



GENESIS
MINERALS LIMITED

GENESIS MINERALS MT MORGANS GOLD PROJECT

**Native Vegetation Clearing Permit (Purpose) Permit
Application Supporting Documentation**

Document Information

Project Name: Mt Morgans Native Vegetation Clearing Permit (Purpose) Permit Application

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CONTENTS

CONTENTS	I
1 INTRODUCTION	1
1.1 Background	1
1.2 Objective	1
1.3 Legislative Framework	5
1.4 Purpose of Clearing Permit application	6
1.5 Proposed Timeframe	8
1.6 Responsible Applicant	8
2 ENVIRONMENTAL SETTING	9
2.1 Regional Setting	9
2.2 Climate	9
2.3 Geology	10
2.4 Soil Landscape Systems	10
2.5 Hydrology	12
2.5.1 Regional Hydrology	12
2.5.2 Local Hydrology	12
2.6 Hydrogeology	14
2.7 Land Degradation	14
2.8 Local Receptors	15
3 FLORA AND VEGETATION	17
3.1 Pre European Vegetation	17
3.2 Flora and Vegetation Assessment	19
4 TERRESTRIAL FAUNA	23
4.1 Vertebrate Fauna and Habitat	23
4.2 Conservation Significant Fauna	23
4.2 Short Range Endemic Fauna	26
4.3 Subterranean Fauna	26
5 ENVIRONMENTAL MANAGEMENT	27
4.1 Mitigation	27
6 ASSESSMENT AGAINST THE 10 CLEARING PRINCIPALS	28
7 REFERENCES	34
8 APPENDICES	36

TABLES

Table 1: Existing Mt Morgans Clearing Permits	1
Table 2: Tenements.....	2
Table 3: Mt Morgans Existing Approvals	5
Table 4: Responsible Applicant Details	8
Table 5: Vegetation System Associations within the Proposed Purpose Permit Area	17
Table 6: Vegetation Units.....	20
Table 7: Conservation Significant Fauna	24
Table 8: Assessment of the Proposal against the Ten Clearing Principles.....	29

FIGURES

Figure 1: Site Locality	3
Figure 2: Project Tenement and Proposed Boundary.....	4
Figure 3: Proposed Activities	7
Figure 4: Soil Landscape Systems.....	11
Figure 5: Surface Water Catchment.....	13
Figure 6: Local Receptors	16
Figure 7: Pre-European Vegetation.....	18
Figure 8: Vegetation Units	21
Figure 9: Vegetation Condition	22
Figure 10: Fauna Habitat.....	25

APPENDICES

APPENDIX A: Mt Morgans WA Mining Pty Ltd Company Extract
APPENDIX B: Letter of Authorisation
APPENDIX C: M37/282 & M39/1107 Mining Tenement Summary Report
APPENDIX D: MMGP Flora and Vegetation Assessment (NVS 2016)
APPENDIX E: MMGP Detailed Fauna and Habitat Assessment (Western Wildlife 2016)
APPENDIX F: MMGP Short Range Endemic (SRE) Desktop Assessment (Bennelongia 2016)
APPENDIX G: Mt Morgans Subterranean Fauna Assessment (Bennelongia, 2017))

1 INTRODUCTION

1.1 BACKGROUND

The Mt Morgans Gold Project (**MMGP** or **the Project**) is located approximately 30 kilometres (km) south-west of Laverton (**Figure 1**) within the Shire of Laverton, and situated in the Northeastern Goldfields in the Archaen Yilgarn Block in Western Australia (WA). Access to the Project is via the sealed public Laverton-Leonora Road and the unsealed public Korong-Mount Morgans Road.

There are two mining areas operating: Jupiter, comprising the Heffernans, Doublejay and Ganymede open pit complex and Mt Marven open pit; and Westralia, comprising the Beresford and Allanson Underground (UG). This Purpose Permit Area is for the Jupiter Operations.

Mine infrastructure includes Run of Mine Pads (ROMs), processing plant, a TSF, power station, water storage dams, workshops, administration offices, an accommodation village, waste water treatment plants, pipelines, powerlines and roads. Major infrastructure (i.e. processing plant, TSF, power station) located at Jupiter. Ore mined is processed through a newly constructed processing plant, with tailings disposal into a two-celled paddock TSF. Mine water is pumped to existing open pits and used in dust suppression, process water is sourced from borefields, consisting of 20 production bores.

The Project is situated on a registered lodged Native Title Claim of the Nyalpa Pirniku People (WC2019/002). Genesis Minerals Limited signed a Native Title Mining and Heritage agreement December 2025 with the Wangkatja Tjungula Aboriginal Corporation (WTAC), on behalf of the Nyalpa Pirniku native title holders

1.2 OBJECTIVE

Mt Morgans WA Mining Pty Ltd, a wholly owned subsidiary of Genesis Minerals Limited (Genesis) (Appendix A) is applying for a Purpose Permit, to replace the existing CPS 7428/2.

The objective of this Application is to facilitate the clearing at the Project to allow construction of two new cells (Cell 3 & 4) as part of their Tailings Storage Facility (TSF) (**Figure 3**). This application requests 110 ha of clearing, within a Purpose Permit Area of 327 ha (**Figure 2**).

Genesis currently holds two clearing permits over the MMGP (**Table 1**). This permit will replace existing permit CPS 7428/2 (**Figure 2**) and will transfer the remaining 48.78 ha (2024-2025 Annual Environmental Report) to the new permit. This will request in an additional 61.22 ha disturbance than currently approved.

This application will also increase the Purpose Permit Area by 74 ha over the existing 253 ha CPS 7428/2 Purpose Permit Area.

Table 1: Existing Mt Morgans Clearing Permits

Permit	Permit Area (ha)	Clearing Allocation (ha)	Expiry
CPS 7428/2	252	63	31 December 2027
CPS 7408/5	5,421	765	31 December 2027

This clearing will align with proposed activities for TSF Cell 3, under Mining Development and Closure Proposal (MDCP) 206730 (Under Assessment). An

The Purpose Permit Area sits entirely within Mining Tenements M39/282 & M39/1107, held by Mt

Morgans WA Mining Pty Ltd as shown in **Table 2** (Appendix C).

Table 2: Tenements

Tenement	Area (ha)	Granted	Ownership	Status	Expiry
M39/282	474.95	20/01/1993	MT MORGANS WA MINING PTY LTD	Live	19/01/2035
M39/1107	371.9	29/11/2016	MT MORGANS WA MINING PTY LTD	Live	28/11/2037

Environmental values, including a summary of supporting biological surveys completed to support this application are provided in Section 3 and Section 4. An assessment of the proposed clearing against the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* Clearing Principles is provided in **Table 8**, and considers the key surrounding environmental characteristics and analysis of the relevant supporting biological surveys.



Figure 1: Site Locality

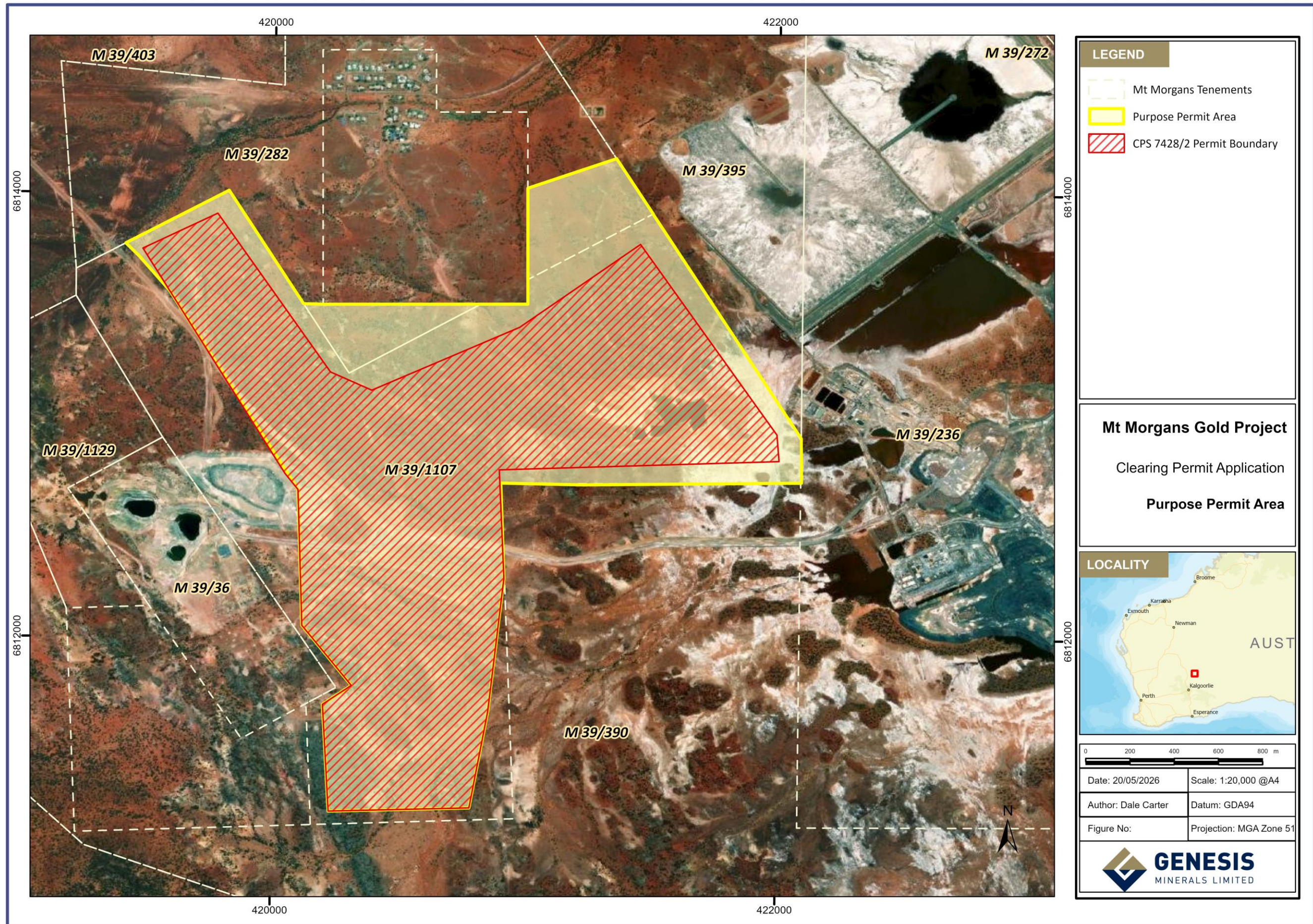


Figure 2: Project Tenement and Proposed Boundary

1.3 LEGISLATIVE FRAMEWORK

The clearing of native vegetation in Western Australia is regulated under Part V of the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. In addition to the matters considered in accordance with section 51O of the EP Act, Genesis also has regard to the following statutes, policies and guidelines:

Legislation of relevance for assessment of native vegetation clearing:

- ▶ 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).
- ▶ Soil and Land Conservation Act 1945.
- ▶ Rights in Water and Irrigation Act 1914.
- ▶ Aboriginal Heritage Act 1972.

Other policies and guidance documents relevant to the Project include:

- ▶ A guide to the assessment of applications to clear native vegetation (Department of Environmental Regulation, 2014).
- ▶ Procedure: Native vegetation clearing permits (Department of Water and Environmental Regulation, 2021).
- ▶ Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (Environmental Protection Authority, 2016).

Mt Morgans mine currently hold approvals listed in **Table 3**, Mine Development and Closure Proposal (MDCP) 206730 includes the construction and operation of TSF Cell 3. A future MDCP will be sought to request TSF Cell 4.

Table 3: Mt Morgans Existing Approvals

Approval	Regulating Authority	Relevant Legislation
Mt Morgans Mine Development and Closure Proposal (MDCP) 206730 Mining Proposal Registration ID 128557	DMPE	<i>Mining Act 1978</i>
Native Vegetation Clearing Permit (CPS7428/2) (Permit to replace)	DMPE	<i>Environmental Protection Act 1986</i> Part V Division 2
Native Vegetation Clearing Permit (CPS7408/5)		
Prescribed Premises Licence L9010/2016/1	DWER	<i>Environmental Protection Act 1986</i> Part V Division 3
Works Approval W6008/2016/1	DWER	<i>Environmental Protection Act 1986</i> Part V Division 3
Works Approval W2910/2025/1		

Approval	Regulating Authority	Relevant Legislation
New Works Approval - APP-0034755 Under Assessment, includes TSF Cell 3		
GWL 169901 – Dewatering GWL 183915 - Production	DWER	<i>Rights in Water and Irrigation Act 1914</i>

1.4 PURPOSE OF CLEARING PERMIT APPLICATION

The *Environmental Protection Act 1986* (WA) (**EP Act**) and *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (WA) require that all land clearing related to mining and mineral exploration activities are approved by the Department of Water and Environmental Regulation (DWER). In accordance with Section 20 of the EP Act, applications relating to mineral and petroleum activities are delegates to the Department of Mines, Petroleum and Exploration (DMPE) for assessment.

The purpose of this Native Vegetation Clearing Permit (NVCP) supporting document is to present the results of an assessment of the clearing aspects for this Project against the ten clearing principles as outlined in the *Clearing Permit Guidelines – A guide to the assessment of applications to clear native vegetation* (2014) under Part V Division 2 of the EP Act.

This report identifies the potential environmental impacts associated with the proposal based on the best available data. This report and accompanying NVCP Purpose Permit Application Form will be submitted to the DWER for assessment.

This report supports the application for a NVCP (Purpose Permit) to allow for clearing 110 hectares (ha) of native vegetation for proposed mining and processing activities as defined below. Information is provided to enable assessment of the impacts of the proposed clearing.

- To provide ongoing tailings storage at MMGP, Mt Morgans WA Mining Pty Ltd propose to construct TSF Cell 3 & 4 adjacent to the existing TSF (**Figure 3**) and a future TSF Cell 4 to the west. Note that a portion of the TSF Cell 3 & 4 will be cleared under existing permit CPS 7408/5.

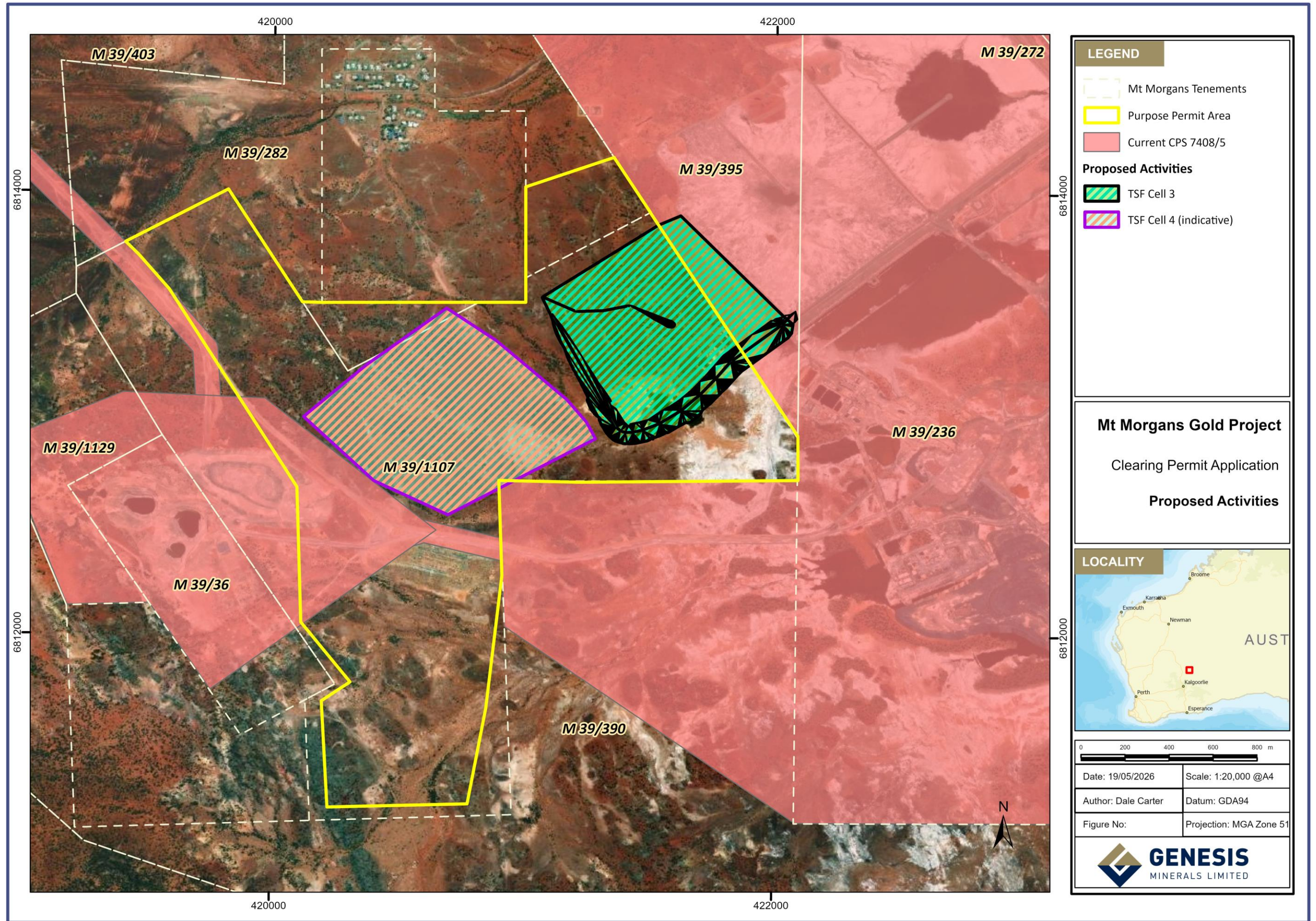


Figure 3: Proposed Activities

1.5 PROPOSED TIMEFRAME

Indicative clearing for development is expected for construction to begin in early 2027 to commence operations in early 2028.

1.6 RESPONSIBLE APPLICANT

Genesis is responsible for the implementation of the clearing described within this report. **Table 4** provides an overview of the responsible applicant details, where all correspondence relating to this NVCP should be addressed. Genesis has authorised the contact listed in Table 4 to act as a representative for environmental applications (APPENDIX B)

Table 4: Responsible Applicant Details

Applicant Details		
Company Name	Mt Morgans WA Mining Pty Ltd	
ACN/ABN	ABN 61 154 262 978	
Physical Address	Level 11, 2 The Esplanade, Perth WA 6000	
Postal Address	PO Box Z5024, St Georges Tce PERTH WA 6831PO	
Key Contact Representative	Name	Dale Carter
	Position	Principal Environmental Approvals and Closure
	Phone Number	0421 959 991
	Email	Dale.carter@genesisminerals.com.au environmentalapprovals@genesisminerals.com.au

2 ENVIRONMENTAL SETTING

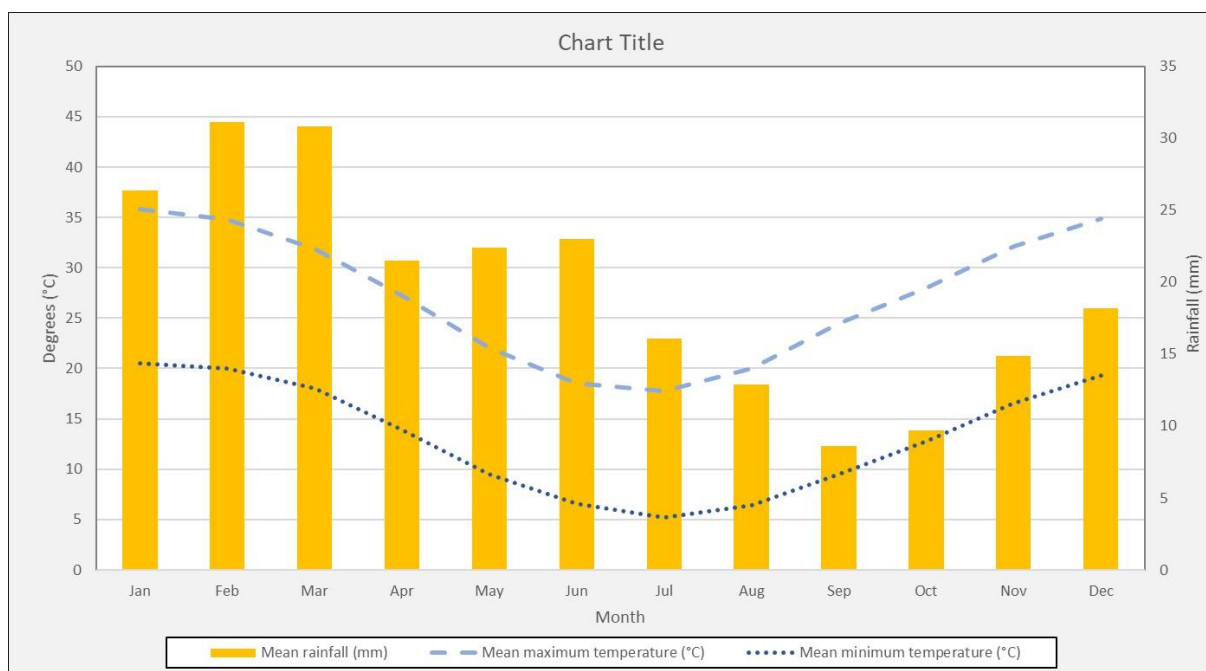
2.1 REGIONAL SETTING

The Purpose Permit Area is located within the Eastern Murchison Interim Biogeographic Regionalisation for Australia (IBRA) bioregion, in Western Australia's southern rangelands. This region features arid, internal drainage landscapes with red sandplains, Mulga woodlands, salt lake systems, and rocky breakaways (ACRIS, 2008). The region primarily supports pastoralism and mining (gold, iron and nickel), two Pastoral Stations (Glenorn and Mt Weld Stations) are within proximity to the Permit Area however do not overlap.

2.2 CLIMATE

The climate of the North Eastern Goldfields region is arid to semi-arid and can be characterised by its relatively low annual rainfall and large temperature range. The nearest Bureau of Meteorology (BoM) rainfall station to the Project is located at Laverton. Recordings of the local climactic conditions commenced at Laverton in 1899 (BOM 2022). The mean annual rainfall recorded since 1899 is 235.2 mm (Chart 1), however rainfall may vary annually from less than one third to almost three times that amount. The rainfall that occurs during autumn and early winter months of May to July tends to be more reliable though generally of a lesser total amount than the less dependable, but more intense summer cyclonic rainfall from December to March. Annual pan evaporation rates at the Project area estimated at approximately 2,900 mm/year (GRM 2016a).

Chart 1: Mean Rainfall at Laverton (Station 012045)



The North Eastern Goldfields region is subject to tropical cyclones, thunderstorms and related events. Of particular note was Tropical Cyclone Bobby which crossed the western Pilbara coast near Onslow on 25 February 1995 as a Category four event, before continuing southwards across the Gascoyne as a Category two event and then the Goldfields as a rain bearing depression. Intense rainfall accompanied Cyclone Bobby, with Onslow recording more than 400 mm over the duration of the cyclone. Many centres in the Goldfields recorded their maximum daily, monthly and annual rainfalls. Yundamindra, Leonora and Laverton recorded 287, 233 and 123 mm of rainfall respectively in the four days to 28 February 1995. It is considered that Tropical Cyclone Bobby is representative 100-year average recurrence interval (ARI) flood conditions (GRM 2016a).

2.3 GEOLOGY

The MMGP lies within the Laverton Greenstone Belt, which forms the North Eastern part of the Eastern Goldfields Province of the Yilgarn Craton of Western Australia. It consists of belts of greenstone, intruded by granite rocks of Archean age and areas of sedimentary banded iron formation (BIF) rocks associated with the greenstone (Pringle, 1994) Granites are generally expressed as low, rounded tors surrounded by plains, while greenstones may appear either as low, rounded hills or as steeper, less-weathered hills with narrow drainage channels. The latter type is common in the Laverton area.

2.4 SOIL LANDSCAPE SYSTEMS

MBS Environmental completed a landform and soil assessment at the MMGP (MBS, 2016) . The primary objective of the study was to determine the volumes and suitability of topsoil for rehabilitation purposes as well as assessing baseline contaminant levels within the MMGP footprint.

The following landform systems identified in the proposed clearing areas (**Figure 4**) include:

- ▶ Carnegie Land System: Salt lakes with fringing saline alluvial plains. Kopi dunes and sandy banks.
- ▶ Yilgarn Land System: Low breakaways with saline gravelly lower plains supporting predominantly halophytic low shrublands.
- ▶ Leonora Land System: Low greenstone hills and stony plains supporting mixed chenopod shrublands.

Assessment of the physical and chemical properties of the soils by field assessment of profiles and laboratory analysis of selected samples indicated the following characteristics of soils:

- ▶ Generally unconsolidated red-brown sandy to clay loams with low concentrations of soil organic matter and low to moderate concentrations of nutrients.
- ▶ Surface soils rely mainly on stony surface lag materials rather than vegetation cover for stability against wind and water erosion.
- ▶ Variable pH values (ranging from 5.1 to 9.4). Despite this natural variation, the observed pH values are within typical ranges that support native vegetation in semi-arid regions of WA.
- ▶ Generally low salinity and low sodicity, with the exception of lakebed sediments at Jupiter.
- ▶ Generally low concentrations of heavy metals and metalloids.
- ▶ The average depth of recoverable surface soil and root-bearing gravels at Jupiter is variable. The average depth of recoverable surface soil and root-bearing gravels from gravelly colluvium and clay/loam alluvium is significantly lower (typically 100 mm), corresponding to a volume of 1,000 m³/ha.
- ▶ Lakebed sediments and beaches at Jupiter are unsuitable for rehabilitation requirements as they are characterised by elevated salinity, high sodicity and very low wet strength. For these reasons, disturbance of these soils during the MMGP will be avoided.
- ▶ Gravelly/sandy colluvium soils associated with slopes and ridges will be preferentially placed on WRD batters.

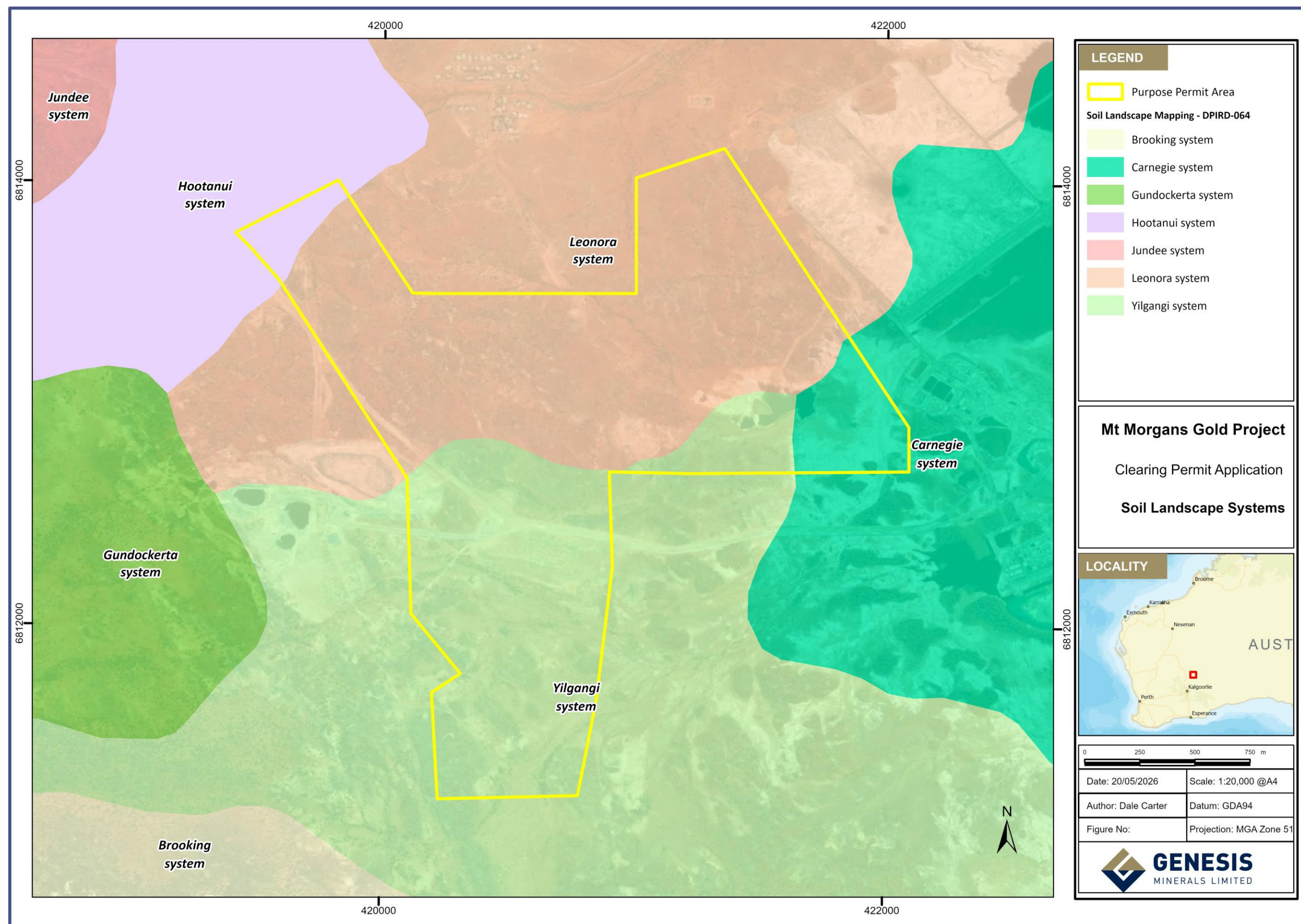


Figure 4: Soil Landscape Systems

2.5 HYDROLOGY

2.5.1 REGIONAL HYDROLOGY

The MMGP is located within the internally draining Lake Carey catchment which has a catchment area in the order of 113,900 km² and forms part of the DWER Salt Lake Basin (total catchment area 441,000 km²) (GRM, 2016). This basin comprises several large and broad, sub-parallel, southeast trending salt-lake drainage systems. These drainages have very low gradients and at intervals contain small to very large playa lakes such as Lake Carey (with an area of approximately 1,000 km²). During occasional intense rainfall events the lakes may fill, and in very rare events some may overflow, link-up, and discharge on to the Nullarbor Plain through Ponton Creek. Water ponding in the playa lakes is hypersaline, particularly when levels are low (DoE, 2004). Salinity decreases following significant rainfall events, but the salt levels rapidly increase as water levels drop from evaporation.

There are no major river systems in the vicinity of the MMGP, although there are several ephemeral creeks which generally drain in a north to south-east direction towards Lake Carey, which is the most dominant local hydrological feature. The bulk of run-off from around the MMGP reports to Lake Carey via a combination of surficial and shallow baseflow along the salt-lake drainage system.

Jupiter is situated on an upstream tributary to Lake Carey. A BIF ridge extending up to about 80 m above the lakebed lies between the Jupiter deposits and Lake Carey. Anecdotally water depths of up to about 600 mm have been witnessed on Lake Carey and other nearby playa lakes. Runoff entering the lake at this northern end continues down gradient towards the south, albeit at a slow rate due to the low gradient. To the west of Jupiter, undulating hills run in a northeast – southwest direction range in height between 425 mAHD – 444 mAHD (i.e. about 20 – 45 m above the height of the player lake surface).

2.5.2 LOCAL HYDROLOGY

This Permit Area intersects a small portion of a tributary leading into Lake Carey however is over 2km from the main playa lake (**Figure 6**).

Existing flood bunds have been constructed around the existing TSF Cells 1 and 2 to approximately RL398.5 m. Cell 3 has been sized such that it does not block catchment flows from the northwest and the southern embankment is aligned with the Southern TSF Cell 1 and 2 embankments adjacent to the playa lake. Embankments are rock armoured to prevent erosion and sediment run off.

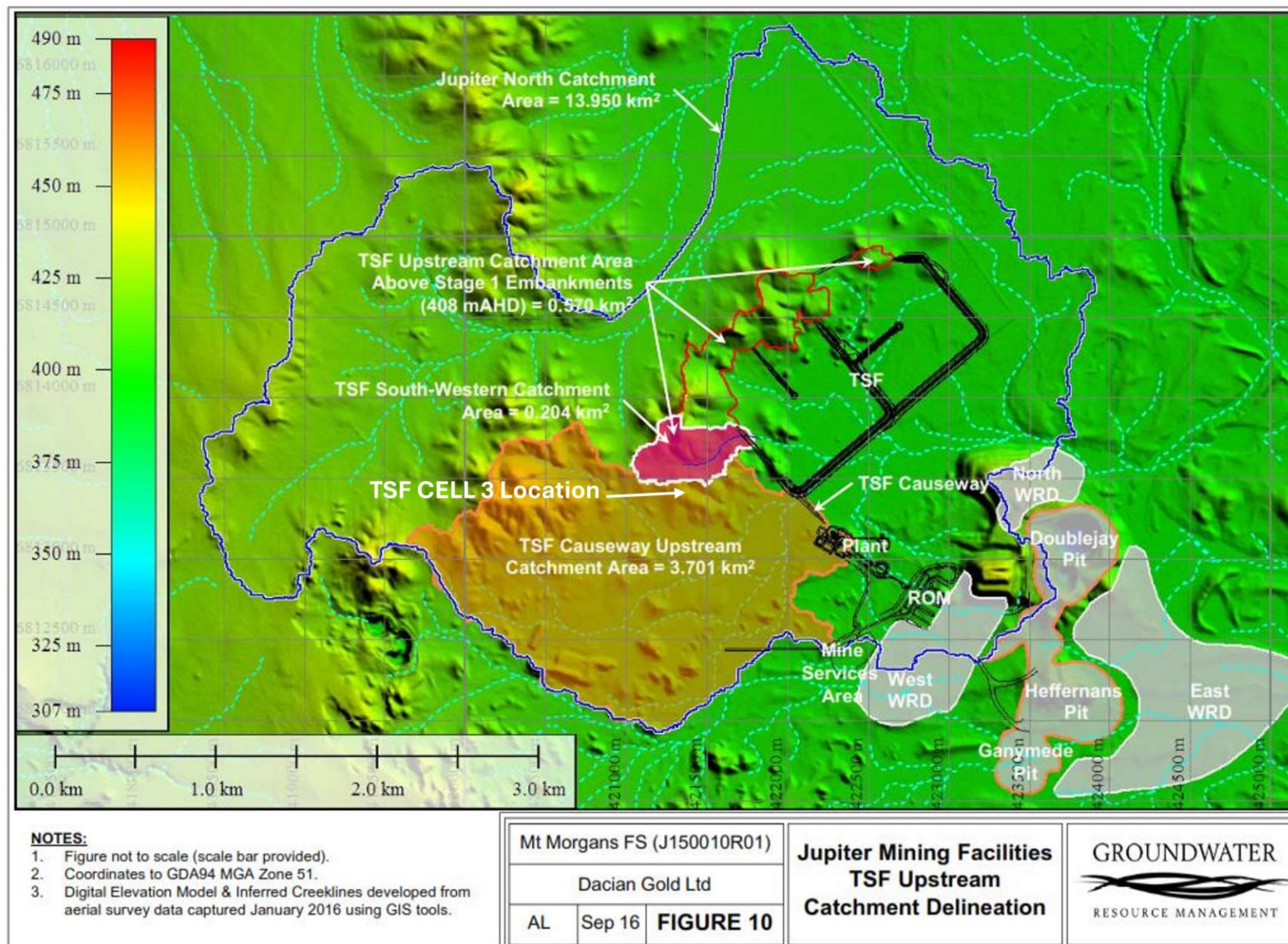


Figure 5: Surface Water Catchment

2.6 HYDROGEOLOGY

The Project is located in the Goldfields Groundwater Area. Groundwater in the region typically occurs in the following units (from deepest to shallowest):

- ▶ **Fresh and weathered Archaean basement fractured rock aquifers:** Associated with discrete interconnected fractures. Fractured bedrock aquifers occur more commonly in mafic, ultramafic and granitic rocks than in sedimentary, felsic volcanic and volcanoclastic units. In contrast, the mafic and ultramafic dykes which are prevalent in the region can form hydraulic barriers to groundwater flow.
- ▶ **Tertiary palaeochannel sands:** Typically infilled with a basal palaeochannel sand, which is overlain by low permeability clay. The palaeochannel sands form a major aquifer in the region. The sands tend to have high permeability, but limited storage.
- ▶ **Surficial deposits including lacustrine sediments, alluvium/colluvium and calcrete:** Groundwater occurrences are found in the surficial sediments, where they extend below the water table. Lacustrine sediments are generally fine grained and provide low yields. Alluvium/colluvium tends to be more variable and can provide higher yields of up to 4 to 5 L/s in areas where deposits comprise predominantly sand and gravel. Long-term abstraction is not always sustainable because of the aquifers limited extent; calcrete aquifers commonly occur along drainage lines and are relatively thin. However, they can provide long-term supplies because of their high permeability, large areal extent and low elevation in the catchment which promotes recharge.

The Archaean basement associated with the Jupiter deposit is also considered to have a low aquifer potential, apart from a possible fractured rock aquifer which trends east-west across the southern end of the Heffernans deposit. The location of this feature roughly coincides with the northern contact of an intermediate intrusive rock unit. The low permeability of the basement rocks is consistent with historic dewatering rates at the earlier mined Jupiter open pit. Weathered basement rocks are thought to have low to modest permeabilities.

Groundwater levels away from the influence of the existing Jupiter pits and the topographic high at the Heffernans Hill range from about 398 mAHD in the south (near the Lake Carey tributary) to 400 mAHD at Doublejay. These levels are thought to be consistent with the pre-mining groundwater levels indicating a natural low hydraulic gradient to the south (towards Lake Carey). The water table is very shallow in some areas, including within 1 m under the playa surface to the south of the existing TSF.

Groundwater surrounding the existing TSFs and Jupiter operations is hypersaline (250,000 – 300,000 mg/L) and provides no beneficial use for nearby stakeholders.

There are no Public Drinking Water Sources AREAs (PDWSA) within the vicinity, with the closest PDWSA is the Laverton Waster Reserve and Catchment Area, 25km north east of the Purpose Permit Area.

2.7 LAND DEGRADATION

Land degradation caused by land clearing and associated activities can cause changes in soil health and landscape functionality including salinity, erosion, acidification, and contamination. This has the potential to ultimately alter the fundamental ability of the land to support biodiversity, ecological processes, conservation significant species, as well as cultural values, anthropogenic uses, and economic growth (EPA, 2007)

The Purpose Permit Area is primarily located on the Leonora and Yilgangi Land Systems (Reed, 2009) (**Figure 4**). The Leonora Land System is highly preferred for grazing by introduced and native animals, though both systems are susceptible to overgrazing and consequent degradation (Payne, et al., 1998). The Yilgangi Land System not as preferable for grazing due to the saline soils and vegetation within the system. The Leonora and Yilgangi Land Systems have soils which are susceptible to soil/ water erosion. A TSF design cover assessment will support rehabilitation planning, to prevent run off from potentially dispersive soils.

Purpose Permit Area is located within the Goldfields region of WA, which consists of predominately mining, prospecting, forestry and pastoralist land uses.

The clearing for TSF Cell 3 & 4 under this Permit has the potential to locally exacerbate land degradation during operations however regional impacts are anticipated to be minimal when compared to the extensive use of land for Pastoral activities in the Goldfields. The implementation of mitigation measures during operations, and planned rehabilitation works, as per approved Mine Closure Plan (MCP) Reg ID 128557, will reduce land degradation impacts and as such it's expected that significant land degradation will not occur as a result of this Proposal. Mitigation measures to be implemented are summarised below.

- ▶ The proposed Disturbance Footprint is optimised and restricted to areas required and will ensure open areas are minimised.
- ▶ Weed hygiene measures will be implemented for all ground disturbing equipment mobilised to the Project to prevent the spread of any potential weed species.
- ▶ The potential risk is from uncontrolled runoff and the channelization of sheet flow from mining developments can cause overland gullyng and rilling. The proposed TSF is designed to capture any surface water run off.
- ▶ Specific recommendations and rehabilitation targets for different soil types will ensure the most successful revegetation outcomes. Clearing will be undertaken in a staged prior to land use development to reduce the potential for any wind or water erosion impacts.
- ▶ The post mining landforms will be rehabilitated, surfaces with rocky mantles will be designed to control and appropriately manage runoff.

2.8 LOCAL RECEPTORS

The Permit Area intersect or is in the vicinity of the below receptors (**Figure 6**):

- ▶ Mt Margaret Community – 375 m from Permit Area
 - Proposed TSF Cell 3 is 730 m from Mt Margaret Community, the TSF will be separated from the community by low rocky hills.
- ▶ Lake Carey – Lake Tributary intersects Permit Area (See **Section 2.5**)
- ▶ Healing Pool – 3.2 km from Permit Area.
 - Significant Cultural Heritage Area, recreation point for Mt Margeret Community.
 - Surface water fed pool, upstream of Jupiter operations.
- ▶ Priority Ecological Community (PEC) – Intersects Permit Area (See **Section 3.2**)
 - PEC “Mount Morgan calcrete groundwater assemblage type on Carey palaeodrainage on Mt Weld Station”. This PEC is a buffer to protect subterranean fauna communities in the Calcrete Aquifer.
- ▶ Calcrete Aquifer – 1.6km from Permit Area.

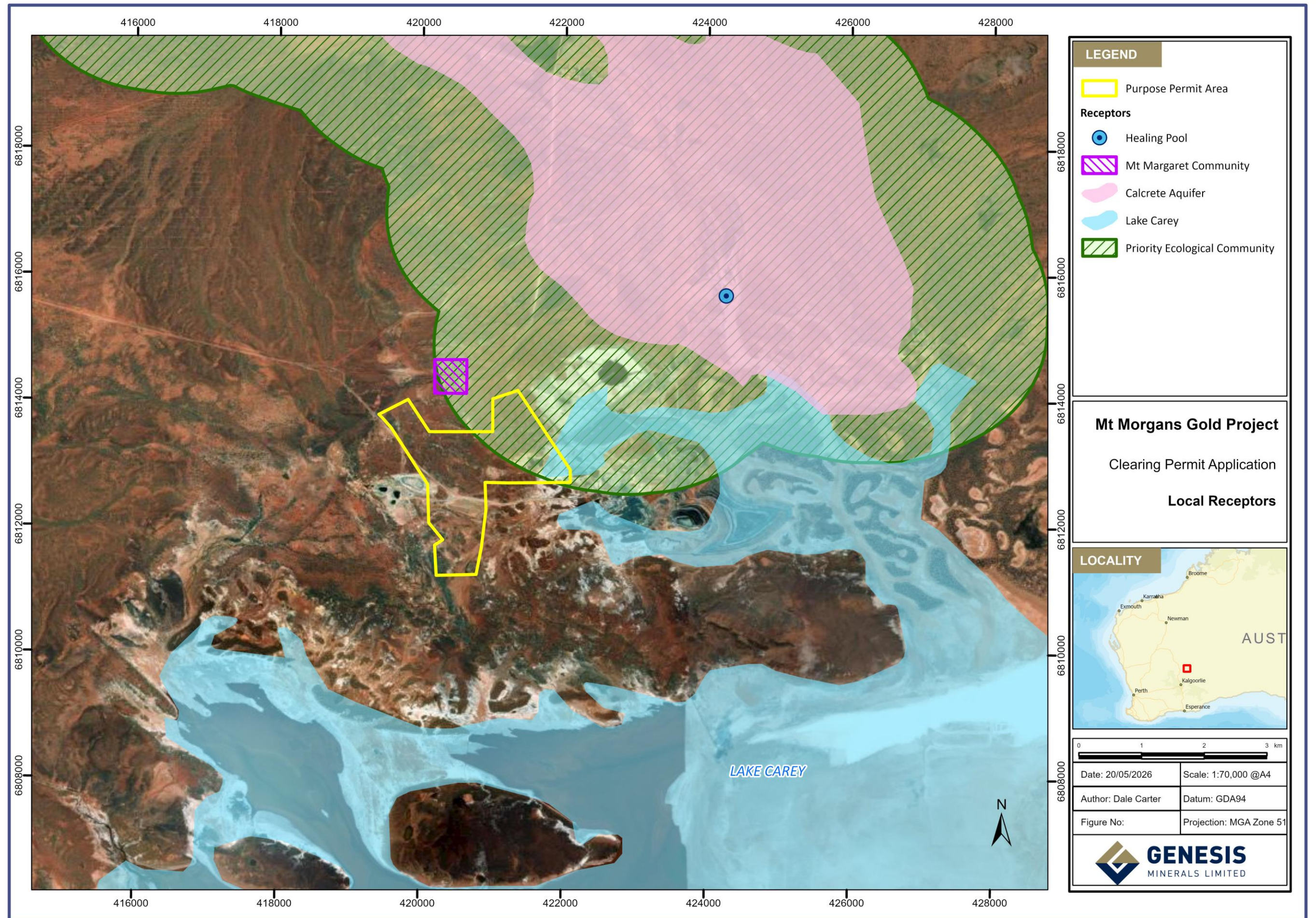


Figure 6: Local Receptors

3 FLORA AND VEGETATION

3.1 PRE EUROPEAN VEGETATION

Pre-European vegetation mapping was originally undertaken by (Beard, 1975) at various scales across WA. Two Beard Vegetation Associations have been identified within the Purpose Permit Area as shown in **Table 5**.

Table 5: Vegetation System Associations within the Proposed Purpose Permit Area

Beard Vegetation Association Description	Pre-European Extent Remaining (ha)					Clearing Impact
	By Association (WA) ¹	By Association (WA) ²	By IBRA Region (MUR)	By IBRA sub-region (MUR1)	By Shire (Laverton)	Extent in the Purpose Permit Area (ha)
LAVERTON 39 – Shrublands, mulga shrub	4,856,768 ha 100 %	6,613,569 ha 99.83 %	1,148,400 ha 99.1 %	711,328 ha 98.68 %	826,833 ha 99.95 %	298.17
LAVERTON 389 - Succulent steppe with open low woodland; mulga over saltbush	539,081 ha 100 %	642,356 ha 99.71 %	493,997 ha 99.62 %	493,977 ha 99.93 %	48,520 ha 97.61 %	2.61

According to EPA Guidance Statement No. 33, the national target is to have clearing controls in place to prevent the removal of ecological communities which are below 30% remaining (of the pre-European extent). The EPA considers it is important that ecological communities are maintained above the threshold level of 30% of the original pre-clearing extent of each community, as communities below this threshold level show the species loss appears to accelerate exponentially at the ecosystem level (EPA 2008). At all levels (state, bioregion, subregion and Local Government Area [LGA]) the associations found within the Purpose Permit Area have more than 95% of their spatial area remaining post European settlement. These figures are well above the 30% EPA threshold.

Table 5 and **Figure 7** illustrates that the Purpose Permit Area is not within an area that has been extensively cleared and is not significant as a remnant of native vegetation.

¹ Source: (Shepherd, 2002). Land-use and Vegetation in Western Australia - National Land and Water Resources Audit Report. Department of Agriculture Western Australia, Perth.

² Source: (Government of Western Australia, 2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth, Western Australia.

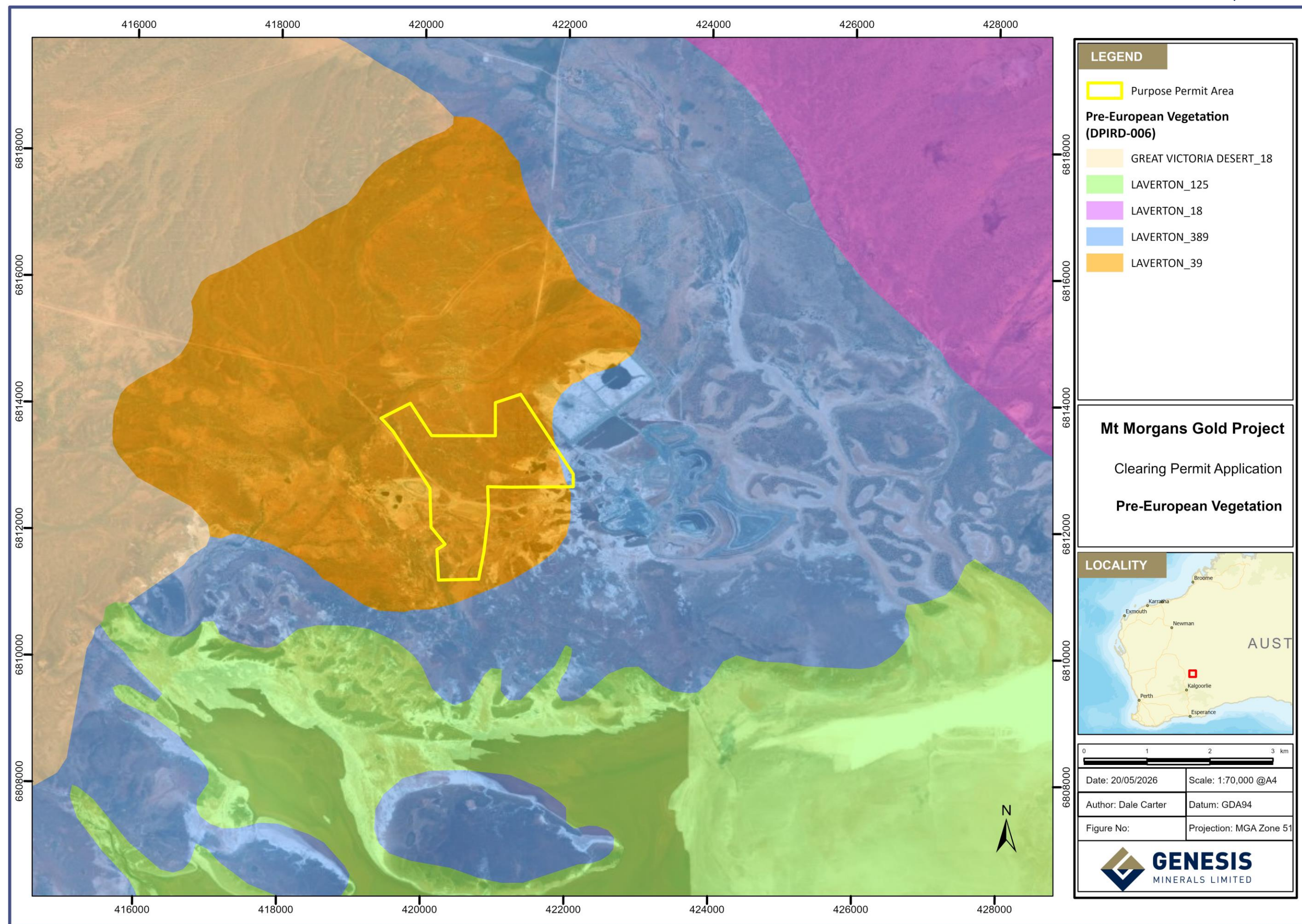


Figure 7: Pre-European Vegetation

3.2 FLORA AND VEGETATION ASSESSMENT

Several flora and vegetation appraisals have been completed as part of historic approvals. The most recent flora and vegetation assessments comprise:

- ▶ (Outback Ecology Services, 2009) Mount Morgans The Craic Project Level 1 Flora and Fauna Assessment
- ▶ (RPS, 2011) Level 1 Flora and Fauna Assessment Mount Morgans Mine – Morgans North Project Area.
- ▶ (NVS, 2016) Level 1 Flora and Vegetation Survey (*Area under this Permit Area*) Dacian Gold Ltd Mt Morgans Gold Project (Appendix D).(ISA-0001016)
- ▶ NVS (2018) Reconnaissance Flora and Vegetation Survey Cameron Well Project.
- ▶ NVS (2019) Reconnaissance Flora and Vegetation Survey of BIF Ridge and Mount Marven September 2019.

The Jupiter Project and Borefield survey area (NVS 2016) covered an area of 4,641 hectares.

A total of 32 Families, 77 Genera and 195 Species were recorded within Jupiter Project and Borefield survey area. Sixteen major vegetation groups were recorded in the survey area, excluding disturbed areas, and bare salt lakes, six of which were located within the Permit Area **Table 6**.

The field assessment established that the condition of the vegetation in the proposed disturbance area is overall “Very Good”, with few areas of “Good” vegetation condition, where exploration disturbance was more common.

No Threatened Flora or Threatened Ecological Communities (TECs) were recorded in the area. No Priority Species were recorded in the survey area.

One vegetation group within the survey area, *Tecticornia* shrublands, is classified as riparian vegetation and is considered water dependent.

The survey area falls within the buffer region of the Priority Ecological Community (PEC) named "Mount Morgan calcrete groundwater assemblage type on Carey palaeodrainage on Mt Weld Station" (**Figure 6**). This PEC is in place to protect the subterranean fauna community identified within the buffer zone. Given this, proposed clearing within the survey area is not likely to have an impact on this community. The TSF Cell 3 is also unlikely to impact this PEC, due to the baseline groundwater chemistry surrounding the TSF.

Table 6: Vegetation Units

Vegetation Group	Total Surveyed (ha)	Within the Purpose Permit Area (ha)	Cleared to date (ha) ³	Proposed Veg unit remaining (ha)	Percentage of Surveyed Veg Unit Disturbed
Completely Degraded	N/A	N/A	N/A	N/A	
<i>Acacia aneura</i> creekline vegetation	11.52	3.73	0.13	7.72	67.01 %
<i>Acacia mulganeura</i> over <i>Eremophila forrestii</i> and grasslands	388.73	0.67	79.89	308.17	79.27 %
<i>Acacia</i> over Chenopod shrubland	892.18	94.20	46.89	755.27	84.65 %
<i>Acacia</i> shrubland on emergent hills	93.94	23.60	0.55	70.17	74.69 %
<i>Acacia</i> shrublands on undulating hills	332.49	104.59	98.20	149.56	44.98 %
Bare Salt Lake	463.32	10.49	134.35	318.71	68.78 %
<i>Tecticornia</i> Shrubland	611.74	57.39 ⁴	186.63	382.68	62.55 %

³ Disturbance across the entire Mt Morgans Project

⁴ Total within permit area – approximately 17ha of *Tecticornia* Shrubland expected to be disturbed.

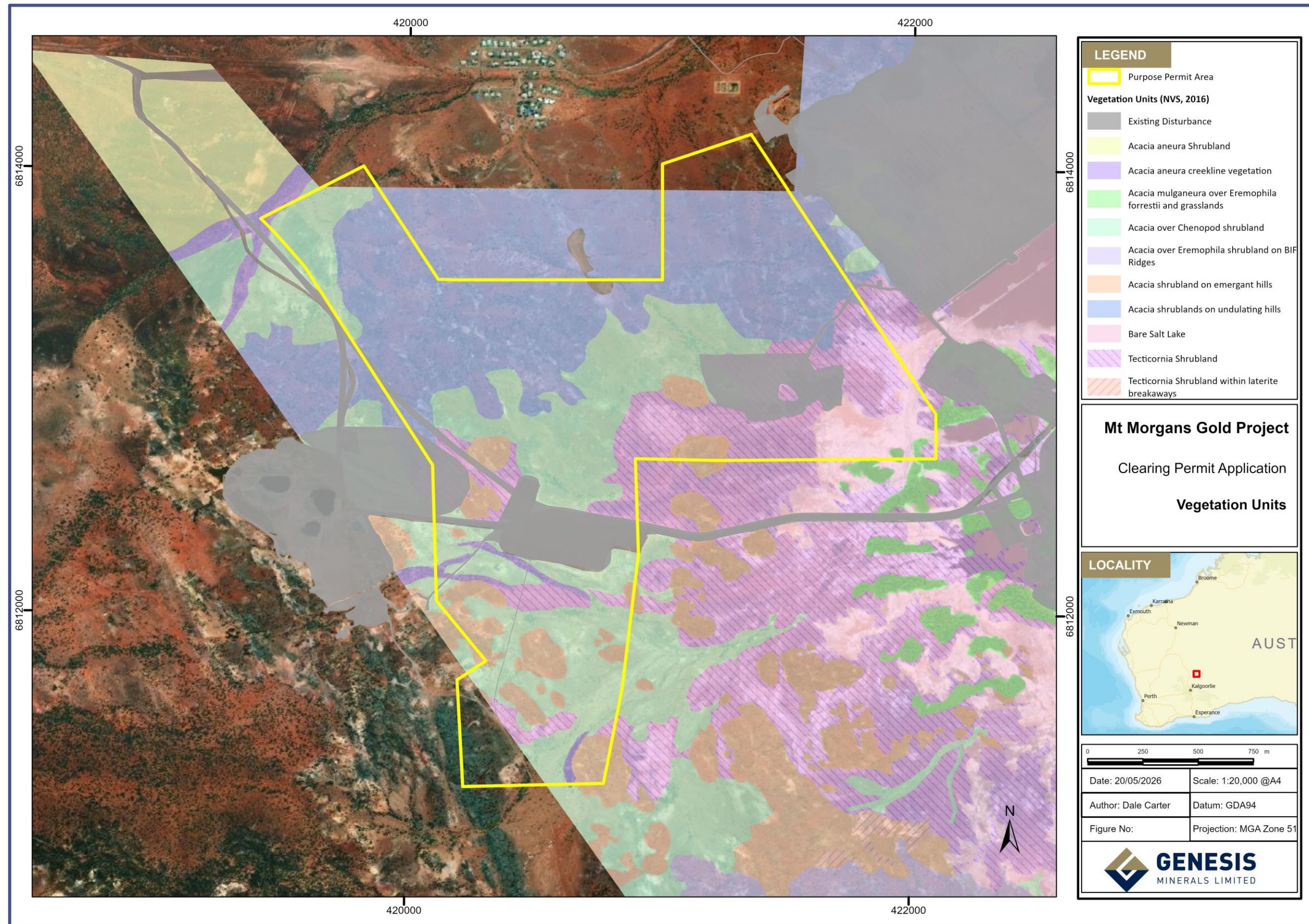


Figure 8: Vegetation Units

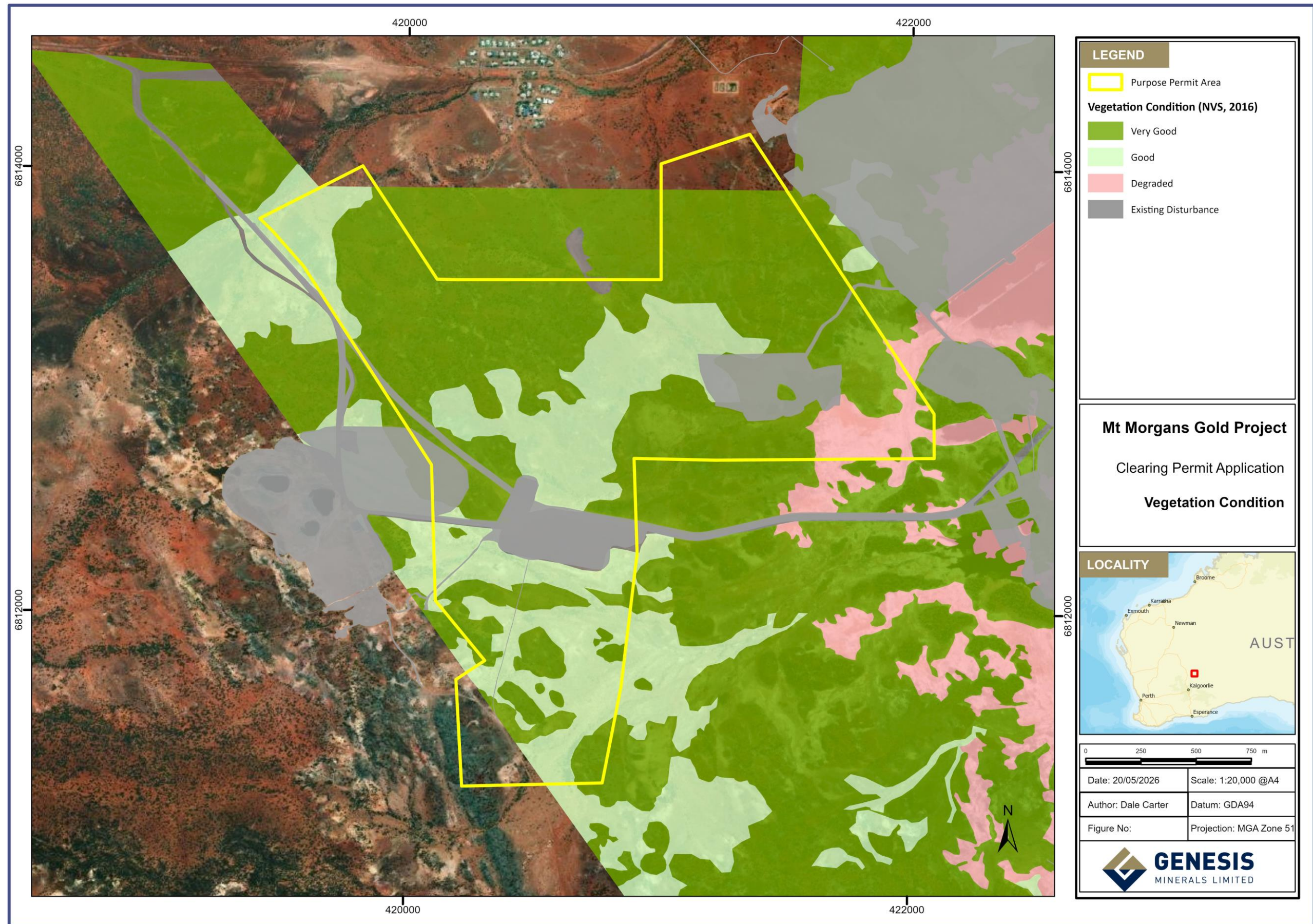


Figure 9: Vegetation Condition

4 TERRESTRIAL FAUNA

4.1 VERTEBRATE FAUNA AND HABITAT

A Level 1 fauna survey of the Mt Morgans Jupiter Project, with associated borefields, camp and workshop sites was completed in 2016 (Western Wildlife, 2016) (APPENDIX E) (ISA-0001075). This survey was undertaken over five days in March 2016, with one frog, six reptiles 54 birds and five mammals recorded opportunistically. Conservation significant species recorded were migratory shorebirds on Lake Carey.

Eleven fauna habitats were identified in the study area, seven of these are located within the Permit Area (**Figure 10**):

- ▶ Acacia shrubland on low rocky hills.
- ▶ Chenopod shrubland.
- ▶ Creeklines.
- ▶ Salt lake.
- ▶ Samphire shrublands.
- ▶ Sandy hills and islets.
- ▶ Disturbed areas.

The study area has the potential to support up to ten frog, 82 reptile, 141 bird and 32 mammal (24 native mammals) species. During the site visit one frog, six reptiles, 54 birds and five mammals were recorded opportunistically.

4.2 CONSERVATION SIGNIFICANT FAUNA

A total of 17 fauna species of conservation significance have the potential to occur in the study area (**Table 7**):

- ▶ Seventeen under EPBC Act or the Western Australian Biodiversity Conservation Act 2016.
- ▶ Two Priority species.
- ▶ One locally significant species.
- ▶ Eleven of the conservation significant species are migratory.

During the (Western Wildlife, 2016) survey a single Common Greenshank and 40 Red-necked Stint were observed in Lake Carey, near Jupiter. These numbers do not qualify for a significant shorebird population, which need to support either 1% of the global population or more than 20,000 shorebirds.

Western Wildlife (2016) considered it unlikely that the expanded Mt Morgans Project will result in impacts to the status of conservation significant species.

Table 7: Conservation Significant Fauna

Scientific Name Common Name	Status		Habitat	Likelihood
	BC- Act	EPBC Act		
<i>Liopholis kintorei</i> Great Desert Skink	VU	VU	Spinifex grassland on red sandplains.	Very low
<i>Leipoa ocellata</i> Malleefowl	VU	VU	Acacia thickets or mallee woodlands with leaf litter.	Very low
<i>Calidris ruficollis</i> Red-necked Stint	MI	MI	Intertidal mudflats, wetlands, inland waters.	Present
<i>Calidris ferruginea</i> Curlew Sandpiper	CR	CR & MI	Intertidal mudflats, inland freshwater wetlands.	High
<i>Calidris acuminata</i> Sharp-tailed Sandpipe	MI	VU & MI	Coastal & inland wetlands, mainly fresh or brackish non-tidal wetlands.	High
<i>Tringa glareola</i> Wood Sandpiper	MI	MI	Mainly freshwater wetlands.	High
<i>Actitis</i> (formally <i>Tringa</i>) <i>hypoleucos</i> Common Sandpiper	MI	MI	Rocky creeks, channels, dams and wetlands.	High
<i>Tringa nebularia</i> Common Greenshank	MI	EN & MI	Intertidal mudflats, wetlands, inland waters.	Present
<i>Charadrius veredus</i> Oriental Plover	MI	MI	Open plains, salt lakes, claypans.	Moderate
<i>Gelochelidon</i> (Formally <i>Sterna</i>) <i>nilotica</i> Gull-billed Tern	MI	MI	Salt lakes, claypans.	Low
<i>Apus pacificus</i> Fork-tailed Swift	MI	MI	Overfly any habitat.	Low
<i>Falco hypoleucos</i> Grey Falcon	VU	VU	Timbered plains and tree-lined watercourses	Low
<i>Falco peregrinus</i> Peregrine Falcon	OS	-	Variety of habitats, nests in tall trees, cliffs, open pits.	Moderate
<i>Polytelis alexandra</i> Princess Parrot	P4	VU	Lightly timbered deserts and treelined watercourses	Very low
<i>Pezoporus occidentalis</i> Night Parrot	CR	EN	Chenopod shrublands, Spinifex plains.	Very low
<i>Amytornis oweni oweni</i> Sandhill (Previously Striated) Grasswren	P4	-	Spinifex plains, Acacia shrublands over Spinifex on sands or loams.	Low
<i>Antechinomys</i> (Previously <i>Sminthopsis</i>) <i>longicaudata</i> Long-tailed Dunnart	P4	-	Rocky areas, scree slopes and breakaways.	High

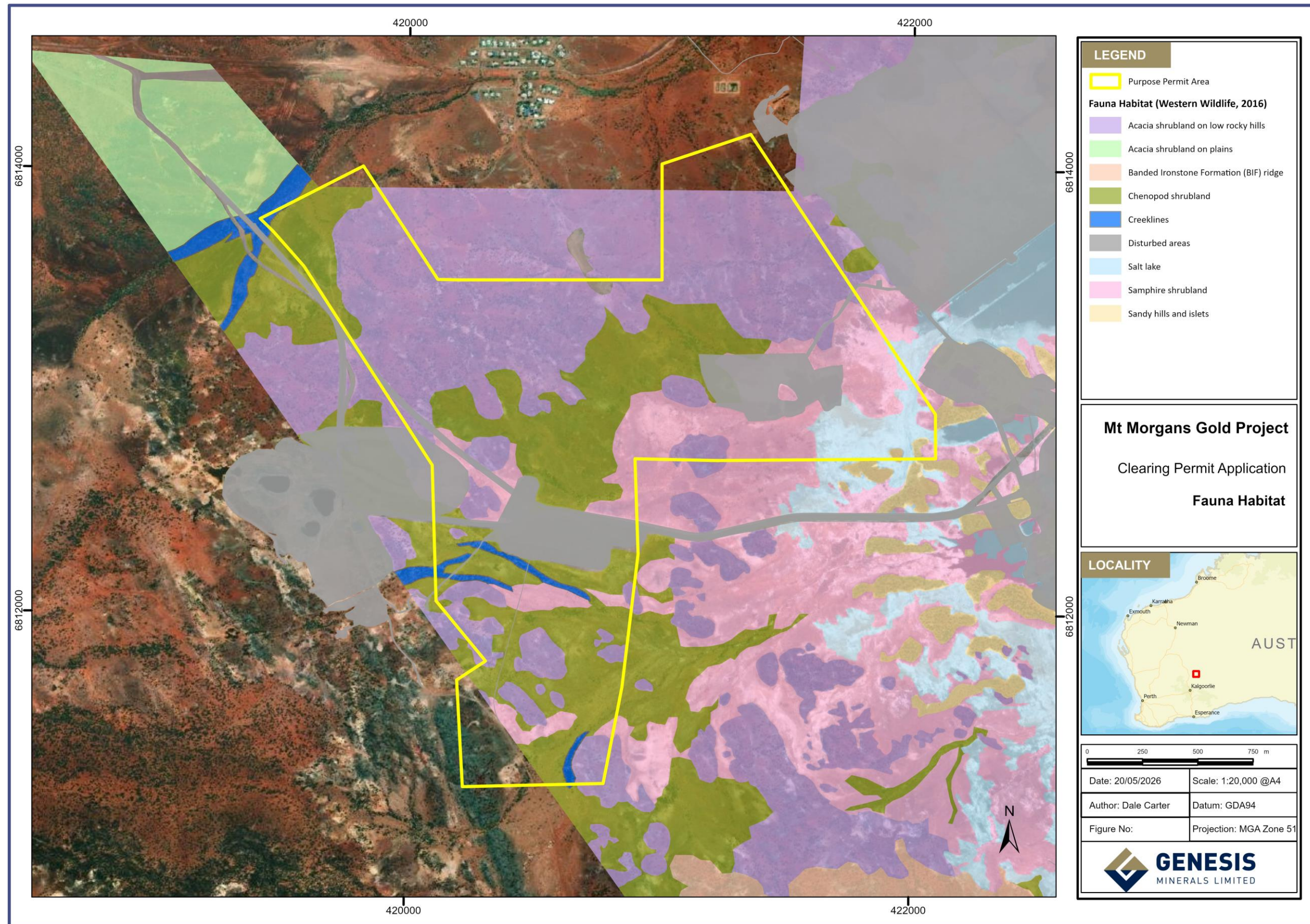


Figure 10: Fauna Habitat

4.2 SHORT RANGE ENDEMIC FAUNA

A desktop Short Range Endemic (SRE) review (Bennelongia, 2016) (APPENDIX F) determined that although there were potential habitat types to support SRE fauna, mainly BIF formations and Ridgeline habitat, they are too small to support diverse SRE communities.

The SRE assessment concluded that there is no foreseeable impact on SRE or listed species from the proposed mining operations.

4.3 SUBTERRANEAN FAUNA

A subterranean fauna assessment was completed for the Mt Morgans Project (Bennelongia, 2017) (Appendix G). The assessment determined that the Jupiter mining area has a low likelihood of supporting significant stygofauna and troglofauna.

Habitat in the Jupiter area for troglofauna is limited because the geology is predominantly syenite and basaltic rock types, with a general absence of vugs and voids in substrate above the water table.

Jupiter groundwater is unlikely to provide suitable habitat due to high salinity (>150,000 mg/L TDS). Additionally, low permeability aquifers limit habitat potential.

The calcrete aquifer 1.5 km east of the Purpose Permit Area is a highly prospective habitat for stygofauna, this aquifer will not be impacted under this Permit.

5 ENVIRONMENTAL MANAGEMENT

Genesis is operating an Environmental Management System (EMS) which is consistent with the key elements of the International Standard ISO14001:2015, consisting of the following elements:

- ▶ Environmental Policy;
- ▶ Environmental Aspects and Risks;
- ▶ Legal and Other Requirements;
- ▶ Competency, Training and Responsibility;
- ▶ Competency, Training and Awareness;
- ▶ Communication and Engagement;
- ▶ Documentation and Records;
- ▶ Operational Control;
- ▶ Incident Reporting and Investigation;
- ▶ Emergency Preparedness and Response;
- ▶ Monitoring and Measurement;
- ▶ Inspections and Audits;
- ▶ Corrective and Preventative Actions; and
- ▶ Management Review.

4.1 MITIGATION

Genesis have designed engineering controls to minimise clearing impacts but still ensure safe operation on site.

Examples of environmental management measures which can be implemented to mitigate clearing impacts and management on site include but not limited to the following:

- ▶ Clearing areas will be demarcated prior to the commencement of project activities and prior to the commencement of native vegetation clearing;
- ▶ Clearing will be undertaken in accordance with the Genesis Land and Environment Access Permit (LEAP);
- ▶ Induction of all contractors and/or internal personnel undertaking the clearing in accordance with Genesis's internal procedures. GPS coordinates of clearing permit area will be supplied to contractors;
- ▶ Prior to clearing activities, areas of native vegetation to be retained will be clearly demarcated by star pickets, coloured tape or bunting and all personnel will be made aware of the requirement to protect native vegetation in these areas; and
- ▶ Spatial data will be retained within Genesis Ground Disturbance Database and will be vetted and reported as per Mining Rehabilitation Fund and Native Vegetation Clearing Permit requirements.

6 ASSESSMENT AGAINST THE 10 CLEARING PRINCIPALS

An assessment has been completed against the Ten Clearing Principles (EP Act 1986, Schedule 5) to determine if there is a likely significant environmental impact as a result of the clearing native vegetation proposed to be cleared in this application. Each principle was assessed in accordance with “A Guide to the Assessment of Applications to Clear Native Vegetation” (DER, 2014).

The proposed clearing subject to this application is not likely to be at variance with Principles (a), (b), (c), (d), (e), (g), (h), (i) or (j) and may be at variance to Principle (f). A full assessment of the proposed NVCP Application against Clearing Principles is shown in **Table 8**.

Table 8: Assessment of the Proposal against the Ten Clearing Principles

Red – Likely to be at variance, **Orange** – May be at variance, **Green** – Not likely to be or not at variance.

Clearing Principle	Impact Category	Assessment of Clearing Principle
(a) Native vegetation should not be cleared if it comprises a high level of biological diversity	Not likely to be at variance	There are no Threatened Ecological Communities (TECs), Threatened Flora, Environmentally Sensitive Areas, Nature Reserves, Conservation Areas, and restricted or unique vegetation communities within the Purpose Permit Area or surrounding area. The Permit Area intersects the buffer region of the Priority Ecological Community (PEC) named "Mount Morgan calcrete groundwater assemblage type on Carey palaeodrainage on Mt Weld Station" (Figure 6). This PEC is in place to protect the subterranean fauna community identified within the buffer zone. Given this, proposed clearing within the survey area is not likely to have an impact on this community. As indicated in the Section 3.1 the identified Beard vegetation associations, which occur within the Purpose Permit Area, are considered to have between 70 - 100% of their spatial area remaining post European settlement and are not adversely affected by extensive clearing (refer to Table 5). The Purpose Permit Area is located within the Murchison (MUR) bioregion within the Eastern Murchison (MUR1) subregion, as classified in the Interim Biogeographic Regionalisation of Australia (IBRA). An audit of the biodiversity within Western Australia's biogeographical subregions identified that the Eastern Goldfields bioregion covered over 5.1 million ha (CALM, 2002). A total of 16 vegetation groups (excluding existing disturbance and bare salt lake) were identified across the survey area (NVS, 2016) , 6 of which were identified within the proposed Purpose Permit Area. No unique or restricted vegetation communities were identified, and all are common and well represented through the Eastern Murchison subregion. The vegetation community that dominates the proposed Purpose Permit Area is Acacia over Chenopod shrubland & Acacia shrublands on undulating hills, with this vegetation type typical of the region and not considered to be unusually diverse. During NVS (2016) surveys no vegetation within the Purpose Permit Area was considered to be in "Pristine" or "Excellent" condition. Vegetation and flora surveys across the Project area have identified a total of 195 species, none of which were flora gazetted as Threatened under the <i>Biodiversity Conservation Act 2016</i> and/or the <i>Environmental Protection and Biodiversity Conservation Act 1999</i>. The proposed Purpose Permit Area is not noted for a high biodiversity relative to the surrounding region and combined with the lack of conservation significant species, and well represented vegetation distribution in the greater region,

Clearing Principle	Impact Category	Assessment of Clearing Principle
		Genesis consider that clearing activities proposed are unlikely to have a significant impact on the biological diversity in the area. Therefore, the proposed clearing is unlikely to be a variance to Clearing Principal (a).
(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	Not likely to be at variance	The broader survey area (Western Wildlife, 2016) has the potential habitat for 17 significant species (Table 7). Two species, the Red-necked Stint (<i>Calidris ruficollis</i>) and Common Greenshank (<i>Tringa nebularia</i>) were identified during surveys, both species are migratory and were observed over Lake Carey. The numbers observed of these species do not qualify for a significant shorebird population, which need to support either 1% of the global population or more than 20,000 shorebirds. Out of the five significant species with a “high likelihood” of occurrence within the broader survey area, four are migratory and if present would not be reliant of the habitat. The fifth high likelihood species the Long-tailed Dunnart (<i>Sminthopsis longicaudata</i>) is a state listed P4 species found in rocky areas, scree slopes and breakaways. The habitat within this Purposed Permit Area is not considered suitable habitat for this species. Given the lack of breeding habitat for conservation significant species and the lack of specialised vegetation groups and/or habitat types and lack of identified / records of species within the Purpose Permit Area, Genesis consider that clearing activities associated with the Proposal are unlikely to significantly impact native fauna, therefore not at variance of Clearing Principal (b).
(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	Not likely to be at variance	No Threatened Flora or Priority Flora were identified within the Purpose Permit Area (NVS, 2016). Some riparian vegetation (<i>Tecticornia</i> shrublands) was identified on the edge of Lake Carey (Figure 8) and will be cleared. Approximately 17 ha of the 611 ha of <i>Tecticornia</i> shrublands surveyed will be cleared under this proposal. Genesis considers that clearing activities associated with the Proposal are unlikely to be at variance with this 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	Not likely to be at variance	As indicated in Section 3.2 there are no State listed Threatened Ecological within the proposed Purpose Permit Area or surrounding area. Although the permit intersects the PEC “Mount Morgan calcrete groundwater assemblage type on Carey palaeodrainage on Mt Weld Station”, the permit avoids the actual calcrete aquifer which this PEC is a buffer to protect subterranean fauna communities within the Calcrete Aquifer (Figure 6).

Clearing Principle	Impact Category	Assessment of Clearing Principle
threatened ecological community.		Genesis considers that clearing activities associated with the Proposal are unlikely to be at variance with this 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.	Not likely to be at variance	As outlined by Table 5 the Beard vegetation associations, which occur within the Purpose Permit Area are considered to have between 97 – 100 % of their spatial area remaining post European settlement and are not adversely affected by extensive clearing.. Given the extent of the associations at a regional scale, the proposed disturbance will have negligible impact on conservation values or cause fragmentation, or result in patches of remnant vegetation (NVS, 2016). Vegetation in the Purpose Permit Area is considered to be still intact even though much of the area (local and regional) has been impacted by forestry, mining and pastoral activities. Vegetation condition in the Purpose Permit Area varies from Very Good, Very Good or Degraded condition. Most of the vegetation groups in the surrounding area have been identified as Very Good (Figure 9). Genesis considers that clearing activities associated with the Proposal are unlikely to be at variance with this 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.	May be at variance	A portion of the Purpose Permit Area intersects a playa tributary into Lake Carey (Figure 6), however is over 2km from the main playa lake. There will be some <i>Tecticornia</i> shrublands associated with playa lake fringe (Figure 8) cleared under this permit, this is not expected to have significant impact to the lake. Some ephemeral drainage lines pass through the application area. Drainage lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. Vegetation growing around drainage lines are not confined to these areas and are not growing exclusively in association with drainage lines. The risk of clearing activities causing surface water quality issues is considered minimal due containment measures for potentially contaminated or sediment laden water, spill response procedures, and erosion control measure. Ephemeral surface water flows will be maintained through construction of appropriate drainage infrastructure, including flood bunds around the existing TSF. Cell 3 has been sized such that it does not block catchment flows from the northwest and the southern embankment is aligned with the Southern TSF Cell 1 and 2 embankments adjacent to the playa lake. Genesis considers that clearing activities associated with the Proposal may be at variance with this Principle as it does sit over a portion of Lake Carey however with the appropriate engineering design measures this is not expected to have an impact on the lake.

Clearing Principle	Impact Category	Assessment of Clearing Principle
(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Not likely to be at variance	The works associated with the clearing are unlikely to cause appreciable land degradation that is different or more significant than what has already occurred on site and the surrounding area to date. Therefore, the proposed clearing is unlikely to be at variance with this principle. The clearing for TSF Cell 3 under this Permit has the potential to locally exacerbate land degradation during operations however regional impacts are anticipated to be minimal when compared to the extensive use of land for Pastoral activities in the Goldfields. The implementation of mitigation measures during operations, and planned rehabilitation works, as per approved Mine Closure Plan (MCP) Reg ID 128557, will reduce land degradation impacts and as such it's expected that significant land degradation will not occur as a result of this Proposal. The Purpose Permit Area implements staged clearing to reduce disturbance, erosion controls, and progressive rehabilitation, where practicable, it is not expected that significant land degradation will occur as a result of this Proposal. Genesis considers that clearing activities associated with the Proposal are unlikely to be at variance with this 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.	Not likely to be at variance	There are no ESAs, Nature Reserves, and/or Conservation Areas within the Purpose Permit Area or surrounding area. There are no Public Drinking Water Source Areas (PDWSA) near the Purpose Permit Area. Genesis considers that clearing activities associated with the Proposal are unlikely to be at variance with this 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.	Not likely to be at variance	The purpose permit area has no major fresh waterways or tributaries within its boundary. Some ephemeral drainage lines pass through the application area. Drainage lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. Surface water will be diverted around the proposed TSF via an existing flood bund, with rock armoring on the outer embankment to prevent erosion and sediment run off. Although the water table in the Purpose Permit Area is shallow, groundwater surrounding the existing TSFs and Jupiter operations is hypersaline (250,000 – 300,000 mg/L) and provides no beneficial use for nearby stakeholders.

Clearing Principle	Impact Category	Assessment of Clearing Principle
		The existing and proposal TSF does have some seepage impacts, these are expected to have a negligible impact on groundwater quality. Genesis considers that clearing activities associated with the Proposal are unlikely to be at variance with this Principle.
(j). Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	Not likely to be at variance	There are no major river systems in the vicinity of the MMGP, although there are several ephemeral creeks which generally drain in a north to south-east direction towards Lake Carey, which is the most dominant local hydrological feature. This Permit Area intersect a small portion of a tributary leading into Lake Carey however is over 2km from the main playa lake. The ephemeral surface flows from the north to south in the Purpose Permit Area are maintained through drainage structures. The risk of clearing causing surface hydrology issues is thus considered low due to mine design around areas of known ephemeral flow and infrastructure to maintain flows. Existing flood bunds have been constructed around the existing TSF Cells 1 and 2 to approximately RL 398.5 m. TSF Cell 3 and 4 has been sized such that it does not block catchment flows from the northwest and the southern embankment is aligned with the Southern TSF Cell 1 and 2 embankments adjacent to the playa lake. Embankments are rock armoured to prevent erosion and sediment run off. Genesis considers that clearing activities associated with the Proposal are unlikely to be at variance with this Principle.

7 REFERENCES

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8 APPENDICES

APPENDIX A: Mt Morgans WA Mining Pty Ltd Company Extract

APPENDIX B: Letter of Authorisation

APPENDIX C: M37/282 & M39/1107 Mining Tenement Summary Report

APPENDIX D: MMGP Flora and Vegetation Assessment (NVS 2016)

APPENDIX E: MMGP Detailed Fauna and Habitat Assessment (Western Wildlife 2016)

APPENDIX F: MMGP Short Range Endemic (SRE) Desktop Assessment (Bennelongia 2016)

APPENDIX G: Mt Morgans Subterranean Fauna Assessment (Bennelongia, 2017)