that no further survey work has been undertaken to verify populations of these species and whether they can be determined to be SREs (Appendix A). Given that there are expansive tracts of similar habitat adjacent to the application area and no relictual habitats have been identified, the potential impacts to possible SRE invertebrate species is considered low.

Conclusion
For the reasons set out above, it is considered that the impacts of the proposed clearing on fauna species is unlikely to be significant.

Conditions
To address any potential impacts to suitable habitats, the following management measures will be required as conditions on the clearing permit:

- Avoid, minimise and reduce the impacts and extent of clearing.

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

Assessment
There are several seasonally inundated salt lakes that intersect the application area. While no vegetation units were identified as being associated with the salt lakes (Botanica, 2016), there will be riparian vegetation growing along the shoreline. Potential impacts to vegetation growing in association with the lakes may be minimised by the implementation of a watercourse management condition.

The salt lakes or playas located within the application area are associated with the remnants of an ancient major drainage line (Botanica, 2016). Given the extent of the clearing proposed and the location of the application area within drainage zones, there is potential for erosion to occur. Potential impacts from erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

Conclusion
Based on the above assessment, the proposed clearing will result in impacts to riparian vegetation and increased risk of erosion. For the reasons set out above, it is considered that the impacts of the proposed clearing on riparian vegetation and drainage can be appropriately managed by the permit conditions.

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

- Riparian vegetation is avoided where possible and where watercourses are disturbed, the surface flow is maintained.
- Areas cleared are utilised within three months of clearing being undertaken.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 28 June 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WC1999/002) over the area under application (DPLH, 2022). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There is one registered Aboriginal Site of Significance 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. Additional information provided by applicant

Summary of comments	Consideration of comment
Response to query regarding suitable habitat (tree hollows) for the central long-eared bat No further survey work has been undertaken as it was not a requirement of the previously granted clearing permit (CPS 7429) and was not requested by anyone else at any stage. During the clearing activities, Silver Lake Resources instruct contractors to avoid all large trees not just hollow bearing trees wherever possible, consequently several large trees and sections of remnant vegetation are retained within the previous clearing permit area. In order to minimise the amount of vegetation to be cleared, Silver Lake Resources utilized the existing station tracks where possible and designed landforms to reduce the footprint of the operation. With this mitigation in place and the size of the survey area where the central long-eared bat (*Nyctophilus major tor*) possibly occurs being 2,456 ha and the size of the clearing area we are requesting being 196 ha, representing <8% of the survey area, Silver Lake Resources believe any risk posed to this species is extremely low.	The avoidance of all large trees wherever possible, not only ones with hollows, is considered an appropriate mitigation method to avoid impacts to the central long-eared bat and potential breeding sites.
Response to query regarding potential short range endemic invertebrate species No further survey work has been undertaken as it was not a requirement of the previously granted clearing permit (CPS 7429) and was not requested by anyone else at any stage. Potential impact of clearing is mentioned in the report "The limited extent of the clearing required is considered very unlikely to result in the change of status of any invertebrate species present in or near the area given the presence of expansive tracts of similar habitat in adjoining areas and no additional or more detailed survey work on terrestrial SRE invertebrates is therefore considered warranted".	It is considered that possible impacts to potential SRE species are likely to be low, due to the confirmation that there are expansive tracts of similar habitat adjacent to the application area and no relictual habitats have been identified.

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The project is located approximately 110 kilometres south east of Kalgoorlie-Boulder. The area proposed to be cleared is part of an expansive tract of native vegetation in the Eastern Goldfield subregion of the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Eastern Goldfield subregion is characterised by gently undulating plains interrupted in the west with low hills and ridges and ridges of Archean greenstone in the east. A series of large playa lakes in the western half are the remnants of an ancient drainage system. The vegetation is of Mallees, Acacia thickets and shrub heaths on sandplains (CALM, 2002).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages.
Conservation areas	The closest conservation area is the Cardunia Rocks Nature Reserve located approximately 13km north of the application area. The Wallaby Rocks Timber Reserve is approximately 19km north and the Coonana Timber Reserve is approximately 31km north east. A proposed conservation area is located approximately 7km north east of the application area, however the current tenure is unallocated state land.
Vegetation description	The vegetation of the application area is broadly mapped as the following Beard vegetation associations: 481: Mosaic: Medium woodland; salmon gum and red mallee / Hummock grasslands, mallee steppe; red mallee over spinifex *Triodia scariosa*; 506: Succulent steppe with woodland; salmon gum and bluebush; 676: Succulent steppe; samphire, and 936: Medium woodland; salmon gum (GIS Database). A flora and vegetation survey was conducted over the application area by Botanica Consulting during October and November, 2016. The following vegetation associations were recorded within the application area (Botanica Consulting, 2016): **Eucalypt Woodlands** **CLP-EW1:** Open low woodland of *Eucalyptus lesouefii* over low scrub of *Eremophila* spp. and low heath of *Maireana sedifolia* / *Cratystylis conocephala* on clay-loam plain;

Characteristic	Details
	CLP-EW2: Low woodland of *Eucalyptus salmonophloia* over low scrub of *Eremophila scoparia / Senna artemisioides* and low heath of *Maireana sedifolia* on clay-loam plain; **CLP-EW3:** Low woodland of *Eucalyptus salubris* over low scrub of *Eremophila scoparia / Senna artemisioides* and dwarf scrub of mixed Chenopods on clay-loam plain; **CLP-EW4:** Open low woodland of *Eucalyptus salubris* over low scrub of *Eremophila scoparia* and dense dwarf scrub of *Tecticornia disarticulata* on clay-loam plain; **Mallee Woodlands and Shrublands** **CLP-MWS1:** Tree mallee of *Eucalyptus oleosa* over low scrub of *Eremophila* spp. and dwarf scrub of *Westringia rigida* on clay-loam plain; **Chenopod Shrublands, Samphire Shrublands and Forblands** **CD-CSSSF1:** Dense dwarf scrub of *Tecticornia indica* subsp. *bidens* in closed depression; **Mallee Woodlands and Shrublands** **CD-MWS1:** Very open tree mallee of *Eucalyptus oleosa* over open low scrub of *Eremophila scoparia* and low heath of *Cratystylis conocephala / C. subspinescens* in closed depression; **Mallee Woodlands and Shrublands** **D-MWS1:** Open tree mallee of *Eucalyptus oleosa* over low scrub of *Cratystylis conocephala* and open dwarf scrub of *Atriplex vesicaria* on dune; **D-MWS2:** Open tree mallee of *Eucalyptus platycorys* over low scrub of *Cratystylis conocephala / Scaevola spinescens* and open dwarf scrub of *Atriplex vesicaria* on dune; **Acacia Shrublands** **RP-AS1:** Tall open shrubland of *Acacia collegialis / Myoporum platycarpum* over low scrub of *Dodonaea lobulata / Senna artemisioides* and dwarf scrub of *Atriplex vesicaria / Ptilotus obovatus* on rocky plain; and **Mallee Woodlands and Shrublands** **S-MWS1:** Tree mallee of *Eucalyptus oleosa* over mixed low scrub and mid-dense hummock grass of *Triodia scariosa* on sandplain.
Vegetation condition	The vegetation survey by Botanica Consulting (2016) indicates the vegetation within the proposed clearing area is in very good (Keighery, 1994) condition, described as: • Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing. The full Keighery (1994) condition rating scale is provided in Appendix D.
Climate and landform	The application area is mapped within elevations of 300-320 metres AHD (GIS Database). The annual average rainfall is 300 millimetres (GIS Database).
Soil description	The Eastern Goldfields subregion lies on the Yilgarn Craton's 'Eastern Goldfields Terrains'. The relief is subdued and comprised of gently undulating plains interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite. The underlying geology is of gneisses and granites eroded into a flat plane covered with tertiary soils and with scattered exposures of bedrock. Calcareous earths are the dominant soil group and cover much of the plains and greenstone areas. A series of large playa lakes in the western half are the remnants of an ancient major drainage line (Botanica, 2016). The soil at the northern part of the application area is mapped as soil unit Mx43 which is described as gently undulating valley plains and pediments; some outcrop of basic rock. The soil at the southern part of the application area is mapped as soil unit SV3 which is described as saline valleys of salt lakes, clay pans, kopi dunes, sand dunes, sometimes with tors and bosses of outcropping granites (GIS Database). The application area is located within the Kambalda soil-landscape Zone number 265. Soils within this zone are comprised of calcareous loamy earths, red loamy earths, salt lakes soils and some red brown hardpan shallow loams and red sandy duplexes (Botanica, 2016).
Land degradation risk	No wind erosion, water erosion or phosphorous export land degradation risk factors were identified in the GIS database. The groundwater in the application area is likely highly saline. The application area is located in the Salt Lake Basin part of the Lake Lefroy Catchment (GIS Database).

Characteristic	Details
Waterbodies	The desktop assessment and aerial imagery indicated that several non-perennial salt lakes transect the southern part of the area proposed to be cleared (GIS Database). While salt lakes / playas support dwarf samphire shrubland (CALM, 2002), these playas are mostly void of vegetation (Botanica, 2016; GIS Database).
Hydrogeography	The application area is not within any Public Drinking Water Source Area (PDWSA). The mapped groundwater salinity ranges from 10,000 to greater than 150,000 milligrams per litre (GIS Database).
Flora	There are records of 12 priority flora species within 40 kilometres, none of which have been recorded within the application area (GIS Database). Botanica (2016) conducted a flora survey. No threatened (rare) or priority flora were found during the survey (Botanica, 2016).
Ecological communities	No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) are known to be recorded within the application area (GIS Database). No TECs or PECs were found during the survey conducted by Botanica (2016). The nearest PEC located approximately 30 kilometres west of the application area is the Mount Belches *Acacia quadrimarginea/Ptilotus obovatus* (banded ironstone formation), which is categorised as a Priority 3. It is located within the Randall Timber Reserve (GIS Database).
Fauna	One conservation significant fauna species (rainbow bee-eater) was recorded in the survey area (Botanica 2016). Suitable habitat for a Priority 3 fauna species (central long-eared bat) has been recorded in the survey area and is presumed to be present (Botanica, 2106). Other Priority fauna species that are highly mobile may utilise the area (Botanica, 2016). Several invertebrate species have been identified within the application area and are “potential” SREs (Botanica, 2016).

B.2. 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 (BC Act)	Suitable habitat features? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Likelihood of Occurrence (Botanica, 2016)	Are surveys adequate to identify? [Y, N, N/A]
Allocasuarina eriochlamys subsp. *grossa*	P3	N	N	<40	Unlikely	Y
Austrostipa turbinata	P3	Y	Y	<40	-	Y
Cryptandra crispula	P3	Y	Y	<40	Possible	Y
Eremophila arachnoides subsp. *tenera*	P3	Y	Y	<40	-	Y
Eucalyptus kruseana	P4	N	Y	<40	Unlikely	Y
Eucalyptus x brachyphylla	P4	N	Y	<40	Unlikely	Y
Grevillea phillipsiana	P1	N	Y	<40	Unlikely	Y
Lepidosperma lyonsii	P1	N	N	<40	Unlikely	Y
Melaleuca coccinea	P3	Y	Y	<40	Possible	Y
Micromyrtus serrulata	P3	N	Y	<40	Unlikely	Y
Pterostylis virens	P3	N	Y	<40	-	Y
Pterostylis xerampelina	P1	N	Y	<40	-	Y

B.3. Fauna analysis table

Species name	Conservation status (BC Act)	Conservation Status (EPBC Act)	Suitable habitat features? [Y/N]	Likelihood of Occurrence (Botanica, 2016)	Are surveys adequate to identify? [Y, N, N/A]
Apus pacificus (fork-tailed swift)	-	MI	Y	Unlikely	Y
Ardea ibis (cattle egret)	-	MI	Y	Would not occur	N/A
Ardea modesta/alba (eastern great egret)	-	MI	Y	Unlikely	Y
Falco peregrinus (peregrine falcon)	OS	OS	Y	Possible	Y
Leipoa ocellata (malleefowl)	VU	VU	Y	Possible	Y
Merops ornatus (rainbow bee-eater)	-	MI	Y	Known	Y
Motacilla cinerea (grey wagtail)	-	MI	Y	Would not occur	N/A
Nyctophilus major tor (central long-eared bat)	P3	-	Y	Possible	N
Parartemia contracta (unnamed fairy shrimp)	P1	-	Y	Unlikely	N/A
Pezoporus occidentalis (night parrot)	CR	EN	N	Would not occur	N/A

B.4. Ecological community analysis table

Community name	Conservation status (WA)	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
Mount Belches *Acacia quadrimarginea / Ptilotus obovatus* (banded ironstone formation)	P3	N	N	30	Y

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

Appendix C. 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: No known priority flora have been recorded in the application area. The application area is likely to contain habitat suitable for two species of priority flora (Botanica, 2016). One vertebrate fauna species of conservation significance has been recorded in the application area. A further three vertebrate fauna species of conservation significance have a possible likelihood of occurrence (Botanica, 2016). Four invertebrate species which are potential SREs have been recorded within or adjacent to the application area (Botanica, 2016). There are no known TECs or PECs present in the application area.	May be at variance	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 area proposed to be cleared may contain significant habitat for conservation significant fauna. Suitable roost sites were identified by Botanica (2016) for the	May be at variance	Yes *Refer to Section 3.2.2, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Central Long-Eared Bat and four invertebrate species which are potentially short range endemics have been identified in the adjacent area (Botanica, 2016).		
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain habitat suitable for flora species listed as threatened under the BC Act.	Not likely to be at variance	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 species representative of a TEC listed under the BC Act or the EPBC Act.	Not likely to be at variance	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: National objectives and targets for biodiversity conservation in Australia include preventing clearance of ecological communities to an extent below 30 per cent of that present prior to the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The current remaining extent of the mapped vegetation types in the application area is over 95% at the state level and over 99% at the bioregion level. This is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not at variance	No
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, the proposed clearing is not likely to have an impact on the environmental values of any conservation areas.	Not likely to be at variance	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: There are several seasonally inundated salt lakes located within the application area. These are identified as playas within the Botanica (2016) report and cover 283 hectares or twelve per cent of the survey area. While the playas are described as unvegetated, there is likely to be native vegetation growing along the shoreline. Therefore, the proposed clearing will impact on vegetation associated with a watercourse.	At variance	Yes *Refer to Section 3.2.3, above.*
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The application area intersects several seasonally inundated playas which are associated with the remnants of an ancient drainage system. Leaving large areas of clearing open will increase the risk of land degradation.	May be at variance	Yes *Refer to Section 3.2.3, above.*
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: There are no Public Drinking Water Source Areas located within 100 kilometres of the application area (GIS Database). There are no permanent wetlands or waterbodies in the application area, however there are several non-perennial salt lakes. Given the	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
low average annual rainfall, the salt lakes are likely to only be briefly inundated and the proposed clearing is unlikely to impact surface water quality. Given the groundwater is already saline, the proposed clearing is unlikely to alter existing groundwater salinity.		
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: There are no permanent watercourses or waterbodies recorded within the application area (GIS Database). Non-perennial salt lakes are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to contribute to increased incidence or intensity of flooding.	Not likely to be at variance	No

Appendix D. Keighery (1994) 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 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)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)

- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- 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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Silver Lake (Integra) Pty Ltd (2022) Tank, Atreides and French Kiss Project application for clearing permit within Mining Leases M28/43, M28/171, M28/208, M28/289. Silver Lake (Integra) Pty Ltd, June 2022.

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4. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
BoM	Bureau of Meteorology, 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
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
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
SRE	Short Range Endemic
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.