HIGHLAND ROCKS PROJECT

ELs 27511, 27995 and EL29829

2018

MINE MANAGEMENT PLAN

FOR EXPLORATION OPERATIONS

Tenement Number:	**ELs 27511, 27995 and 29829**
Tenure Holder:	**Ramelius Resources Limited (85%)** **Tychean Resources Limited (15%)**
Tenure Operated by:	**Ramelius Resources Limited**
Author:	**Erik van Noort**
Date:	**04/04/2018**

This Updated Mine Management Plan for the Highland Rocks Project (Authorisation No. **0868-01**) is submitted pursuant to section 41(1) of the MMA and Condition 2 of the Authorisation.

	Author	**Reviewed by**	**Approved by**
Date	5/4/2018	5/4/2018	6/4/18.
Name	ERIK VAN NOORT	VOLKER GARTZ	KEVIN SEYMOUR
Signature			

I, Erik van Noort *(Senior Geologist)* declare that to the best of my knowledge the information contained in this mining management plan is true and correct and commit to undertake the works detailed in this plan in accordance with all the relevant Local, Northern Territory and Commonwealth Government legislation.

SIGNATURE: .....

DATE: 5/4/2018

Contents

1. OPERATOR DETAILS

Operator Name	Ramelius Resources Ltd
Key Contacts	Kevin Seymour (Gen. Manager Exploration and Business Development) Volker Gartz (Exploration Manager) Erik van Noort (Senior Geologist)
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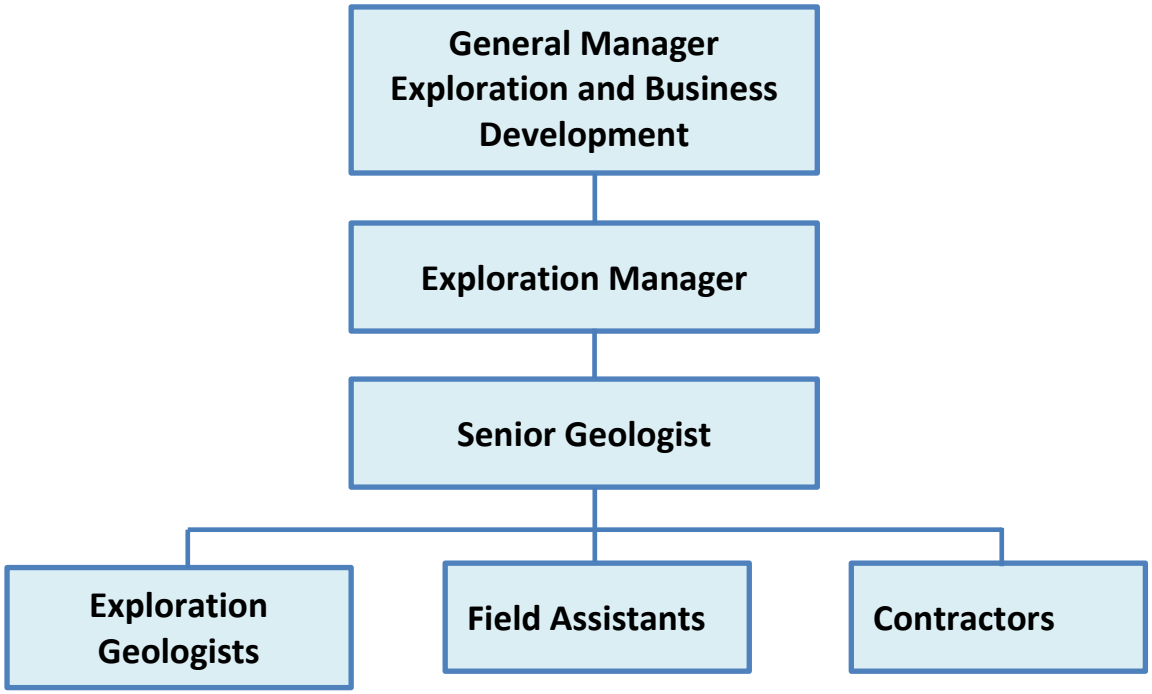
1.1 Organisational Structural Chart



1.2 Workforce

The number of Ramelius Employees would comprise up to 8 people, including General Manager, Exploration Manager, Senior Geologist, Exploration Geologist and field assistants.

Total number of contractors would typically be up to 8 people, and vary according to the exploration stage of specific projects. Contractors include drilling crew, earthmoving contractor (for site preparation and track access) and contract field assistants.

Work Descriptions

Senior Geologist: Reports to Exploration Manager and oversees all exploration activities on the project, including supervision of company geologists and field assistants. Consultation with all stakeholders, including pastoralists, native title parties and government departments. Preparation of company and departmental reports. Role also includes field-based duties, including drilling supervision, mapping, and geochemical sampling.

Exploration Geologist: Reports to senior geologist and undertakes exploration activities on the company's tenements. Duties include drilling supervision and logging, mapping, geochemical sampling and exploration logistics.

Field Assistants: Report to the Exploration and Senior Geologists. Responsible for exploration logistics, surface sampling, drill-hole sampling, rehabilitation procedures.

1.3 Socio-economic aspects

Wherever possible, the company will aim to use local, NT-based contractors for drilling, earthmoving and rehabilitation needs (e.g. Darwin, Alice Springs).

Whist the project is currently at a preliminary stage, as the project develops the company will assess the possibility of employing members of local indigenous communities for specific contract-based work where possible. This will be done in consultation with the Central Land Council.

2. Identified Stakeholders and Consultation

Stakeholders associated with the project include:

Lease Owner	Ramelius Resources Ltd (85%) Tychean Resources (15%)	
Tenement Manager	Ramelius Resources Ltd	
Landowners	Lake Mackay Aboriginal Land Trust (NTP1642) Yiningarra Aboriginal Land Trust (NTP1792)	
Native Title Parties	Central Land Council	Nick Raymond Mining Officer CENTRAL LAND COUNCIL Ph. 08 8951 6263
Government Departments	Department of Primary Industry and Resources Department of Lands Planning and Environment Department of Land Resource Management Aboriginal Areas Protection Authority Power and Water Corporation	

2.1 Landowner Consultation

2.1.1 Landowner Consultation

Lake Mackay and Yiningarra Aboriginal Land Trusts – Central Land Council

The Highland Rocks Project is located on land vested in the Lake Mackay Aboriginal Lands Trust NTP1642, and the Yiningarra Aboriginal Land Trust (NTP1792). Landowner consultation for the project is done with the Central Land Council (CLC). As part of the application process, the company entered into negotiations with the Central Land Council (CLC) in respect of ELs 27511, 27995 and 29829, and a Mineral Exploration Agreement was finalised with the CLC on 6th July, 2015.

In accordance with the provisions of the Aboriginal Land Rights (Northern Territory) Act, the company initially provided Exploration and Mining Proposals for the various tenements comprising the project to the CLC between March, 2010 and May, 2013. The proposals were subsequently updated in 2015, 2016, and 2017.

All work proposals will be assessed by the CLC, and if warranted, site inspections including cultural heritage surveys and environmental reviews will be conducted prior to exploration activities, in accordance with the Mineral Exploration Agreement.

Aboriginal Areas Protection Authority

Information from the records of Registered Sacred Sites is obtained for all Exploration areas from the Aboriginal Areas Protection Authority, prior to commencing any exploration activities.

3. PROJECT DETAILS

3.1 Site Location and Layout

The Highland Rocks Project (Authorisation 0868-01) is located approximately 500km NW of Alice Springs and comprises granted ELs 27511, 27995 and 29829 (Figure 1). The nearest mining centre is the Granites gold mine, located some 100km to the northeast. The Authorisation initially comprised exploration licences EL27511 and EL29829, and will be amended for 2017 to also include EL27995.

Since May, 2014 the project has been the subject of a farm-in agreement with Tychean Resources Ltd, whereby Ramelius have earned an 85% Joint Venture interest in the tenements by sole funding $500,000 of expenditure during the earn-in period. The transfer of the licenses was registered on 2nd December, 2015 (Transfer D93816) in accordance with Section 123 of the *Minerals titles Act*. Ramelius will be responsible for the management of all exploration programmes on the project. Tenement details are summarised in Table 1.

Table 1: Highland Rocks Project Tenement Details

Tenement	Holder	Operator	Grant_Date	Expiry_Date	Sub_Blocks	Land_Tenure
EL27511	Ramelius Resources Ltd (85%) Tychean Resources Ltd (15%)	Ramelius Resources Ltd	18/11/2015	17/11/2021	75	Lake Mackay Aboriginal Land Trust
EL27995	Ramelius Resources Ltd (85%) Tychean Resources Ltd (15%)	Ramelius Resources Ltd	18/11/2015	17/11/2021	40	Yiningarra Aboriginal Land Trust
EL29829	Ramelius Resources Ltd (85%) Tychean Resources Ltd (15%)	Ramelius Resources Ltd	18/11/2015	17/11/2021	125	Lake Mackay Aboriginal Land Trust Yiningarra Aboriginal Land Trust

Vehicle access to tenements EL27511 and EL29829 from Alice Springs is by way of the Tanami Highway to the Escondida Track turnoff, thence westwards approximately 120km to the tenement. Vehicle access to EL27995 from Alice Springs is by way of the Tanami Highway to the Tanami Downs turn-off, thence southwards approximately 50km to Tanami Downs Station, thence by station tracks to the tenement.

Detailed site plans for the project are presented in Appendix 1 (Figures A1-1 and A1-2).

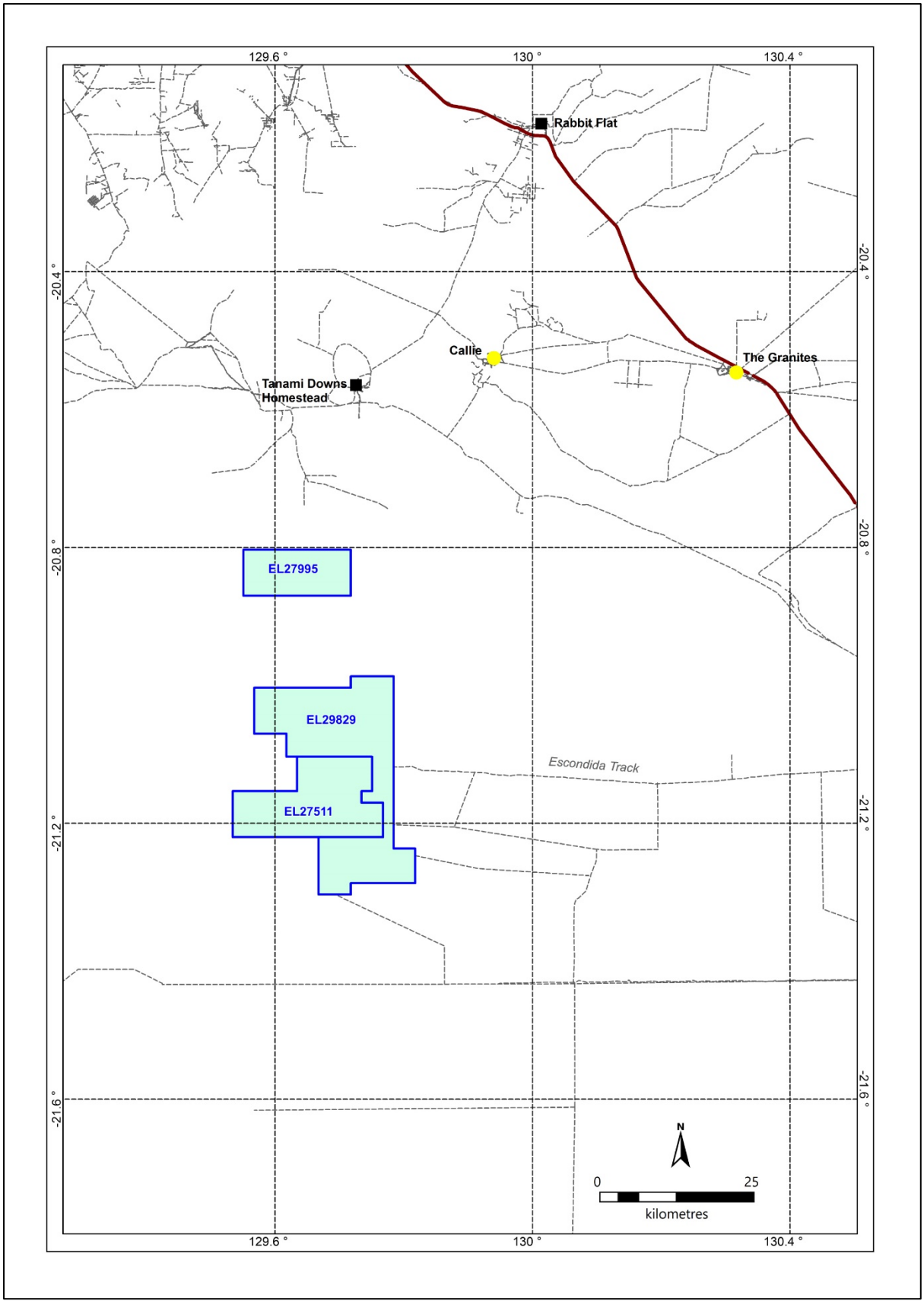


Figure 1: Highland Rocks Project (EL27511, EL27995 & EL29829) Location Map

3.2 Previous Activity and Current Status

3.2.1 Historical Exploration

North Flinders Exploration

During 1986, North Flinders Exploration completed limited soil and rock-chip sampling in the central-northern part of EL27995, although no drilling was completed.

Zappopan Ltd

During 1992, Zappopan undertook limited exploration, and collected a number of lag samples in the eastern part of EL27995.

Havilah Resources NL/Desertex NL Joint Venture

From 1997 to 2000, the south-eastern part of the project area, comprising parts of EL27511 and EL29829, was explored for gold under a joint venture between Havilah Resources NL and Desertex NL. Work included ground reconnaissance, surface geochemical sampling, reconnaissance RAB drilling and follow-up systematic RAB drilling of various structural and/or magnetic targets. Exploration returned generally low-level Au anomalies as well as low-level As and Cu anomalies.

Normandy Exploration/Newmont Tanami Pty Ltd

From 2000 to 2004, the eastern part of the project area, comprising parts of EL27511 and EL29829, was explored for gold by Normandy Exploration (subsequently Newmont Tanami Pty Ltd). Normandy carried out extensive regional surface sampling, vacuum drilling, and follow-up RAB drilling at a number of prospects. Air-core drilling was also carried out in areas of deeper transported cover to test specific basement magnetic features.

Ground Disturbance

The current operator has not identified any ground disturbance associated with the previous drilling campaigns. Apart from the Escondida Track, Ramelius' assessment has found no access tracks remaining from previous explorers. Minor infrastructure remains at the old Newmont campsite (fuel drums, cabling, tyres, minor cement foundations). The location is shown on Figure A1.2 and documented in Appendix 4.

3.2.2 Exploration by Ramelius Resources

2016

Exploration activities carried out by Ramelius Resources on ELs 27511 and 29829 during 2016 comprised geological reconnaissance, soil/lag sampling, geological mapping, vacuum drilling, and air-core drilling. The programmes were carried out in accordance with the proposals outlined in the 2016 Mine Management Plan and subsequent amendments. Drilling and soil sampling details are summarised in Table 2. No fieldwork was carried out on EL27995 during the 2016 field season.

Table 2: Highland Rocks Project – exploration summary for 2016

Tenement	Vacuum Drilling	Air core Drilling	Total Drilling	Soil samples	Lag samples
EL27511	26 holes/208m	-	26 holes/208m	259	100
EL29829	35 holes/152m	167 holes/5780m	202 holes/5932m	371	126
EL27995	-	-	-	-	-

Drilling activities were carried out on ELs 27511 and 29829, and included a total of 61 vacuum holes and 167 air-core holes. Apart from minimal hand-clearing of grass to allow room for drill-spoil, no clearing was required at drill sites. Groundwater was rarely encountered and as such, drill sumps were not required and none were created. Mechanical clearing of tracks was not required for drill-rig access between holes as vehicles were able to travel across open spinifex country.

Drill spoil was laid out in piles adjacent to the drilling rig. For vacuum drilling, the sample material is of low volume and typically comprises materials similar to those at surface (sands, ferruginous gravels) the sample piles can be raked over and dispersed with topsoil. For air-core drill sites, rehabilitation will require burying of drill spoil or returning downhole. The company will utilise a small machine (e.g. bobcat) for this work. All holes were temporarily plugged after completion – final rehabilitation will involve plugging holes at 50cm below surface and burial of sample material, in accordance with the company's environmental procedures.

Field reconnaissance, mapping and soil/lag sampling was undertaken on ELs 27511 and 29829, which involved access along pre-determined access tracks and cross-country quad-bike access. Apart from the main access routes, no vegetation clearing or ground disturbance was carried out.

2017

Exploration activities carried out by Ramelius Resources on ELs 27511 and 29829 during 2017 comprised geological reconnaissance, mapping, and soil sampling. The programmes were carried out in accordance with the proposals outlined in the 2017 Mine Management Plan and subsequent amendments. Soil sampling details are summarised in Table 3. Initial reconnaissance was carried out on EL27995 during the 2017 field season.

Air-core drilling was planned for ELs 27995 and 29829 in 2017. This drilling, and associated ground disturbance, was not carried out.

Table 3: Highland Rocks Project – exploration summary for 2017

Tenement	Air core Drilling	Soil Samples
EL27511	-	107
EL29829	-	405
EL27995	-	-

Table 4: Highland Rocks Project – ground disturbing activities for previous period (2017)

Activity	EL27511	EL29829	EL27995	Combined project
Total holes proposed for 2017	**0**	**275**	**175**	**450**
Total holes drilled in 2017	**0**	**0**	**0**	**0**
Total tracks proposed for 2017 (km)	**0**	**15**	**34.5**	**49.5**
Total tracks created for 2017 (km)	**0**	**0**	**0**	**0**
Maximum depth of holes	0	0	0	0
Drill pads cleared	0	0	0	0
Drill sumps	0	0	0	0
Camp area cleared (Ha)	0	0	0	0
Costeans/bulk sample pits	0	0	0	0
Total area rehabilitated	0	0	0	0

3.3 Proposed Activities

Proposed exploration activities for 2018 at the Highland Rocks Project are outlined below and summarised in Table 5. GIS files pertaining to all proposed exploration activities are in Appendix 2. The target commodity of the Highland rocks project is gold.

3.3.1 Reconnaissance and Geological Mapping

Continued reconnaissance of the whole of the project area is planned to determine access routes and assess other logistical issues.

Reconnaissance will also include geological and regolith mapping over broad areas in order to refine geochemical sampling programmes, i.e. where conventional soil sampling is appropriate or where air-core drilling may be necessary. Some rock-chip samples may be collected as part of the reconnaissance. Investigation are proposed to be ongoing during the 2017 field season.

The reconnaissance will be carried out by a team of 2-4 personnel from Ramelius Resources, using 1-2 Landcruiser-sized vehicles and quad bikes. Where possible, existing access tracks will be utilised, although some cross-country vehicle access will be required.

3.3.2 Air-core drilling

Air-core drilling was originally planned for 2017 on ELs 27995 and 29829. This drilling was approved in the 2017 MMP and subsequent amendments. The drilling was not carried out during 2017 and is currently planned for the 2018 field season. The proposed drilling areas shown in Appendix 1 – Figure A1-2. GIS files of the proposed areas are in Appendix 2. Drilling will be conducted on broad spacings (e.g. 500m x 100m) with potentially closer spaced follow-up programmes in anomalous areas.

Air-core drilling in this environment is a first-pass geochemical technique, generally used in areas where shallow surficial cover inhibits the effectiveness of soil sampling. It is a low-impact drilling method, utilising a 4WD-mounted rig to drill shallow holes through to the base of transported cover (sands and gravels). Hole depths are likely to range from 10m to 50m. Drill samples are laid out in rows, comprising small piles of drill cuttings, each representing 1-2m depth. Holes are drilled to intercept the cover/basement interface.

The air-core drilling method usually involves two personnel – the driller and two offsiders.

No access tracks or drill pads are required for air-core drilling – the rig travels across country, and the spinifex bush flattened by the passage of the machinery readily re-grows. Hole positions can be moved where necessary to avoid impacting drainages, trees, etc. In general, the rig will traverse each line only once so as to minimise disturbance. Hole locations are sited by GPS and no grid pegs are required. The company intends to use a 4WD-mounted vacuum rig with good ground clearance and large tyres to minimise compaction.

Given the shallow nature of the proposed drill-holes, it is unlikely that drill-holes will intersect groundwater. Any holes that do intersect significant groundwater will be terminated at the water table.

Minor rehabilitation of drill sites will be required. Drill-holes are typically several inches in diameter and no casing is required. On completion, holes are generally plugged with foam plugs or small,

conventional hole plugs. The sample material is to be returned down the drill-hole (where possible) or buried. Sites will be rehabilitated as soon as practically possibly by a separate field crew.

3.3.3 Site Logistics

Access to ELs 27511 and 29829 is via the existing Escondida Track, that runs west off the Tanami Road for approximately 120km to the tenement area. The company upgraded the Escondida Track during 2016 to allow for site access, using a local contractor with front-end loader.

Access to EL27995 is via existing station tracks south of Tanami Downs to the northern margin of the tenement (Figure A1-1), thence cross-country. Beyond the existing track that reaches the northern margin of EL27995, access to the tenement is limited by east-west dune systems. Access routes are planned north of EL27995 that circumvent the dunes to access the tenement (see Fig. A1-2). Mechanical clearing is not anticipated for this route although the tracks will experience moderate traffic and may thus require some rehabilitation upon completion of exploration activities.

Prior to commencement of exploration activities in 2016, there were no existing access tracks on the current tenement areas, other than the Escondida Track. During 2016 and 2017, a limited number of designated access routes were utilised within the projects and are shown in Appendix 1 – Figure A1-2. These did not require any mechanical clearing but are the main access routes within the project for moving camps, drilling rigs, etc. They experienced moderate traffic and will require some rehabilitation upon completion of exploration activities.

Some additional access tracks were proposed for drilling programmes in 2017 (not completed). These were approved in the 2017 MMP and subsequent amendments, although have not yet been created - their location is shown in Appendix 1, Figure A1.2. GIS files are in Appendix 2.

For this current MMP, a small section of additional track (2.2km) is planned in the northern part of EL27995 to link between the proposed tracks currently approved in 2017 MMP (and amendments). Figure A1.2 shows the location of proposed additional access track on EL 27995. GIS files are in Appendix 2.

A fly camp will be established for reconnaissance operations – this will typically comprise a camper trailer and several tents, and accommodate 2-4 people. A generator and fuel drum will also be required. Water will be either carted in a separate water trailer on in drums. General waste will be contained in lined garbage bins and removed to an appropriate waste disposal facility upon completion of the programme. For short programmes, human waste can be buried. For longer programmes (e.g. longer than 10 days) a chemical toilet will be provided.

Campsites established as part of the drilling programmes will be located on the designated access routes. Camp infrastructure will include caravan (with annex), trailer, water trailer, and up to 6 tents. Up to 8-10 people can be accommodated. Two generators and fuel drums will also be required. Water for the camp will be sourced from Alice Springs brought to site in either water trailer or drums. General waste will be contained in lined garbage bins and removed to an appropriate waste disposal facility upon completion of the programme. For short programmes, human waste can be buried. For longer programmes (e.g. longer than 10 days) a chemical toilet will be provided.

Table 5: Summary of proposed exploration activities

Mining Interests (i.e. titles)	**EL27511**	**EL27995**	**EL29829**
What time of the year will exploration occur?	March-October, 2018	March-October, 2018	March-October, 2018
How long is exploration expected to occur?	2 months	2 months	3 months
Type of drilling (i.e. RAB, RC, Diamond, air-core)	-	Air-core	Air-core
Target commodity	Gold	Gold	Gold
Is drilling likely to encounter radioactive material?	-	No	No
Number of proposed drill holes	0	175	275
Maximum depth of holes	0	50	50
Number of drill pads proposed (Length:15x Width:20m)	0	0	0
Is drilling likely to encounter groundwater? (Y, N, unsure)	N/A	N	N
Number of sumps	0	0	0
Length of line / track clearing proposed (Kilometres: x Width: 3m)	0	36.7km x 3m	15km x 3m
Number of costeans (Length: x Width:x Depth: m)	0	0	0
Total bulk sample (tonnes) (Length: x Width: x Depth:m)	0	0	0
Will topsoil be removed for rehabilitation purposes?	No	No	No
Previous disturbance (by Ramelius) yet to be rehabilitated on title (ha) if known	7.8 (tracks)	0	6.9 (tracks)
Camp (Length: 20 x Width: 20m)		1 Temporary camp may be set up on the license as part of drilling activities (~20m x 20m). To be located on main access track, with location to be confirmed following reconnaissance	1 Temporary camp (in addition to existing campsite) may be set up on the license as part of drilling activities (~20m x 20m)
Total area disturbance proposed (hectares)	0	11	4.5
Other: Soil sampling, etc	Reconnaissance, mapping	-	-

4. CURRENT PROJECT SITE CONDITIONS

Site Conditions	Description
Geology	In the northern part of the project area, basement Proterozoic "Tanami Group" geology comprises Dead Bullock Formation (DBF) units as moderately magnetic sequence, comprising siltstone, metapelite, and chert, conformably overlain the Killi Killi Formation, which comprises turbiditic sandstones. The southern part of the project area is dominated by Proterozoic Lander Rock Formation of the Aileron Province. Basement lithologies are intruded by Proterozoic granitoids of the Inningarra and Grimwade Suites. Proterozoic Gardiner Sandstone and Cambrian basalt flows unconformably overlie and conceal much of the Tanami Group Basement, and Tertiary colluvial sheetwash and aeolian sands overlie much of the project area. Soil types classified as predominantly Tenosols (loams) with lesser areas of Kandosols (calcareous earths) and Rudsols (loams).
Hydrology	Surface hydrology comprises limited small, first-order ephemeral creeks and sheetflow. Little to no defined drainage channels occur. No bores are located on the tenements. Nearest bores are located on Tanami Downs Station, north of the project. Bore number RN5393 (Graveyard Bore), located on Tanami Downs about 50km NW of the project, recorded TDS of 2520, and is considered unsuitable for human consumption but suitable for stock watering.
Flora	Broad floristic formation is Triodia low open hummock grassland, and minor open shrubland (5%). Flora comprises Eucalyptus as low isolated trees, Acacia as tall sparse shrubland, and Triodia as low open hummock grassland. **Identified weed and potential weed species include:** *Cenchrus echinatus* Mossman River Grass *Cenchrus ciliaris* Buffel Grass *Echinochloa colona* Awnless Barnyard Grass *Chloris barbata* Purpletop Chloris *Chloris virgata* Feathertop Rhodes Grass *Eragrostis minor* Smaller Stinkgrass
	To the company's knowledge there are no threatened plant species within the bounds of the Highland Rocks Project Area. The Dwarf Desert Spike Rush is known to be vulnerable in the broader region. A list of floral species is provided in the desktop surveys attached as Appendix 6 – none of these are classified as endangered or threatened.
Fauna	**Listed Threatened Species include**: *Liopholis kintorei* Great Desert Skink VU *Polytelis alexandrae* Princess Parrot VU *Pezoporus occidentalis* Night Parrot EN *Macrotis lagotis* Greater Bilby VU *Notoryctes typhlops* Southern Marsupial Mole EN *Zyzomys pedunculatus* Antina EN *Calidris ferruginea* Curlew Sandpiper CE

	Invasive Species include: Oryctolagus cuniculus (Rabbit) Camelus dromedaries (Camel) Felis catus (Feral Cat) Vulpes vulpes (Red Fox) Wild dogs Mus musculus (house mouse) Bos Taurus (Domestic cattle)
Land Use	Project located within Aboriginal Land vested in the Lake Mackay Aboriginal Land Trust and the Yiningarra Aboriginal Land Trust. Land use is classified as Traditional Indigenous Uses.
Historical, Aboriginal, Heritage Sites	No record of sacred sites are listed within the tenement area (see attached reference letter from AAPA; Appendix 3). All proposed exploration will be conducted according to the Mineral Exploration Agreement with the Central Land Council (CLC). Any ground disturbance will be cleared with the CLC, with specific areas to be inspected in the field if warranted. Sacred site clearance for the proposed 2016 and 2017 work programmes were granted.
Conservation Areas	The project area lies partially within the South-west Tanami Desert Site of Conservation Significance, specifically the NE corner of EL29829 and the whole of EL27995.

5. MANAGEMENT PLAN

Ramelius Resources Environmental Procedures are attached to this document as Appendix 4.

5.1 Environmental Policy and Responsibilities

The company's Health, Safety and Environmental Policy is shown below:

Health, Safety and Environment Policy

Ramelius Resources Ltd and its subsidiaries (Ramelius) are committed to the health and safety of its employees and the protection of the environment in which it operates.

Ramelius conducts its operations to ensure it can:

- Provide a safe workplace for its employees and contractors as well as any members of the public that may be affected by its operations;
- Comply with applicable legislation and standards relating to Health, Safety and Environment in the workplace;
- Limit its impact on the environment by minimising the area it affects while conducting its operations and complying with applicable legislation and environmental standards.

Ramelius will achieve these objectives by:

- Developing HSE procedures with its employees and having regular meetings to discuss health and safety;
- Recognising safe work practices by employees and promoting continuous improvement in all aspects of our work;
- Ensuring that HSE incidents, hazards, near misses, or concerns are reported, investigated and steps taken to prevent them occurring again;
- Being aware of, and adopting where appropriate, industry advancements in health, safety and environmental practices;
- Ensuring that all employees are aware of their duty to work safely and to follow reasonable health and safety directions given by their supervisor;
- Limiting as much as possible the area required to conduct our operations and progressively rehabilitating areas used for mining to a high standard.

Application of this policy through visible and accountable leadership resides with the Ramelius management team and with all employees sharing responsibility for its implementation.

Mark Zeptner
Managing Director
January 2017

Ramelius is committed to the effective environmental management of all its exploration, mining and processing activities. The company believes that responsible environmental management has a positive impact on the company's success and the sustainability of the business.

The Company recognises that mining is a temporary land use, and is associated with a range of potential environmental impacts. Prior to commencement of operations, mine planning must recognise these potential impacts and lead to the development of effective strategies for their control. During operations, the successful implementation of these strategies must be a principal objective of site management. Following decommissioning, the site must be left in a safe and stable state, with all disturbed land successfully rehabilitated to an agreed standard.

To achieve these objectives, each site is required to:

- Comply with all applicable legislation and operating conditions.
- Operate in accordance with a site environmental management plan.
- Identify and manage environmental risk and liability.
- Minimise unnecessary environmental impacts.
- Work towards the achievement of a high level of external recognition for the quality of on-site environmental management.

Company management is committed to providing the resources and support required for the achievement of best practice and the ongoing improvement of environmental management at all Ramelius sites.

Ramelius' philosophy towards environmental management is such that environmental management is the responsibility of all exploration employees and contractors. In accordance with the company's guidelines, the Exploration Manager must ensure that all environmental issues are identified and managed according to the procedures applicable for the site. The on-site Geologist or Senior Field Assistant must ensure the procedures are complied with by the contractors or site personnel undertaking the activities.

5.2 Statutory Requirements

Current applicable legislation under which the Talbot North Project will be operated include:

- *Mining Management Act*
- *Mining Management Regulations*
- *Mineral Titles Act*
- *Weeds Management Act*
- *Bushfires Act*
- *Heritage Act 2011*
- *NT Aboriginal Sacred Sites Act*
- *Aboriginal Land Rights (Northern Territory) Act*
- *Native Title Act*
- *Territory Parks and Wildlife Conservation Act*
- *Water Act*
- *Plant Health Regulations*

- *Environment Protection & Biodiversity Conservation Act*
- *Work Health and Safety (National Uniform Legislation) Act 2011*
- *Soil Conservation and Land Utilization Act*
- *Waste Management and Pollution Control Act*
- Protocols relating to *Plant Health Regulations* under the *Plant Health Act*
- Reporting requirements, which include Statutory Annual Reports on exploration activities and expenditure to the Department of Mines and Energy
- Lease conditions, including expenditure requirements
- Authorisation conditions, including requirements to hold the relevant authorization before carrying out work involving substantial disturbance

5.3 Non-statutory Requirements

Non-statutory requirements applicable to the project include:

- Obtain and review records for Registered Sacred Sites for exploration areas from the Aboriginal Areas Protection Authority
- Code of Conduct for mineral explorers in the Northern Territory
- Deed for Exploration with Central Land Council for ELs 27511, 27995 and 29829

5.4 Induction and Training

All company employees involved in exploration are required to complete an Exploration Induction at the commencement of employment, which includes all environmental procedures. Employees are also required to be familiar with the company's Environmental Procedures for Exploration, attached to this MMP as Appendix 5.

All contractors to site are required to complete a Site Induction, that outlines the company's and contractor's environmental responsibilities and procedures. During field operations, weekly exploration safety meetings are held, during which all environmental issues are fully addressed.

The main environmental issues that are covered as part of the Exploration Induction are:

- Planning
- Ground disturbance
- Construction of access tracks and gridlines
- Rehabilitation of access tracks and gridlines
- Construction of drill sites and management of drilling programs
- Capping of drill holes
- Rehabilitation of drill sites
- Construction and rehabilitation of costeans
- Construction and management of exploration camps
- Closure and rehabilitation of exploration camps
- Hydrocarbon management
- Waste management
- Exploration in environmentally sensitive areas
- Rehabilitation inventory and auditing

- Fire safety and prevention
- Emergency response procedures
- Identification of Threatened Flora and Fauna and Invasive Species

Additional training to be carried out on-site, upon commencement of exploration activities will include bushfire risk assessment and response procedures.

5.5 Identification of Environmental Aspects and Impacts

Aspect	Impact	Risk Rating	Management Measures (prevention)	Management Measures (remediation)	Residual Risk Rating
Clearing of drill sites, tracks, camp site	• Loss of native flora and fauna	12	• Plan access tracks to avoid environmentally sensitive areas and heritage sites and in consultation with the landholder. • Access via existing tracks where possible • Avoid clearing of vegetation where possible • Tracks aligned to avoid larger trees and shrubs and their near-surface root zones. Overhanging trees and vegetation should also be avoided • Vegetation to be cleared with blade above ground to avoid loss of root stock • Avoid creation of windrows at the sides of cleared lines • Minimise areas of disturbance to smallest practical area • Minimise disturbance to drainage lines – natural drainage lines should not be blocked • Extensive ground compaction should be avoided, wherever possible • Drill sites should be positioned to create minimal disturbance to landform and vegetation and should be located on flat ground, wherever possible. • Construct sumps with a slope to allow fauna egress • Ensure earthmoving machines and associated vehicles are washed down prior to coming on site	• Topsoil and vegetation to be stockpiled for use in rehabilitation • Rip or scarify disturbed areas, if necessary, taking into consideration the potential for erosion, particularly on sloping sites • Return topsoil and any cleared vegetation to the site • Sumps to be filled in and rehabilitated	9
	• Soil erosion	12			9
	• Visual Impacts	9			6
	• Introduction of weeds	12			5

Drilling	• Hydrocarbon spills – contamination of soil	12	• Compliance with Australian Standards 1940 for the storage and handling of flammable liquids • Availability and use of hydrocarbon spill management kits • Containment of leaks and spillages to prevent them from contaminating surrounding soil or entering any watercourse or water drainage system • Dust suppression during drilling, using water injection, etc • Excessive groundwater encountered in drilling to be directed into drill sumps • Clearing of grasses around worksite to minimise fire risk • Availability of fire extinguishers and fire-fighting equipment including backpacks • Drill-holes plugged on completion	• For vacuum drill-holes, sample material to be raked out and dispersed with topsoil • For deeper drill-holes (RC or RAB) all sample material to be either removed from site, returned down drill-hole, or buried in sumps • Plastic bags are not planned for use in the collection of sample material. If any are used, all will disposed of at an approved disposal facility • Soils contaminated with hydrocarbons or drill fluids to be removed from site and disposed of at an approved disposal facility • Drill holes to be plugged at 0.4m below ground level (use of octo-plugs to be avoided) • Soil backfill over drill-holes should be compacted and mounded over the hole to allow for subsidence and to limit the pooling of surface water • Waste oils, drilling fluids and rubbish to be disposed into appropriate containers and disposed of at an approved site. Oils and rubbish not to be disposed in the drill sump.	9
	• Dust and noise emission – pollution and disturbance to fauna	6			6
	• Drilling sample materials – visual impact and effects on flora	13			10
	• Groundwater – saline groundwater may impact local flora	12			9
	• Fire risk	11			7
	• Fauna entrapment and death down drill-holes	9			1
Fuel Storage	• Hydrocarbon spills – contamination of soil, surface and groundwater	8	• Compliance with Australian Standards 1940 for the storage and handling of flammable liquids • Fuel storage areas to be appropriately bunded • Hydrocarbons stored at site should be at a safe distance (to be designated) from water courses • Transport of hydrocarbons must be in accordance with the appropriate licence and regulations • All empty fuel and oil drums to be removed from site on completion of the exploration	• Any spillages to be cleaned up immediately and any soils contaminated with hydrocarbons should be treated or removed • Spill kits to be stored at hydrocarbon storage areas	5

			program. • Waste fuels and oils to be disposed of at an approved disposal site		
Camping on exploration projects	• Disturbance to flora and fauna	10	• Camps should be located on previously disturbed ground, if available, or situated where environmental impacts will be minimal • Measures should be implemented to avoid potential contamination of surface and groundwater. • The camp should be located a minimum distance of 400m downstream of permanent water sources such as natural springs and rock holes. • Areas prone to erosion and dust generation should be avoided • Sewage and domestic wastewater should be disposed of in an environmentally acceptable manner to ensure the risk to the health of personnel and the potential for impact on the surface and groundwater is minimised. • Implement fire-management procedures	• Remove all facilities and remaining waste material. • Remove or remediate any soil contaminated by fuel or chemical spills. • Determine the rehabilitation requirements of each area. • Rehabilitate according to the requirements, ripping and respreading topsoil where necessary.	10
	• Ground disturbance, soil erosion	9			5
	• Fire risk	11			7
	• Contamination of surface and groundwater	5			3
Driving between drill sites / tenements	• Spread of weeds/pests	12	• Wash down vehicles prior to travelling between different project areas • Consult with landholders on specific requirements to minimise risk of weed spreading • If vehicles are to traverse unprepared terrain more than once the same wheel tracks should be used each time	• Rehabilitation of access tracks should be carried out prior to relinquishment of the exploration licence unless requested otherwise by the landholder	5
	• Soil erosion	9			5

Procedures for Identifying Impacts

Procedures in place for identifying impacts comprise an initial review of available environmental parameters, including flora and fauna assessments, groundwater, surface drainage and heritage studies. As part of preliminary field investigations, the exploration area is inspected and a risk assessment is completed.

A risk assessment matrix is used to calculate the risks associated with specific environmental hazards. Calculated risk scores as greater than 20 are ranked as Extreme. The risk assessment matrix and associated definitions in place with the company are outlined below.

Risk Assessment Matrix

Level of risk (number) = Likelihood of Occurrence x Severity of Result

CONSEQUENCE							
LIKELIHOOD			1	2	3	4	5
			Insignificant	Minor	Moderate	Major	Catastrophic
	5	Almost certain	14	19	22	24	25
	4	Likely	10	13	18	21	23
	3	Possible	6	9	12	17	20
	2	Unlikely	3	5	8	11	16
	1	Rare	1	2	4	7	15

Definitions - Calculated Risk

20 to 25= Extreme Risk	15 to 19= High Risk	7 to14= Medium Risk	1 to 6= Low Risk
Risk is unacceptable, **STOP WORK** Resident Manager Approval Required to Proceed	Risk is unacceptable, Area Manager approval required to proceed	Risk is undesirable, JHA must be produced and signed off before proceeding	Risk is considered tolerable, JHA to be produced. Sign off before proceeding

Definitions - Consequences

Level	Rating	Environmental Impact
1	Insignificant	Isolated area low impact
2	Minor	Contained low impact
3	Moderate	Uncontained impact able to be rectified in short term
4	Major	Extensive hazardous impact long term rectification
5	Catastrophic	Uncontained hazardous impact residual effect

Definitions - Frequency/Likelihood of Occurrence

FREQUENCY	LIKELIHOOD OF OCCURRENCE	ALPHA	NUMERIC
Almost Certain	• The event is expected to occur in most circumstances • Happens all the time on almost every day or each time the activity occurs • Greater than 50% of the time or several times or more per month • Almost certain or the most likely and expected result if the selected complete sequence or scenario occurs	**A**	**5**
Likely	• The event will probably occur in most circumstances • Happens often on almost every day or each time the activity occurs • About 15% of the time or about once or twice per month • Quite possible or not unusual	**B**	**4**
Possible	• The event should occur at some time • Happens occasionally/might occur at some time • About 1% of the time or about once or twice per year • Would be unusual but possible	**C**	**3**
Unlikely	• The event could occur at some time • Occurs only occasionally - once every 3-5 years • About once in 1,000 times or could occur once or twice every 10 years • Remote possibility of incident occurring	**D**	**2**
Rare	• The event may occur only in exceptional circumstances • Remotely possible/occurs in exceptional circumstances only • May occur only in exceptional circumstances • No known incidents after several years of exposure however it is possible an incident could occur	**E**	**1**

5.6 Emergency Procedures and Incident Reporting

5.6.1 Environmental Emergency Procedures

Hydrocarbon Spills

1. When spill is identified:
    - Isolate the spill area
    - Identify the spilt substance
    - Identify hazards and PPE Requirements
    - If safe to do so, the source of the spill should be restricted or stopped
    - If suitable equipment is readily available and can be operated in a safe manner, the extent of the spill is to be contained
    - Complete incident report
    - The Exploration Manager is to be advised;
    - The General Manager is to be immediately advised in those cases where the spill has resulted in injury or has the potential to be a safety issue.

2. Restrict the Extent of the Contamination
    - If possible restrict the source of the spill

- If the spill is occurring outside a containment bund, use earthmoving equipment to construct additional earthen bunds to contain the extent of the flow

3. Collect Spilled Hazardous Substances
    - Pump the hazardous substances from the source tank and/or the containment area into a second container
    - Use absorbent materials to soak up residual hazardous substances.
    - Use earthmoving equipment to excavate contaminated soil from earthen bunded areas for disposal as directed by the Environmental Department.
    - Hazardous Substances contained in concrete bunds are to be drained/pumped into approved containers for disposal or recycling.
    - Absorbent spill materials are to be collected and disposed of at a disposal area off -site.

Spills less than 20L can be cleaned up in situ; an Incident Report must be filled out with all relevant information regarding the clean-up details; amount of soil cleaned up and where it was disposed of, and submitted to the Exploration Manager.

A spill greater than 20L is a loss of containment: where contamination of soil, land or water occurs. The spill area is required to be excavated and contaminated material taken to an identified bioremediation area for treatment.

Spills of solid hazardous substances are to be immediately collected using spades / brooms.

Disposal of contaminated material must be in the appropriate manner as described in the MSDS or hazardous substances register. Remediate any residual contaminated area in the appropriate manner as described in the MSDS or hazardous substance register.

Bushfire

Exploration vehicles will carry appropriate fire-fighting equipment, including fire extinguishers, backpack-mounted water containers fitted with spray nozzles,

Should a fire start in close proximity to a work area and there are facilities on hand to put it out and it is safe to do so, an attempt will be made to control the fire as quickly as possible with available firefighting equipment.

In the event that a fire cannot be controlled by the personnel on site, the company's emergency procedures will be followed. This procedure includes:

- evacuation of personnel from vicinity and path of the fire
- notification of external emergency services
- all other on-site personnel alerted and on standby
- water trucks and/or earthmoving equipment on standby if available
- notification of landholders as applicable

Uncontained Groundwater

Any groundwater brought to the surface during drilling operations is typically contained in sumps dug adjacent to the drilling rig. Excessive groundwater may potentially overflow the sump, resulting in possible contamination of surface soils by saline groundwater. In the event that such waters are likely to become uncontained, drilling operations will be temporarily suspended until the situation is rectified, by either:

- Diverting excess water into another containment sump, or
- Concluding the operation at the affected drill site until the water level of the containment sump is sufficiently reduced or additional sumps have been created

5.6.2 Management of Environmental Incidents and Identified Hazards

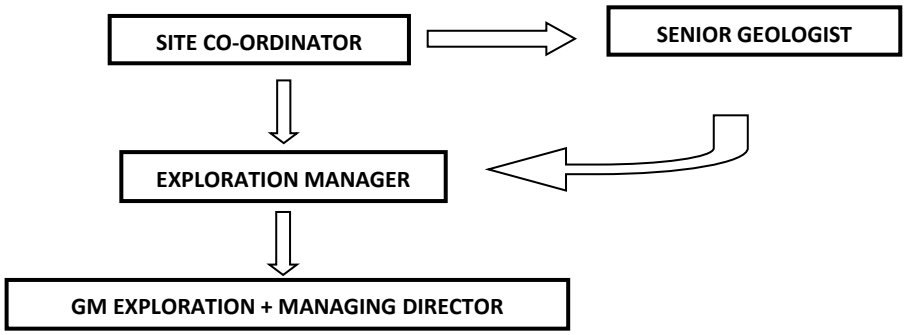
Environmental hazards Identified to date at the Tanami exploration project comprise:

- Hydrocarbon spills
- Bushfires
- Uncontained saline groundwater from drilling operations

All environmental incidents will be recorded and managed via the company's incident management process, outlined in the flow-sheet presented in Figure 3.

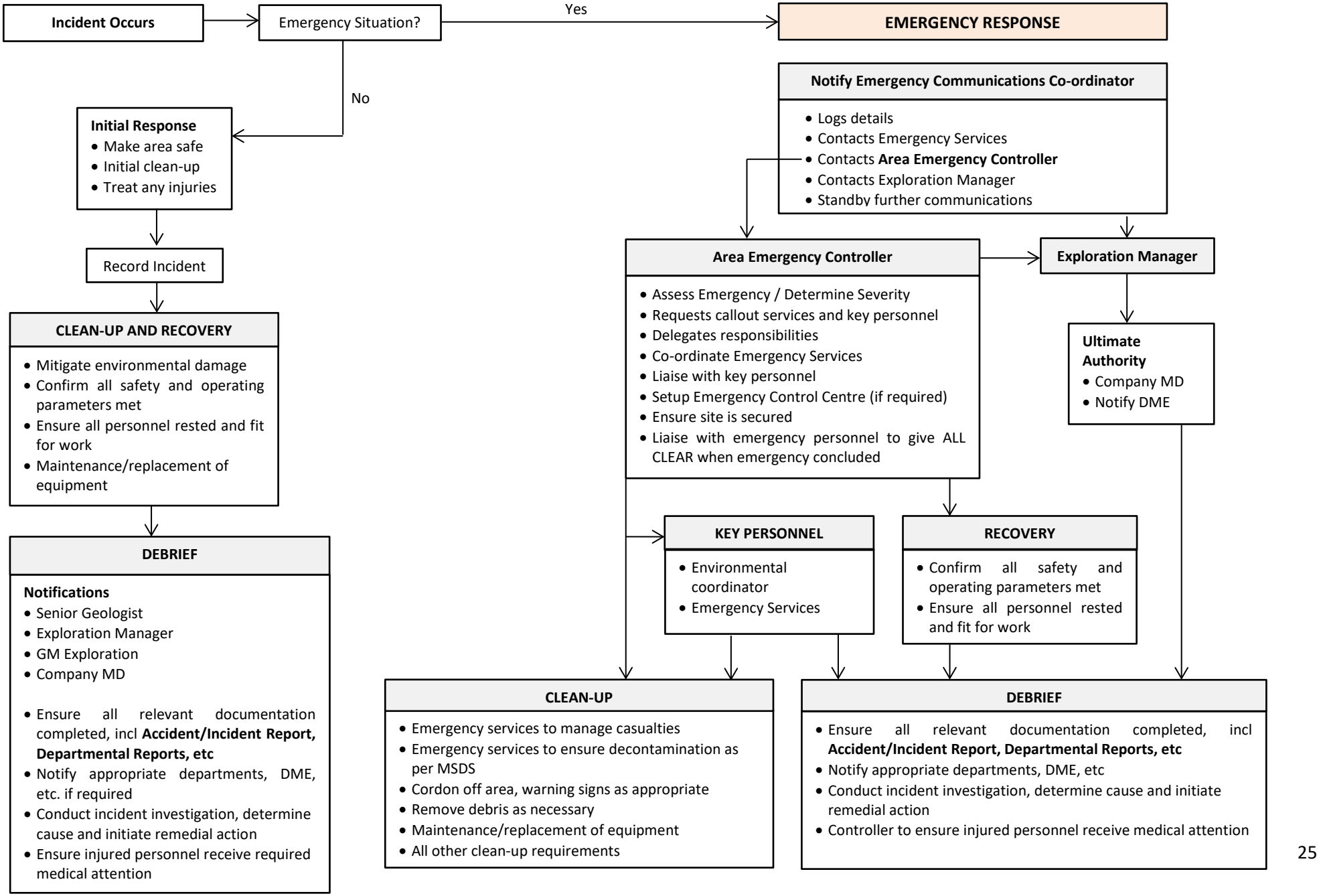
5.6.3 Incident Reporting Procedure

The company's internal incident reporting procedure is carried out by a standard incident report form, included within Appendix 5. The notification flowchart is outlined below:



All environmental incidents will be recorded in a site register and reported to the Chief Executive Officer of the Department of Primary Industry and Resources, pursuant to *Section 29 of the Mining Management Act (July 2012)*, as soon as is practical after the incident has occurred. Initial notice will be given by telephone, and followed up with written notice as soon as practical (see Appendix 5D as the DPIR Notification of an Environmental Incident).

FIGURE 3: INCIDENT MANAGEMENT PROCESS



5.7 Environmental Audits, Inspections and Monitoring

An environmental Audit and Inspection on the project was undertaken by the Senior on-site geologist during March 2017. The rehabilitation report is included as Appendix 4. Subsequent audits and inspections are planned on an annual basis, typically towards the end of each field season.

Audit of disturbed areas: The environmental audit comprised an inspection of selected disturbed areas. At each site, disturbance was recorded, and a rehabilitation checklist is completed (Appendix 4A – Rehabilitation Checklist). The checklist documents any additional measures that may be required and the objectives for their implementation.

Ongoing Monitoring: For future audits, a selection of previously disturbed areas will also be reviewed as part of the audit and inspection process, and post-closure monitoring will be included as part of the rehabilitation checklist.

A complete rehabilitation register of disturbed areas is presented in Appendix 4B. A photographic record of all rehabilitation to disturbed areas is maintained. Images of specific drill sites are located in Appendix 4C.

An inspection was conducted by DPIR mining officers in August 2016. The outcomes of the inspection were:

- An inspection of the Project camp area identified several items of debris and refuse remained in the area, including demountable footings, tyres, buried 205L drums and an intermediate bulk container. Additionally, an elevated fuel tank was observed. This tank appeared to contain fuel or other liquid.
- Mining Officers noted a number of high erosion risk areas along the Project's access road (Escondida Track).

Regarding the project camp area, all of the remaining infrastructure was left behind by previous explorers and is not the property of the current operator. Ramelius Resources will liaise further with the DPIR to determine liability regarding the campsite.

Regarding the project access track (Escondida Track), an initial inspection was made of the high-risk erosion areas created as a result of recent upgrades. No significant erosion was observed, although a more detailed assessment of the erosion-risk areas will be made during 2018, and high risk areas will be rectified. The company will ensure any future track clearing is conducted using the 'blade-up' approach, avoiding the formation of windrows that can channel surface water flow resulting in gully erosion.

5.8 Environmental Performance Reporting

5.8.1 Objectives and Targets

The current measurable objectives relevant to the specific environmental aspects and impacts for the **Highland Rocks Project** include:

- Completion of rehabilitation of remaining drill sites and access tracks
- Ongoing monitoring of rehabilitation activities pertaining to 2016 drilling programmes. The initial rehabilitation phase (2017) has completed rehabilitation of 2016 vacuum drilling. This rehabilitation will be monitored during the 2018 field season.
- A measurable basis for the rehabilitation works includes a comprehensive photographic record of rehabilitated areas. A selection of the photographic record is repeated on an annual basis and presented with the rehabilitation register in the MMP.
- Specific objectives pertaining to the rehabilitated sites include:
    1. Healthy re-establishment of natural vegetation on reclaimed areas
    2. No observed soil erosion as a result of exploration activities
    3. No spread of weeds from outside or within the project

5.8.2 Performance Reporting

The company has made progress with regard to rehabilitation of disturbed areas associated with drilling operations on ELs 27511 and 29829.

The findings of the March 2017 environmental audit are summarised:

1. For the 61 vacuum drill-sites, rehabilitation is now complete. All drill-holes were suitably plugged on all sites. Sites are well vegetated, with no observable erosion or weed spread.
2. Access tracks are still being used and will require rehabilitation. No erosion or weed spread was observed.
3. Air-core drill sites from 2016 are yet to be rehabilitated – this work is planned for the 2018 field season.
4. Camp 01, used in 2016, prior to the last wet season has not been physically rehabilitated (ripped), although shows substantial regrowth of vegetation and the company is satisfied with progress to date. The site will be reviewed again during 2018 to assess whether ripping of the soil profile is required.

6. EXPLORATION REHABILITATION

Disturbance	Rehabilitation Activities	Schedule (Timing)	Closure Objectives / Targets	Monitoring and Remediation
Access tracks	Ripping of tracks if necessary (e.g. compacted or deeply rutted tracks, or topsoil significantly disturbed) Back-grade any windrows Remove obstructions from creek beds	At the completion of exploration programmes and when the access is no longer required, and prior to relinquishment of the exploration license, unless requested otherwise by the landholder	Disturbed areas rehabilitated and stable Reduce erosion rates to pre-existing levels	Ongoing monitoring and management to mitigate erosion and ensure recovery
Drill Pads	For vacuum holes, sample material to be raked/dispersed with topsoil For air-core holes, sample material to be returned downhole or buried. Any soils contaminated with hydrocarbons or drill fluids to be removed from site and disposed of at an approved facility	As soon as reasonably practical after completion of drilling programme and access is no longer required. 2017 field season	Disturbed areas rehabilitated and stable Reduce erosion rates to pre-existing levels	Ongoing monitoring and management to mitigate erosion and ensure recovery Inspection of sites at the end of the field season or within 6 months
Drill holes	plugging below ground level, backfilling and mounding	Completion of each hole	All holes plugged and stable prior to end of program Samples of drill spoil should be returned down the hole if acidic, radioactive or a substantially different colour to the surface soil	Inspection of holes at the end of the field season or within 6 months to ensure no hole failures. Remediation undertaken during inspection if necessary
Sumps	Sumps to be backfilled to original ground level Topsoil and vegetation to be dispersed at the surface	As soon as reasonably practical after completion of drilling programme and use of the sump is no longer required. Prior to onset of next field season	Disturbed areas rehabilitated and stable Reduce erosion rates to pre-existing levels	Ongoing monitoring and management to mitigate erosion and ensure recovery Inspection of sites at the end of the field season or within 6 months
Costeans	Costeans to be backfilled as fully as possible with stockpiled subsoil and rock Return stockpiled topsoil and any cleared vegetation to site Sides to be battered and re-contoured On sloping ground, drainage structures may need to be established to control erosion	As soon as reasonably practical after completion of mapping/sampling programme and use of the costean is no longer required. Prior to onset of next field season	Disturbed areas rehabilitated and stable Reduce erosion rates to pre-existing levels	Ongoing monitoring and management to mitigate erosion and ensure recovery Inspection of sites at the end of the field season or within 6 months

Bulk Sample Pits	Pits to be backfilled as fully as possible with stockpiled subsoil and rock Return stockpiled topsoil and any cleared vegetation to site Sides to be battered and re-contoured On sloping ground, drainage structures may need to be established to control erosion	As soon as reasonably practical after completion of sampling programme and use of the pit is no longer required. Prior to onset of next field season	Disturbed areas rehabilitated and stable Reduce erosion rates to pre-existing levels	Ongoing monitoring and management to mitigate erosion and ensure recovery Inspection of sites at the end of the field season or within 6 months
Sample Bags	Plastic bags will not be used for the drilling operations. All calico bags containing analytical samples to be removed from site at completion of the drilling	At completion of the drilling programme	Drill sites are free from any rubbish or sample bags	None
Camp	Ripping of areas where necessary (e.g. compacted or deeply rutted tracks, or topsoil significantly disturbed) Removal of all rubbish and structures from site Remove or remediate any soil contaminated by fuel or chemical spills Filling of any sumps/drains/pits Return any stockpiled vegetation and topsoil over site	At the completion of exploration programmes and when the area is no longer required, and prior to relinquishment of the exploration license, unless requested otherwise by the landholder	Disturbed areas rehabilitated and stable, and free from any rubbish or structures Reduce erosion rates to pre-existing levels	Ongoing monitoring and management to mitigate erosion and ensure recovery

Note: the "Field season" is defined by seasonal weather and access restrictions and typically extends from March to November

Before and After photographs of selected disturbed areas will be collected and submitted with future Mine Management Plans, to demonstrate that rehabilitation activities have been carried out. Rehabilitation of the drilling activities will be undertaken prior to the end of the 2018 field season, and photographs will be submitted with the next Mine Management Plan