Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10840/1
Permit type:	Purpose permit
Applicant name:	Mt Marion Lithium Management Pty Ltd
Application received:	14 November 2024
Application area:	330 hectares of native vegetation
Purpose of clearing:	Mineral production and associated activities
Method of clearing:	Mechanical
Property:	Lot 94 on Deposited Plan 220400 (Mining Leases 15/841 and 15/999 and Miscellaneous Licence15/353)
Location:	Shire of Coolgardie
Localities:	Karramindie

1.2. Description of clearing activities

The application is to clear 330 hectares (ha) native vegetation within a 488-ha development envelope within Lot 94 on Deposited Plan 220400. The clearing is required to facilitate the expansion of the existing mining operations at Mt Marion Lithium Project operating under CPS 8632/3, adjacent to the application area. The vegetation proposed to be cleared is distributed across two separate areas on the north-eastern and south-eastern sides of the existing mining operation. The northern area is proposed for the expansion of a waste rock dump and the southern area for a new mining area with a waste dump and supporting infrastructure.

1.3. Decision on application

Decision:	Granted
Decision date:	14 April 2025
Decision area:	330 ha as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The application was advertised for 21 days for public submissions. No submissions were received.

In making this decision, the Delegated Officer had regard for the:

- site characteristics (see Appendix A),
- relevant datasets (see Appendix E.1)
- findings of a series of flora and fauna survey (see Appendix D)
- clearing principles set out in Schedule 5 of the EP Act (see Appendix B)
- relevant planning instruments and any other matters considered relevant (see Section 3)
- applicant's environmental management system which requires implementation of actions to avoid, minimise and rehabilitate residual impacts of clearing activities, such as avoidance of conservation significant flora, undertaking staged clearing and progressive rehabilitation, respectively; and
- the applicant's legal obligations under the *Mining Act 1978*, such as a requirement to develop a mining closure plan to mitigate impacts on the environment.

Noting the above, the Delegated Officer has identified the following:

- no conservation significant flora occurs within the application area. The closest conservation significant flora was recorded approximately 500 metres from the application area
- the application area does not contain native vegetation representative of threatened or priority ecological communities (TECs or PECs), and no TECs or PECs are mapped within a 50-kilometre radius of the application area
- given the location of the application area adjacent to areas authorised to be cleared, the application area does not act as a significant ecological linkage between areas of remnant vegetation in the region
- a fauna survey targeting malleefowl (*Leipoa ocellata*), chuditch (*Dasyurus geoffroii*) and arid bronze azure butterfly (ABAB) did not identify any malleefowl mounds in the application area. The closest identified mound was recorded approximately 1.5 km from the application area
- the application area does not contain any colonies of sugar ant (*Camponotus* sp. nr. *Terebrans*) which are essential for ABAB (*Ogyris substerrestris petrina*) survival. The closest colony was mapped approximately 1.7 kilometres from the application area
- although the targeted survey did not identify any individuals of malleefowl, chuditch or ABAB, these species may use the application area for dispersal
- the clearing may increase the risk of appreciable impact on land degradation via wind erosion, if not adequately managed; and
- the clearing may introduce and spread weeds, which could impact on the quality of the adjacent vegetation and habitat values.

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 is unlikely to lead to appreciable land degradation or long-term adverse impacts on environmental values. The potential impacts listed above can be minimised and managed so that they are unlikely lead to an unacceptable risk to the environmental values.

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

- avoid, minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity
- commence the project activities within three months of the authorised clearing to minimise the risk of soil (wind) erosions; and
- retain cleared vegetation and topsoil and respread this on a cleared area for the revegetation of areas no longer required for the purpose for which they were cleared to minimise the long-term risk of soil erosion.

The Delegated Officer also noted that a mining closure plan under the *Mining Act 1978* will further mitigate potential impacts of the proposed activities on the environment through the progressive rehabilitation of the clearing areas throughout the project's lifespan.

1.5. Site map

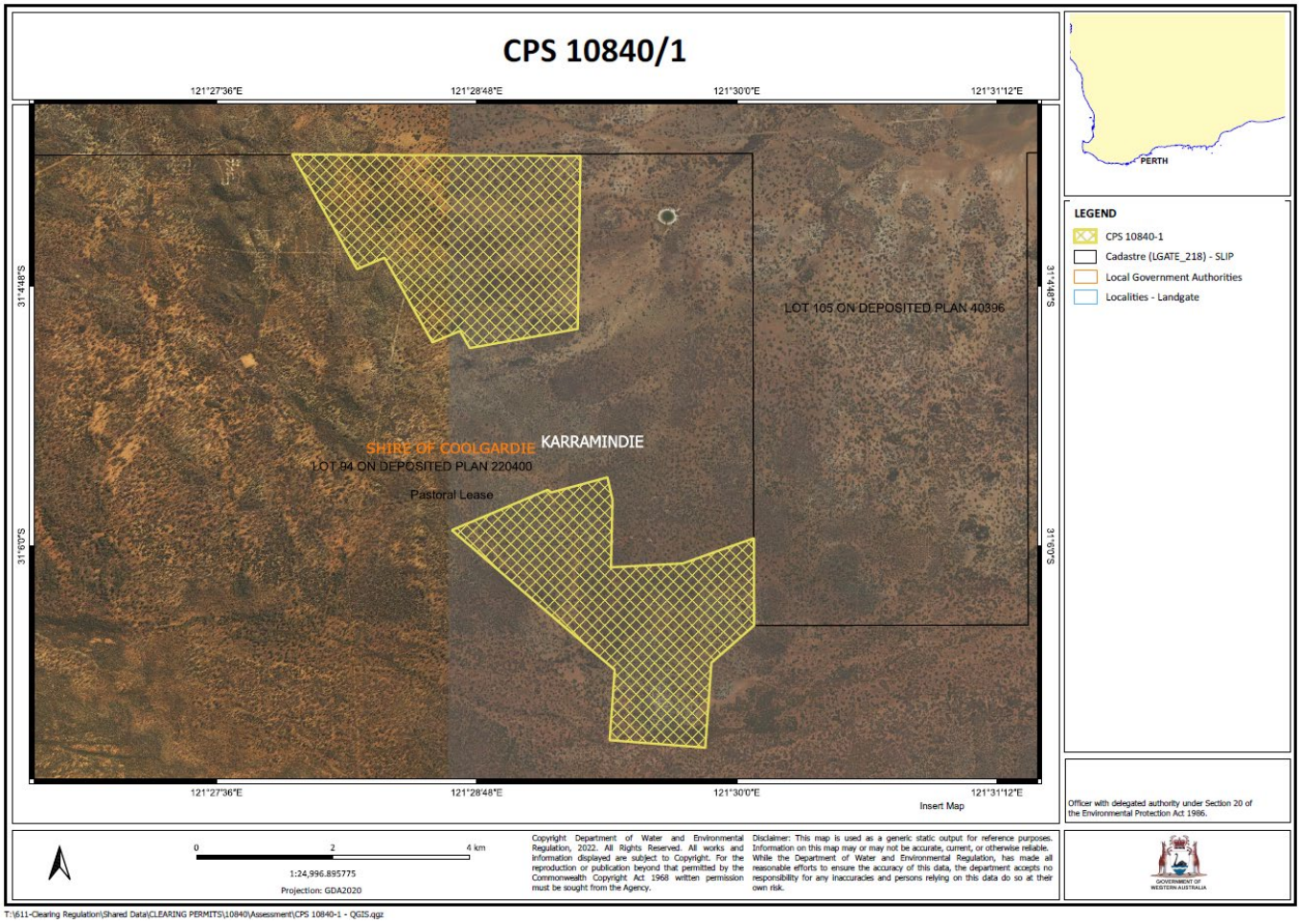

Figure 1: Map of the application area. The areas crosshatched yellow indicate the areas authorised to be cleared

2 Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Mining Act 1978 (WA)*

- *Rights in Water and Irrigation Act 1914* (RIWI Act)
- *Aboriginal Heritage Act 1972.*

The key guidance documents which inform this assessment are:

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

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating the applicant's commitment to avoid and minimise clearing and mitigate potential impacts (Mineral Resources Limited, 2024a). The measures include the following:

- Ensuring that all clearing and ground disturbance is carried out in accordance with its Land Activity Permit (LAP) and land clearing procedures, which requires delineation and demarcation of clearing areas with survey pegs and flagging tape, salvaging and stockpiling of topsoils for future use for rehabilitation and revegetation
- Construction site drainage infrastructure, including culverts to mitigate the risk of erosion
- Monitor local malleefowl populations if present
- Undertake staged clearing
- Implementation of approved Mine Closure Plan (MCP) in accordance with the *Mine Closure Plan Guidance – How to prepare in accordance with Part 1 of the Statutory Guidelines for Mine Closure Plans* (Department of Mines Industry Regulation and Safety, 2020). This incorporates progressive rehabilitation over the life of mine
- Undertake progressive rehabilitation at the mine; and
- Salvage and stockpile soil and/or habitat features (e.g. vegetation, stumps, logs, boulders) for use in rehabilitation programs.'

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C) 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 (see Appendix D) identified that the impacts of the proposed clearing present a risk to biological values (flora and fauna) and land 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 – Biodiversity, Flora and Vegetation – Clearing Principles (a) and (c)

Assessment

The application area lies within the Coolgardie region which is botanically characterised by the Eucalypt Woodlands containing high diversity of Eucalypt species. The current vegetation within the Coolgardie vegetation system is secondary regrowth regenerated from seed and coppice. Two vegetation and flora surveys have been conducted within and outside the boundaries of the application area. Within the study area 230 native flora taxa and 9 introduced flora taxa were identified. Within the application area, a total of five vegetation types were identified (see Appendix A for the description); mostly in excellent to pristine conditions (Trudgen, 1991). The composition and vegetation types within the application area

are typical of the local region and not considered to be unusually diverse (Spectrum, 2024). The vegetation may provide suitable habitats for fauna species commonly occurring in the Coolgardie region.

No flora species listed as threatened under the EPBC Act or the BC Act, nor priority flora species listed by the Department of Biodiversity, Conservation and Attractions (DBCA) were identified within the application area. The following five priority flora species listed below were identified within the larger survey area:

- *Eucalyptus urna* subsp. *xesta* (P3): Located 500 m outside of the application area
- *Eucalyptus websteriana* subsp. *norsemanica/websteriana (*P1): Located 1.5 km outside the application area
- *Ricinocarpos digynus* (P1): Located 1.6 km outside the application area
- *Lepidosperma* sp. Kambalda (A.A. Mitchell 5156) (P2): Located 1.8 km outside the application area
- *Acacia websteri* (P1): Located 2 km outside the application area

Given the separation distance from the application area, the proposed clearing will not have direct impacts to the above species.

No TECs or PECs, Environmentally Sensitive Areas, Nature Reserves, Conservation Areas, or restricted or unique vegetation communities within the application area.

As discussed under principle (b), the application area does not provide significant habitat for conservation significant fauna.

Conclusion:

The proposed clearing is unlikely to result in a significant impact on biodiversity at the local and regional extents. Indirect impact of clearing can be minimised and mitigated by imposing management conditions to the permit.

Conditions:

To mitigate potential impact on biodiversity and flora, the following conditions are required on the permit:

- Avoid and minimise clearing
- Weed control and management
- Stockpiling of topsoils for future rehabilitation.

3.2.2. Biological values – Fauna – Clearing Principle (b)

Assessment

Available databases indicate that three conservation significant fauna species have been recorded from the local area (20 km radius of the application area). A series of fauna surveys have been performed to confirm the presence/absence of this species within the application area. SLR Consulting (2024) conducted fauna surveys over an area beyond the application area (see Figure 6). The surveys targeted four fauna species, namely:

- Malleefowl (*Leipoa ocellata*) listed as Vulnerable at both a state and federal level
- Inland Hairstreak Butterfly (*Jalmenus aridus)* listed as Priority 1 under the BC Act –
- Arid Bronze Azure Butterfly (*Ogyris petrina*) listed as Critically Endangered at both a state and federal level
- Carnaby's Cockatoo (*Zanda latirostris*) listed as Endangered at both a state and federal level

The survey identified three fauna habitat types which represent vegetation at the regional scale:

- Drainage Line. Areas that are often inundated with water after rainfall events, with a mixed eucalyptus overstorey, an open to sparse mid-storey of acacia and melaleuca and a sparse understorey of solanum and *atriplex* spp.
- Eucalyptus Woodlands: Moderately undulating plains of mixed eucalyptus woodland overstorey, and open to closed shrubland/heathland of melaleuca, acacia, hakea, and *allocasuarina*, with isolated to sparse understorey of *atriplex* spp., *solanum* spp.

- Low Hills and Slopes: Areas of undulating hills with ironstone/greenstone rubble. Eucalyptus woodland cover storey and sparse mid-storey of mixed acacia and melaleuca, over a sparse forbland of atriplex and mixed sedges/herbs.

Of the identified habitats, the Drainage Lines is considered the significant habitat, which makes up approximately 9% of available habitats within the clearing area.

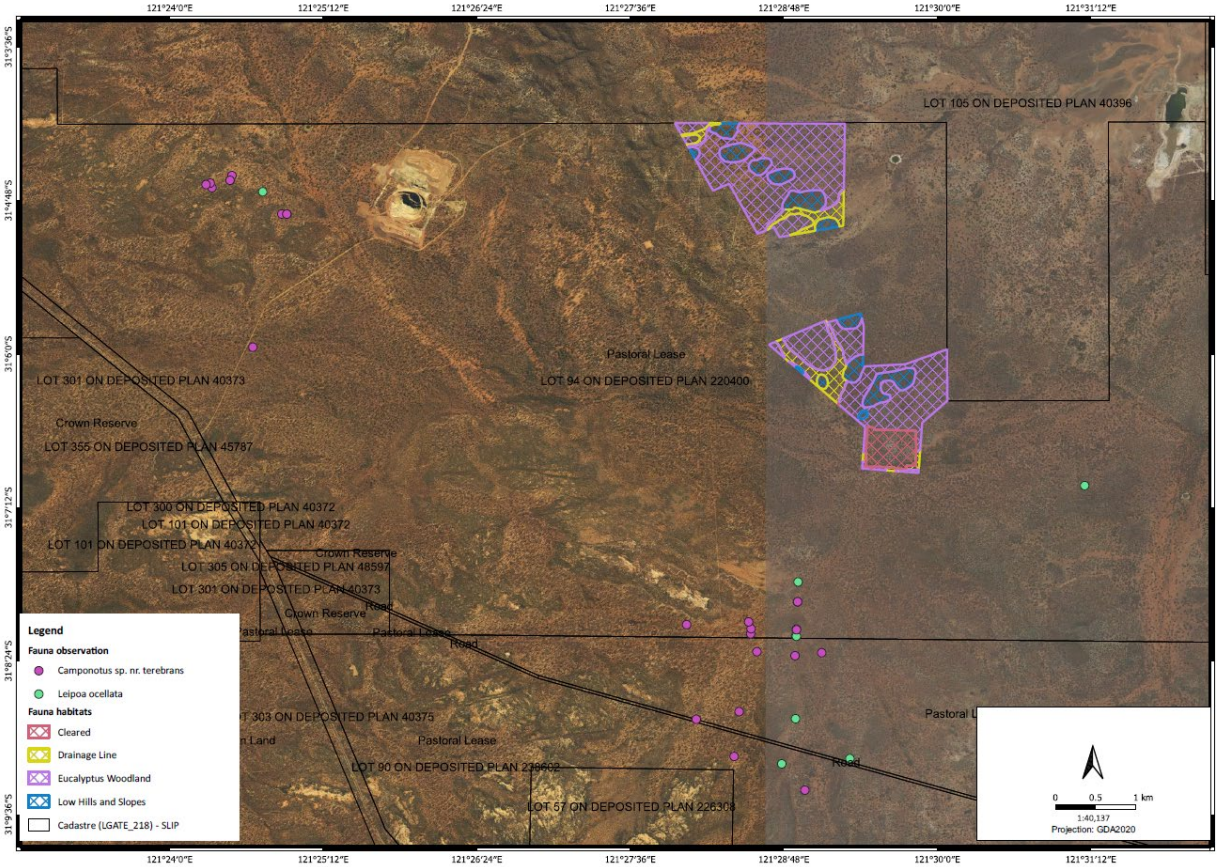

Figure 3. Fauna habitats mapped within the application area and records of conservation significant fauna

Malleefowl (*Leipoa ocellata*)

Although the targeted fauna survey (SLR, 2024) identified suitable habitat for malleefowl in the application area, it did not identify any evidence of this species within the application area. Similarly, no malleefowl mounds were identified. The vegetation within the application area therefore represents suitable, but not significant habitat for malleefowl. The closest mound was identified approximately 1.5 km from the application area.

The findings suggest that malleefowl may use the application area for dispersal. In their previous advice DBCA (2023) suggested that malleefowl uses the local area for breeding, and potentially for foraging purposes. The number of malleefowl records in the local area and the relatively even distribution of the records across the landscape indicate that the population is not presently restricted to certain areas. Noting that malleefowl is a mobile species, the occurrence of the fauna species within the application area at the time of clearing cannot be ruled out. The conditions of the clearing permit will therefore require the applicant to undertake directional clearing to allow malleefowl individuals move into adjacent native vegetation prior to the clearing activities.

Inland Hairstreak Butterfly (*Jalmenus aridus) (P1)*

The most recent survey by SLR (2024) between February and April 2014 opportunistically identified 39 Inland Haistreak Butterfly individuals within the survey areas, but outside of the application area. The closest occurrence is 2.5 km outside the application area. This species prefers habitats of open woodland with stands of mixed young and mature *Senna* shrubs in an area ≥2000 m^2. They also prefer a

variety of flowering shrubs such as Eremophila, Scaveola, and Maireana. This species is also associated with the ant species *Froggattella kirbii* (Eastwood et al., 2023). The butterfly did not occur within the survey area at the time of survey, even though the survey area contained suitable habitat for this species. Populations of the species host plant, *Senna artemisioides* ssp*. Flifolia* were identified during the terrestrial fauna field survey, although none are located within the application area. SLR suggested that migration between sites of the priority butterfly species is possible, but given the absence of the host plant from the application area, the Inland Hairstreak Butterfly is not expected to be directly impacted by clearing activities.

Arid Bronze Azure Butterfly (ABAB) (*Ogyris petrina*)
The species requires the host ant *Camponotus* sp. nr. *terebrans* to be present in large enough colonies (> 40 ha) to support the species within the colony. The most recent survey by SLR (2024) targeting ABAB was performed over *Camponotus* colonies in Mt Marion areas, involving the traversal of a total of 200 kms by foot over 24 days. The survey identified 2588 *Camponotus* spp nests within the survey area. None of these nests were identified within the application and the survey did not identify any evidence of ABAB. On this basis, the application area does not provide significant habitat for ABAB.

Carnaby's cockatoo
The fauna survey identified suitable foraging habitat for Carnaby's cockatoo in the form of the Eucalyptus woodlands. However, the application area occurs outside the modelled distribution of this species and no evidence of Carnaby's cockatoo within the application area was identified. Given this, the application area does not provide significant habitat for Carnaby's cockatoo.

Conclusion:
Given the above, direct impacts of clearing on conservation significant fauna species is unlikely to be significant. However, some fauna species may be using the application area at the time of the clearing. Fauna management conditions imposed on the clearing permit will adequately mitigate the potential harm or injuries to fauna species while the proposed clearing is undertaken.

Conditions:
To mitigate potential impacts on fauna species, the following conditions are imposed on the permit:

- Slow, directional clearing towards adjacent vegetated areas to allow fauna to move to the nearby vegetation ahead of clearing; and
- Weed management to minimise the spread of weeds into adjacent fauna habitat.

3.2.3. Land and water resources – Clearing principles (g)

Assessment
Sandy loamy soils of the application area may be prone to wind erosion when the ground cover vegetation is removed. Clearing of large areas can exacerbate the risk. Lose soils and dust deposited by wind may impact on the vegetation nearby, reducing their quality and habitat values. Lose soils also transport weed seeds, which may help introduce and spread weeds to nearby areas. Limiting the exposure time of the bare ground to the wind and staged clearing may mitigate this potential impact. Rehabilitation and revegetation of temporary cleared area that are not required for the mining operations for which the clearing permit is proposed for would also mitigate this potential impact.

The rainfall in the area is low that the risk of water erosion is also low. However, after high rainfall events surface water runoff onsite may flow as sheet flows, transporting lose sediments and soils, including topsoils, to adjacent vegetation. Sediment transport may also spread weeds. This, in turn would reduce the quality of nearby native vegetation and waterbodies. This can be mitigated by ensuring that site drainage infrastructure, including culverts are constructed following clearing. The applicant is committed that all runoff and drainage within the mining impact zone is contained within bunded areas and clearing footprints. Stockpiling of topsoils will also mitigate the potential of the material loss due to surface water runoff.

The Delegated Officer acknowledged that the approved MCP regulated under the Mining Acts contains measures to address this and will further mitigate the potential impacts of wind, water erosion and dust deposition due to the mining operations and clearing.

Conclusion
Based on the above assessment, the proposed clearing will not result in appreciable land degradation if appropriate land management measures are applied.

Conditions
To address the potential impacts on land resources, the following condition will be imposed on the permit:

- Staged clearing allowing the applicant to undertake clearing only if the mineral production and associated activities commence within three months from the clearing being undertaken.
- revegetation and rehabilitation of the application area post mining operations.

3.3. Relevant planning instruments and other matters

The existing mining operations and associated activities are regulated under *the Mining Act* 1978 (WA) via Mining Proposal (MP) REGID 2867 and 120019. The mining activities within the proposed clearing area are regulated under MP REGID 129825 granted by DEMIRS on 26 February 2025.

The applicant holds a valid licence under the *Rights in Water and Irrigation Act 1914.*

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

The application area lies within the Marlinyu Ghoorlie (WC2017/007) Native Title determination. Database available to the Department indicated that there are several Heritage Sites surrounding the application area (see Figure 4). 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.

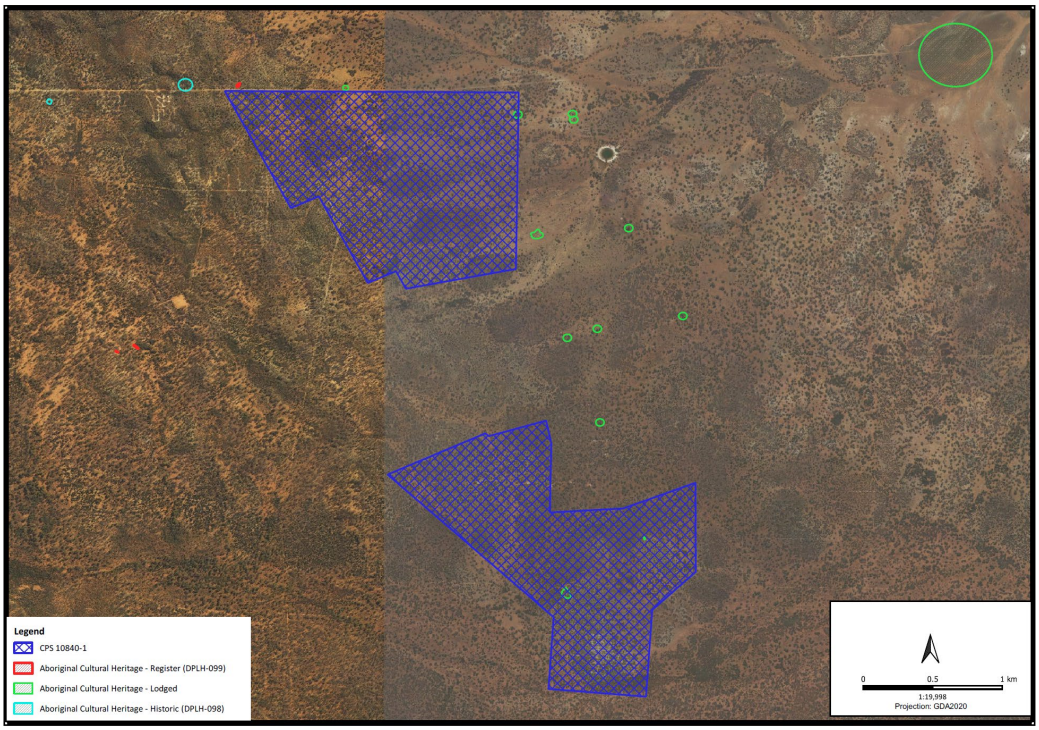

Figure 4. Map of cultural heritage sites

End

Appendix A. Site characteristics

A.1. Site characteristics

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td>Local context</td><td>The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is located within the Coolgardie Bioregion and the Eastern Goldfields Subregion (COO03) of Western Australia where land uses comprise of predominately mining, prospecting, forestry and pastoralist activities.

Spatial data indicates the local area (20-kilometre radius from the centre of the area proposed to be cleared) retains more than 90 per cent of the original native vegetation cover.</td></tr>
<tr><td>Ecological linkage</td><td>No formal ecological linkage has been mapped within the application area.</td></tr>
<tr><td>Conservation areas</td><td>The nearest conservation estate is the Kambalda Nature Reserve, approximately 6.5 km to the southeast. Three other conservation areas are located approximately eight km from the application area.</td></tr>
<tr><td>Vegetation description</td><td>Vegetation in the subregion has been mapped only to the vegetation association level. Accordingly, the vegetation within the application area and surrounds has been mapped as follows:

• Beard Vegetation Association 9, Medium woodland; coral gum (Eucalyptus torquata) & Goldfields blackbutt (Eucalyptus lesouefii)– 98.29%
• Beard Vegetation Association 936, Medium woodland; salmon gum – 99.32 %

The mapped vegetation types retain approximately 98.29, and 99.32 per cent of the original extent, respectively (Government of Western Australia, 2019).

Vegetation surveys (Spectrum Ecology, 2024) indicate the vegetation and vegetation conditions within the proposed clearing area are as follows:

<table>
<tr><th>Vegetation name</th><th>Description</th><th>Condition</th><th>Percentage</th></tr>
<tr><td>CD</td><td>Completely degraded</td><td>Completely Degraded</td><td>13.26</td></tr>
<tr><td>EsalmEsalu Crs AvMglTecd</td><td>Eucalyptus salmonophloia, Eucalyptus salubris mid open woodland, over Cratystylis subspinescens mid sparse shrubland, over Atriplex vesicaria, Maireana glomerifolia, Tecticornia disarticulata low sparse shrubland</td><td>Excellent - Very Good</td><td>1.18</td></tr>
</table>
</td></tr>
</table>

Characteristic	Details			
	ElesoEtorqEolol Ab AbuxDlEopa SsAeWr	*Eucalyptus lesouefii, Eucalyptus torquata, Eucalyptus stricklandii* low open woodland with *Acacia burkittii* tall sparse shrubland, over *Alyxia buxifolia, Dodonaea lobulata, Eremophila oppositifolia* subsp. *angustifolia* mid sparse shrubland, over	Pristine - Excellent	16.80
	EsalmEleso EdExa SeafAnsEs AvCrcRdr	*Eucalyptus salmonophloia, Eucalyptus lesouefii* mid open woodland with *Eremophila dempsteri, Exocarpos aphyllu*s tall sparse shrubland, over *Senna artemisioides* subsp. *filifolia, Atriplex nummularia* subsp. *spathulata, Eremophila scoparia* mid sparse	Pristine - Very Good	20.61
	EgrifEsalm EivExa SeafEiAl LaAvRdr	*Eucalyptus griffithsii, Eucalyptus salmonophloia* mid open woodland with *Eremophila interstans* subsp. virgata, *Exocarpos aphyllus* tall sparse shrubland, over *Senna artemisioides* subsp. *filifolia, Eremophila ionantha, Acacia leptopetala* mid sparse	Excellent	1.21
	Eleso Mes EsExaSeaf OmAe	*Eucalyptus lesouefii* mid woodland with *Melaleuca sheathiana* tall open shrubland, over *Eremophila scoparia, Exocarpos aphyllus, Senna artemisioides* subsp. *filifolia* mid sparse shrubland, over *Olearia muelleri, Acacia erinacea* low sparse shrubland	Pristine - Very Good	8.33
	EsaluEclelEsalm SeafEsExa EcEpaOm	*Eucalyptus salubris, Eucalyptus clelandiorum, Eucalyptus salmonophloia* low woodland, over *Senna artemisioides* subsp. *filifolia, Eremophila scoparia, Exocarpos aphyllus* mid sparse shrubland, over *Eremophila caperata,*	Excellent	0.86

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td>Eremophila parvifolia subsp.</td><td></td><td></td></tr>
<tr><td>EcelaEtranEsaluEsSeafEiOmAlEc</td><td>Eucalyptus celastroides, Eucalyptus transcontinentalis, Eucalyptus salubris mid woodland, over Eremophila scoparia, Senna artemisioides subsp. filifolia, Eremophila ionantha mid sparse shrubland, over Olearia muelleri, Acacia leptopetala, Eremophila</td><td>Pristine - Excellent</td><td>37.75</td></tr>
</table>

The vegetation groups above are consistent the vegetation mapped in the Eastern Goldfields sub-region.
</td></tr>
<tr><td>Vegetation condition</td><td>Surveys (Spectrum Ecology, 2024) indicate the vegetation within the application area ranges from Completely Degraded to Pristine-Excellent conditions (Trudgen, 1991). The largest portion of the vegetation proposed to be cleared is in Pristine conditions.

The full Trudgen (1991) condition rating scale is provided in Appendix E. The survey descriptions and mapping are available in Appendix G.</td></tr>
<tr><td>Climate and landform</td><td>The region is characterised by hot summers and cold winters with low rainfall distributed throughout the year (approximately 250-300 millimetres (mm) per year) (BoM, 2023). December and January recorded the highest rainfall.

The landforms of the application area is hilly on the northern parts and gently undulating areas and outwash plains in the southern part. The highest point in the landscape is Mt Marion immediately to the north of M15/841. The tenement slopes to the southeast with the landforms becoming gently undulating and changing to broad drainages and outwash plains.</td></tr>
<tr><td>Soil description</td><td>The soils over the application area is mapped within the Kambalda Zone in the Kalgoorlie Province soil landscape region of the Department of Industries and Regional Development (DPIRD) system, which has been described at the regional level as undulating plains (with some sandplains, hills and salt lakes) on the granitic rocks and greenstone of the Yilgarn Craton (DPIRD, Department of Primary Industries and Regional Development, 2022). Sandy loams dominate in areas of granites and pegmatites.

Three soil units are mapped within the application area, namely:
BB5, described as rocky ranges and hills of greenstones-basic igneous rocks</td></tr>
</table>

Characteristic	Details
	• My154, described as undulating country on acid volcanic rocks and sedimentary materials • Mx43, described as gently undulating valley plains and pediments; some outcrop of basic rocks.
Land degradation risk	The soils mapped in the application area may be prone to wind erosion when ground cover vegetation is removed. Being in the arid zone, the risk of water erosion is low. Ground water is hypersaline that interception of ground water may present risk to land degradation due to salinity.
Waterbodies	The desktop assessment and aerial imagery indicate no permanent waterbodies are present within the application area.
Hydrogeography	The application area is within the Goldfields Groundwater Area proclaimed under the RIWI Act.
Flora	Surveys over the application area did not identify any Threatened or Priority flora species within the application area. Flora species identified are indicative of the local area.
Ecological communities	No PEC/TEC is mapped or identified within the application area. No TEC or PEC is mapped within 50 km from the application area.
Fauna	Fauna surveys did not identify any evidence of conservation significant fauna species in the application area. However, eight fauna habitats are identified, one of which may provide suitable habitat for the ABAB host *Camponotous* sp. nr. *terebrans.*

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Coolgardie	12,912,204.35	12,648,491.39	97.96	2,114,637.29	16.37
Vegetation complex					
Beard vegetation association 9	235,047.15	229,757.07	97.75	18,981.18	8.08
Bear vegetation association 936	310,897.74	308,459.61	99.22	13,509.51	4.35

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

A.3. Flora analysis table

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

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Acacia crenulata	3	Y	Y	Y	10.53	2	Y
Acacia kerryana	2	Y	Y	Y	14.53	1	Y
Acacia websteri	1	Y	Y	Y	6.08	2	Y
Allocasuarina eriochlamys subsp. grossa	3	Y	Y	Y	16.66	1	Y
Austrostipa turbinata	3	Y	Y	Y	15.96	2	Y
Calandrinia lefroyensis	1	Y	Y	Y	17.93	2	Y
Cratystylis centralis	3	Y	Y	Y	19.11	1	Y
Cyathostemon divaricatus	1	Y	Y	Y	10.73	7	Y
Eremophila succinea	3	Y	Y	Y	8.02	1	Y
Eucalyptus urna subsp. xesta	3	Y	Y	Y	8.50	2	Y
Frankenia glomerata	4	Y	Y	Y	18.96	1	Y
Lepidosperma sp. Kambalda (A.A. Mitchell 5156)	2	Y	Y	Y	16.66	1	Y
Lepidosperma sp. Parker Range (N. Gibson & M. Lyons 2094)	1	Y	Y	Y	19.09	1	Y
Phebalium clavatum	2	Y	Y	Y	16.48	2	Y
Pterostylis xerampelina	1	Y	Y	Y	7.09	1	Y
Ricinocarpos digynus	1	Y	Y	Y	18.35	1	Y
Stackhousia muricata subsp. Perennial (W.R. Barker 3641)	3	Y	Y	Y	12.84	1	Y
Stylidium choreanthum	3	Y	Y	Y	12.41	1	Y
Styphelia rectiloba	3	Y	Y	Y	7.05	7	Y
Tetratheca spenceri	T	Y	Y	Y	19.05	4	Y
Thryptomene planiflora	1	Y	Y	Y	1.09	10	Y

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

A.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Calidris acuminata	MI	Y	Y	16.55	2	Y
Dasyurus geoffroii	VU	Y	Y	17.85	1	Y
Leipoa ocellata	VU	Y	Y	7.86	24	Y

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

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 application area does not contain conservation significant flora and/or ecological communities.	Not likely to 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: A fauna survey targeting species with a high likelihood of occurrence within the application area did not find any evidence of them using the vegetation proposed to be cleared. However, the application area may be used by fauna for dispersal.	May be at variance	Yes *Refer to Section 3.2.2, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: No threatened flora species listed under the BC Act or the EPBC Act were recorded in the application area.	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
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: No TECs and PECs are recorded within 50 km of the application area. The application area does not contain species representative of a TEC or PEC.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
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 extent of the mapped vegetation type and native vegetation in the local area are 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 likely to be 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: The nearest conservation estate is the Yallari Timber Reserve located eight km to the west and southwest of the proposed clearing area. Given the separation distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of 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 no formal perennial waterbodies within the application area that the vegetation proposed to be cleared is not associated with any watercourse or wetland. The nearest waterbody is an ephemeral salt lake systems occurring approximately 19 km northwest of the application area. The proposed clearing is unlikely to impact on any riparian vegetation.	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The proposed clearing comprises of relatively large area. Removal of ground cover vegetation may expose soils to water and wind erosion. Noting the extent of the application area, the proposed clearing may increase the risk of appreciable impact on land degradation. However, the management condition on the clearing permit will adequately mitigate this impact. The applicant is also required to progressively rehabilitate the application area over the life of the project.	Not likely to 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:*)*	Not likely to be at variance	Yes *Refer to Section 3.2.3, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Given no water courses / wetlands are recorded the application area, the proposed clearing is unlikely to impact surface quality. The ground water in the is hypersaline. The water table is below 100 m deep in the northern area and below 20-70 m in the southern area.		
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.	Not likely to be at variance	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 Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Biological survey information excerpts

The applicant commissioned several consulting firms to conduct a series of flora, vegetation and fauna surveys over the application area and surround in support of the clearing permit application and associated project. The surveys undertaken are as below:

Fauna and Short-Range Endemic (SRE) Surveys

- Mt Marion Mining Tenements Terrestrial Fauna Surveys – Basic Fauna and Targeted Malleefowl, Chuditch and ABAB Surveys (SLR Consulting, 2024b)
- Round 1 SRE Invertebrate Survey at the Mt. Marion Lithium Project (Bennelongia, 2024)
- Targeted Survey for the Arid Bronze Azure Butterfly – Supplementary Surveys Mt Marion (SLR Consulting, 2024b)
- Review of Fauna Assessments within the Mt Marion Lithium Project (Bamford Consulting Ecologists, 2019)
- Mount Marion Lithium Project Malleefowl Survey. (Bamford Consulting Ecologists, 2020)
- Mt Marion Fauna Assessment (Bamford Consulting Ecologists, 2022a) - partially covers the application area
- Mount Marion Lithium Project Malleefowl Survey (Bamford Consulting Ecologists, 2022b).

Flora and Vegetation Surveys

- Mt Marion MinRes Tenements: Detailed Flora & Vegetation Assessment (Spectrum Ecology, 2024a)
- Reconnaissance Flora and Vegetation Survey for the Mt Marion Project Area (Native Vegetation Solutions, 2019)
- Mt Marion Project Reconnaissance Flora and Vegetation Assessment (Ecologia, 2022) – partially covers the application area.

The surveys were undertaken in accordance with the EPA requirements for survey timeframes by locally experienced and qualified survey teams. The survey areas covered a larger area encompassing the application area. No limitations related to the survey within the application area were identified.

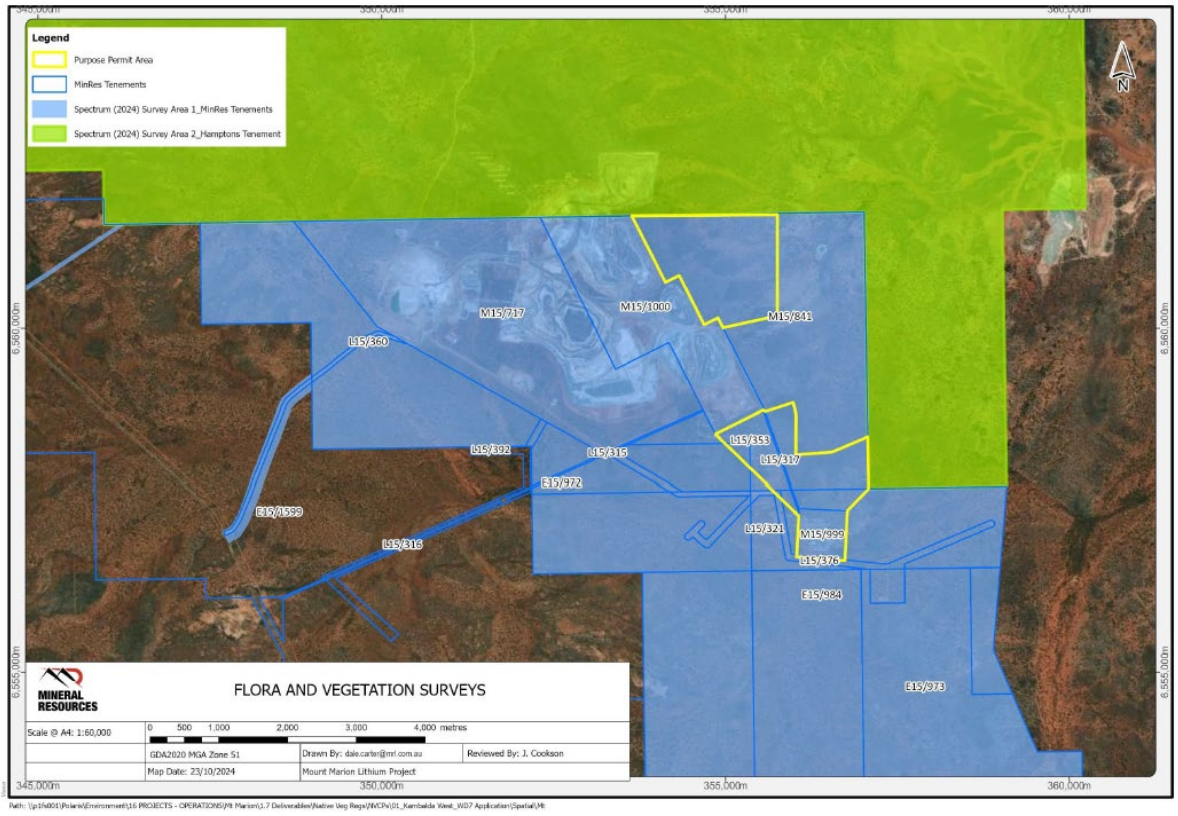

Figure 5. Flora and Vegetation Survey Areas (Mineral Resources, 2024a)

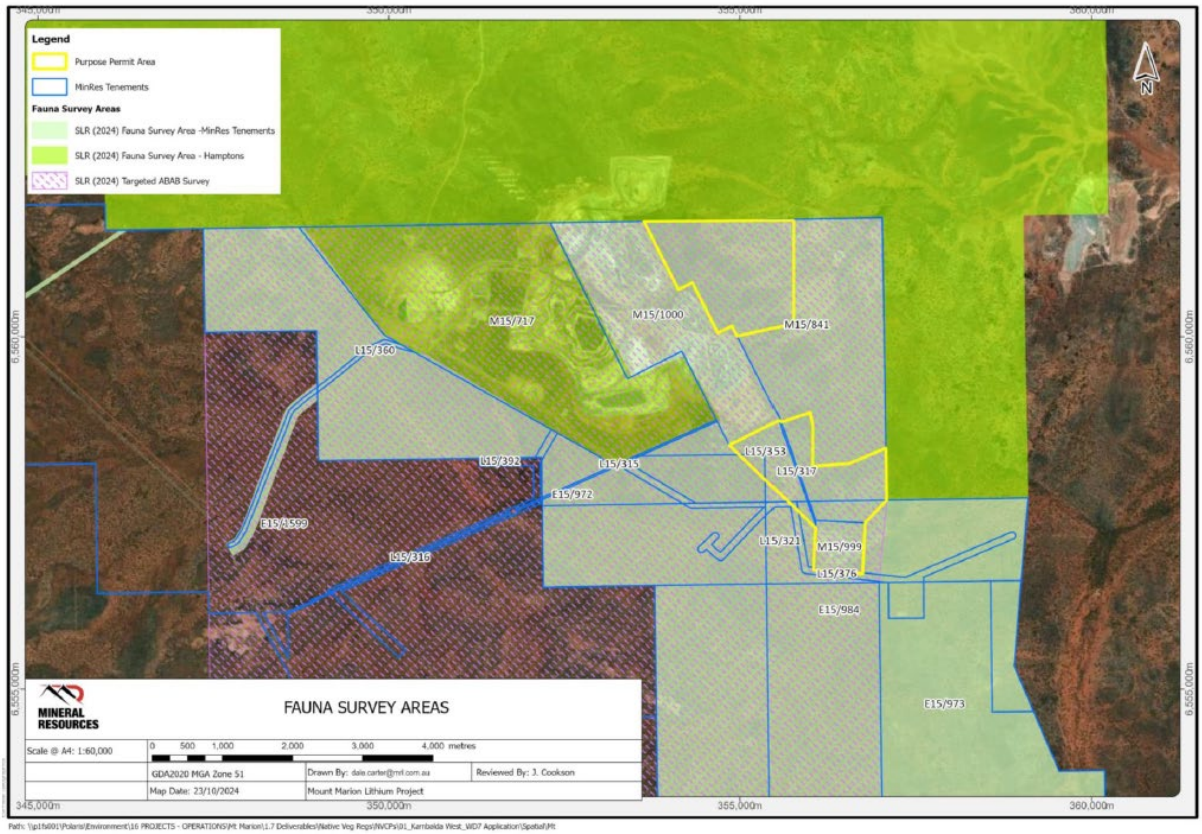

Figure 6. Fauna Survey areas (Mineral Resources, 2024b)

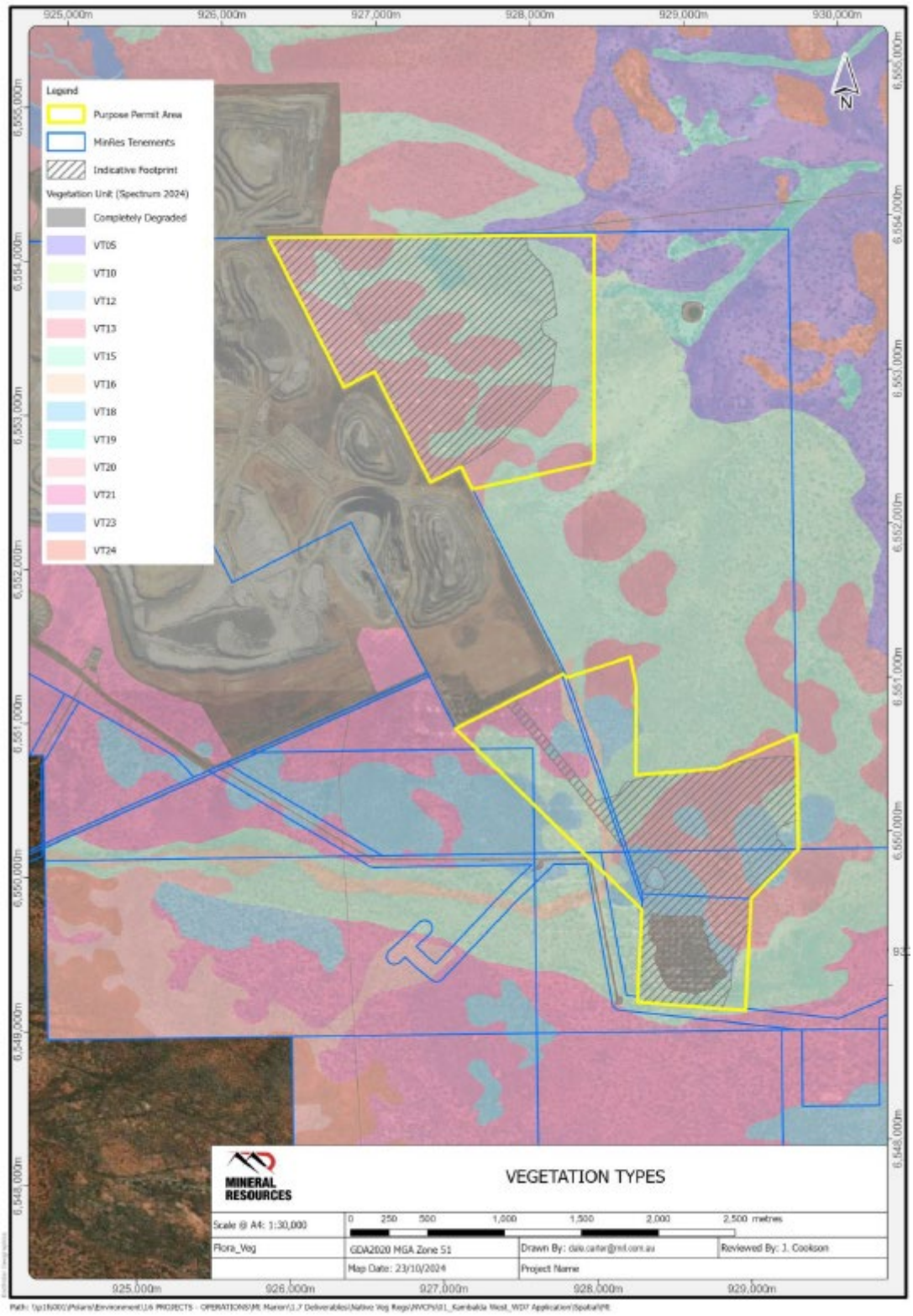

Figure 7. Vegetation types identified by surveys over the application area and surrounds (Spectrum Ecology, 2024)

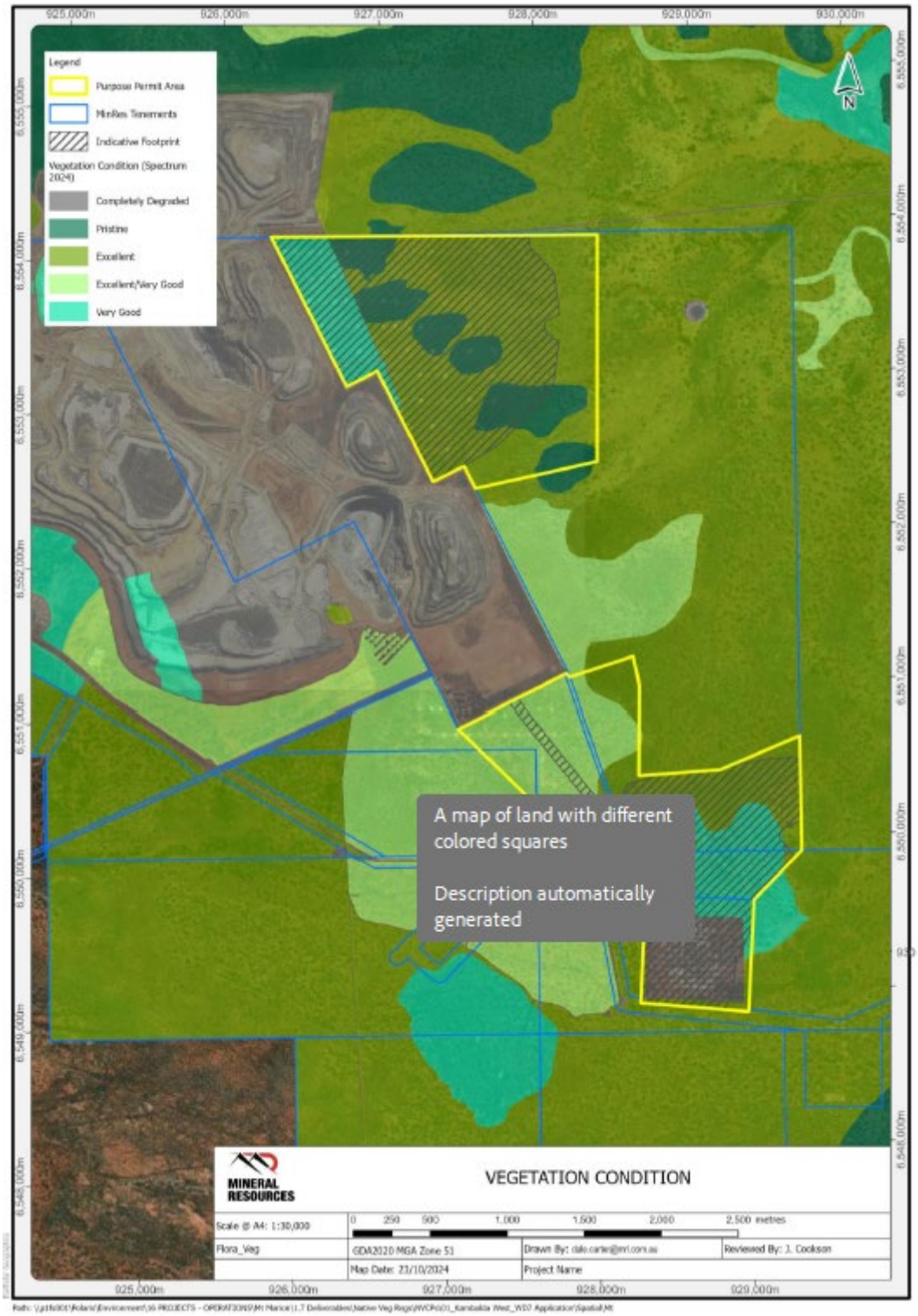

Figure 8. Vegetation condition mapping (Spectrum Ecology 2024)

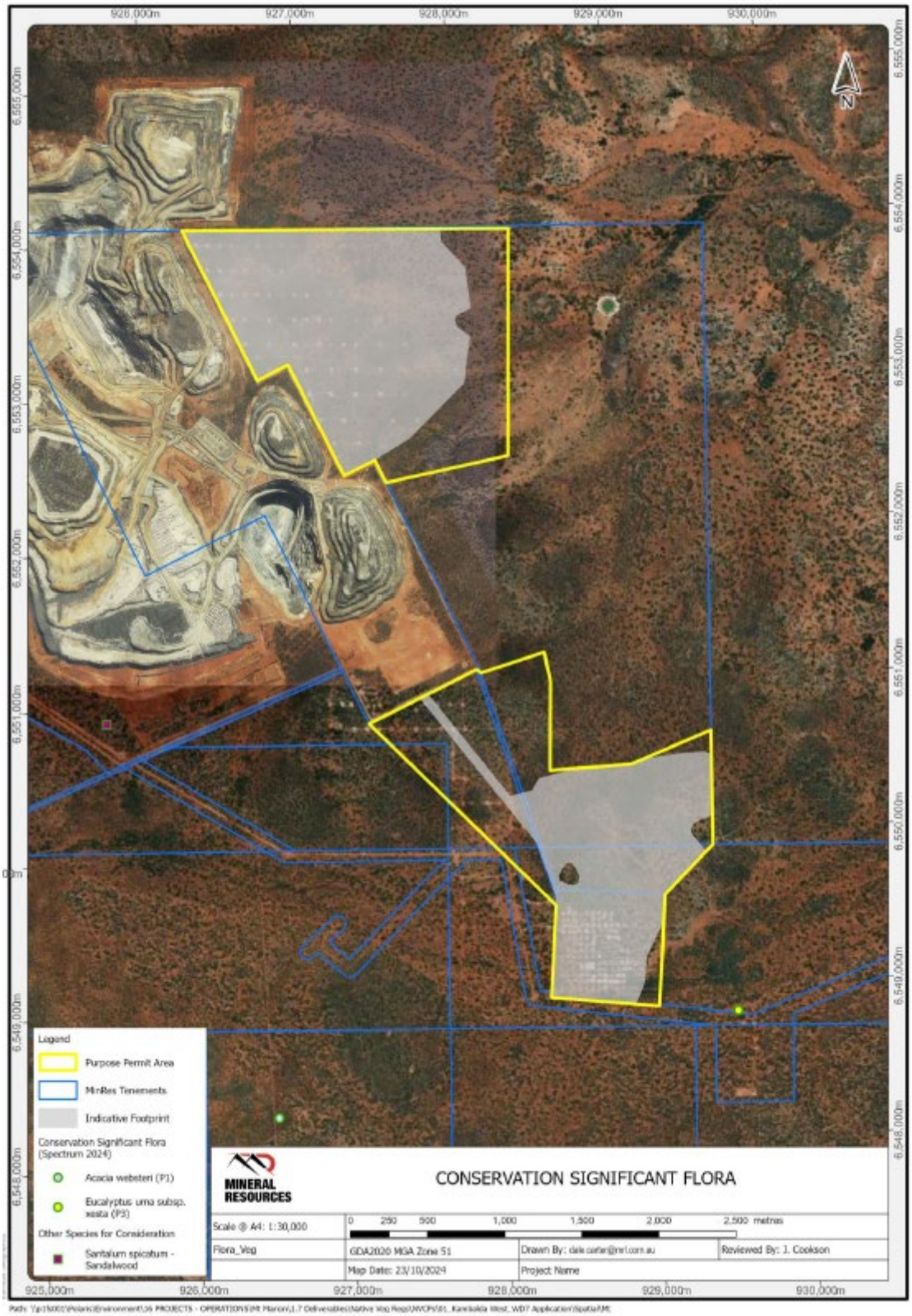

Figure 9. Conservation significant flora species identified in the surveys (spectrum Ecology, 2024)

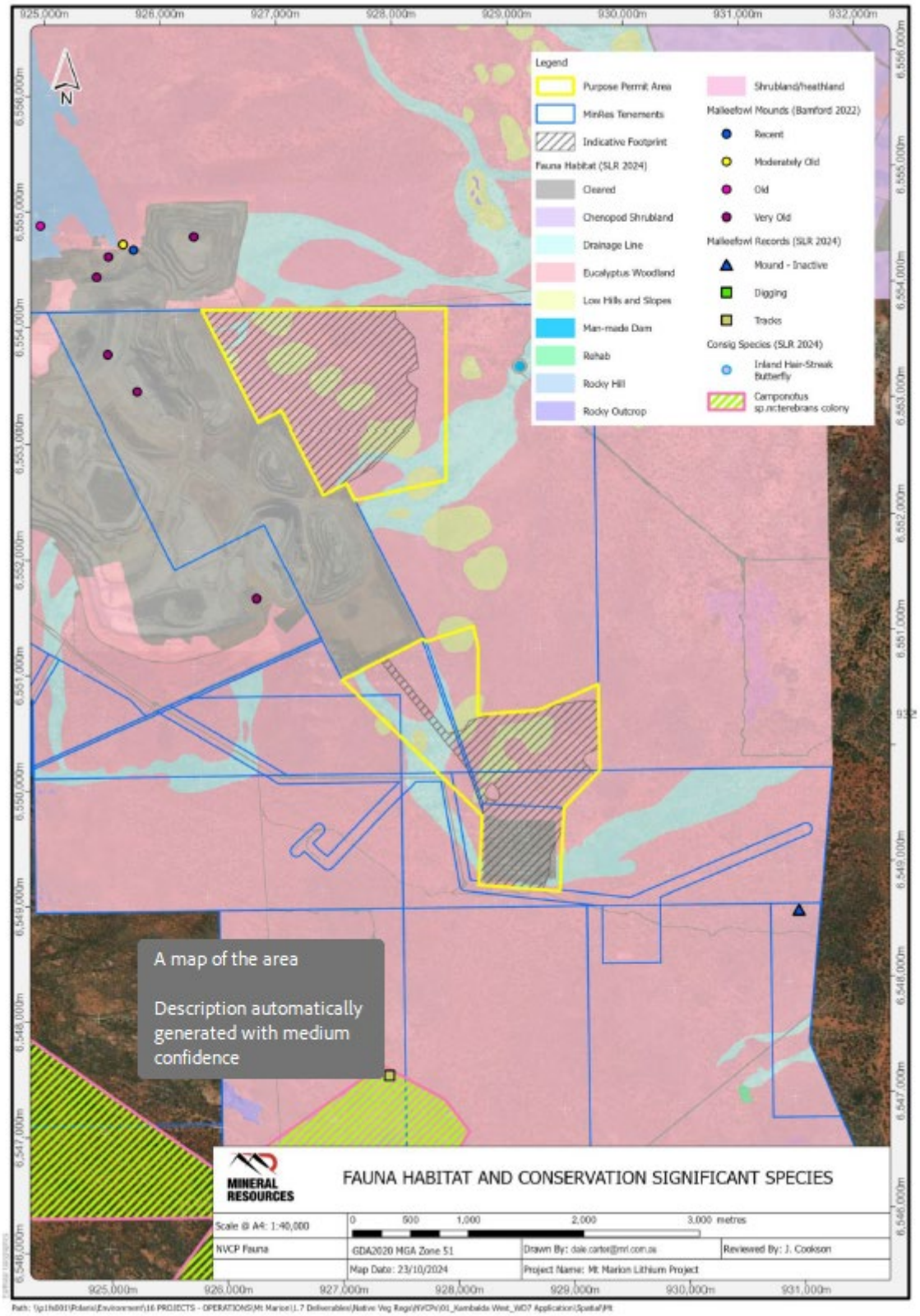

Figure 10. Map of fauna habitat and conservation significant fauna identified during surveys (SLR Consulting, 2024a and b)

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)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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