

Appendix 5:
Closure Plan



uKhozi (Pty) Ltd
ENVIRONMENTALISTS

**ANNUAL AND FINAL REHABILITATION PLAN SUBMITTED AS
PART OF THE ENVIRONMENTAL AUTHORISATION APPLICATION
FOR THE PROSPECTING RIGHT APPLICATION**

AS REQUIRED IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT,
1998 (ACT NO. 107 OF 1998) REGULATIONS PERTAINING TO THE FINANCIAL PROVISION
FOR PROSPECTING, EXPLORATION, MINING OR PRODUCTION OPERATIONS (GNR 1147
OF NOV 2015).

NAME OF APPLICANT: Menar Capital (Pty) Ltd
REFERENCE NUMBER: NC 30/5/1/1/2/12769 PR

COMPILED BY: UKHOZI ENVIRONMENTALISTS (PTY) LTD
ADDRESS: PO BOX 72684, LYNWOOD RIDGE, 0040
TEL: 082 521 8870
FAX: 086 767 8072
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Preface

This report has been compiled by uKhozi Environmentalists, based on the guidelines provided by the National Environmental Management Act, 1998 (Act no 107 of 1998), Environmental Impact Assessment Regulations, 2014 and Financial Provision Regulations, 2015. Full acknowledgement is made for use of these regulations in compiling this report. This document includes uKhozi's own interpretation of the requirements of the regulations, the guidelines and the integration with other statutory and best practice criteria. This report is submitted in support of the Environmental Authorisation application for the proposed prospecting operation by Menar Capital (Pty) Ltd.

Contact details:

uKhozi Environmentalists (Pty) Ltd. t/a "uKhozi" Registration No. 2004/013846/07

Practitioners

Contact Person for this project: Tommy Olivier

Alternative contact persons: Inus de Wit

Tell: +27 (0) 82 521 8870

Fax: +27 (0) 86 767 8072

PO Box 72684, Lynwood Ridge, 0040

tommy@ukhozi-enviro.co.za

inus@ukhozi-enviro.co.za

Disclaimer

The opinions expressed in this Report have been based on the information supplied to uKhozi Environmentalists (Pty) Ltd by Menar Capital (Pty) Ltd. uKhozi has exercised all due care in reviewing the supplied information. Whilst uKhozi has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. uKhozi does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of investigation, and those reasonably foreseeable.

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Introduction

Menar Capital (Pty) Ltd (Menar), is a private investment company with an actively managed and growing portfolio of mining assets with current operations in Mpumalanga, KwaZulu Natal and Gauteng. Menar submitted a Prospecting Right Application to the Department of Mineral Resources and Energy (DMRE) to prospect for iron ore and manganese on various Portions of the Farms Gnoolooma 416, Melton 420, Diepwater 361, La, Rochelle 359 and Plumstead 418, located 41km North West of Kathu within the Tsantsabane and Joe Morolong Local Municipalities, of the Northern Cape Province.

The proposed prospecting activities will aim to establish the extent and the quality of the iron and manganese ore body through non-invasive (desktop study) and invasive (core drilling) methods.

The project requires a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act 28 of 2002) and Environmental Authorisation (EA) for triggering activities that fall under the Listing Notices of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), as amended, from the Department of Mineral Resources and Energy (DMRE), Northern Cape Province. An integrated application for a Prospecting Right and associated Environmental Authorisation will be followed with the DMRE Northern Cape identified as the Competent Authority.

As stipulated in Regulation 19(3) of the EIA Regulations where the application for an environmental authorisation is for prospecting, exploration, or extraction of a mineral or petroleum resource, including primary processing, or activities directly related thereto, the basic assessment report must address the requirements as determined in the regulations, pertaining to the financial provision for the rehabilitation, closure and post closure of prospecting, exploration, mining or production operations, made in terms of the Act.

This report has been compiled by uKhozi Environmentalists (Pty) Ltd according to Appendix 3 and Appendix 4 of the National Environmental Management Act, 1998 (Act No. 107 Of 1998) *Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations* (Nov 2015).

FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

The final rehabilitation, decommissioning and mine closure plan will form a component of the environmental management programme to be submitted in terms of section 24N of the Act and the Environmental Impact Assessment Regulations, 2014 and will be subjected to the same requirements of the environmental management programme with regards opportunities for stakeholder review and comment as well as auditing.

1 Objective

The objectives of the final rehabilitation, decommissioning and closure plan, as they are stated in Appendix 4 of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations is to identify a post-mining land use that is feasible through—

- providing the vision, objectives, targets and criteria for final rehabilitation, decommissioning and closure of the project.
- outlining the design principles for closure.
- explaining the risk assessment approach and outcomes and link closure activities to risk rehabilitation.
- detailing the closure actions that clearly indicate the measures that will be taken to mitigate and/or manage identified risks and describes the nature of residual risks that will need to be monitored and managed post closure.
- committing to a schedule, budget, roles and responsibilities for final rehabilitation, decommissioning and closure of each relevant activity or item of infrastructure.
- identifying knowledge gaps and how these will be addressed and filled.
- detailing the full closure costs for the life of project at increasing levels of accuracy as the project develops and approaches closure in line with the final land use proposed; and
- outlining monitoring, auditing and reporting requirements.

2 Content

The final rehabilitation, decommissioning and closure plan must be measurable and auditable, must take into consideration the proposed post-mining end use of the affected area and must contain information that is necessary for the definition of the closure vision, objectives and design and relinquishment criteria, indicating what infrastructure and activities will ultimately be decommissioned, closed, removed and remediated and the risk drivers determining actions, indicating how the closure actions will be implemented to achieve closure relinquishment criteria and indicating monitoring, auditing and reporting requirements.

3 Project Team

The Applicant appointed uKhozi Environmentalists (Pty) Ltd as an independent environmental consultant, to facilitate the Environmental Authorisation process. The reports were compiled by Thomas Olivier and reviewed by Inus de Wit. The contact details, qualifications and professional affiliations of the Environmental Assessment Practitioners are presented in the Table below.

Table 1: Contact details of EAP

Name	Role	Qualifications	Professional Affiliations	Years Experience	Contact details
Thomas Olivier	Project Manager	Bachelor of Science (BSc) Degree in Ecology BSc Honours degree in Environmental Management and Analysis	EAPASA Registered EAP (Number: 2020/2020/1162)	11	Email: tommy@ukhozi-enviri.co.za Tel: 082 521 8870
Inus de Wit	Alternate project manager	Bachelor of Science (BSc) Degree in Ecology BSc Honours degree in Environmental Management and Analysis Master of Science (MSc) Degree in Water Management	EAPASA Registered EAP (Number: 2019/417)	9	Email: inus@ukhozi-enviro.co.za Tel: 082 451 1615

4 Project and Environmental Context

4.1 Project Context

The prospecting right application has been submitted to prospect for iron ore and manganese over Portions 1, 2, 3, 4 and the Remaining Extent (RE) of the Farm Gnoolooma 416, Portions 1 & the RE of the Farm Plumstead 418, Portions 1 & the RE of the Farm Melton 420, Portions 1 & the RE of the Farm Diepwater 361 and the RE of the Farm La Rochelle 359, situated in the Tsantsabane and Joe Morolong Local Municipalities, Northern Cape Province.

The proposed prospecting activities will aim to establish the extent and the quality of the iron and manganese ore body through non-invasive (desktop study) and invasive (core drilling) methods. Core drilling will be targeted for areas identified through the non-invasive techniques described below for reserve determination and mine planning. A map indicating the location of the boreholes on a grid of 500m intervals is provided in Figure 1 below. A maximum of 405 holes will be drilled with no more than 2 holes being actively drilled at any given time. The exact location and number of boreholes drilled will be determined by the results of geophysical and geological work carried out in Phase 1 of the prospecting programme. The prospecting activities are expected to be undertaken over a period of 3 years with the potential for renewal depending on results and studies undertaken.

The proposed activities on site will be approached in phases, and will include:

Phase 1: Non-invasive prospecting

Non-invasive prospecting activities will consist of:

- Desktop studies
- Spatial Database Compilation
- Land Survey
- Remote sensing
- Geophysical survey

Data will be extracted and plotted into geological maps identifying areas for invasive prospecting resource determination.

Phase 2: Invasive prospecting

Invasive prospecting activities will consist of:

- Establishment of drill site and temporary contractors' yard
- Core drilling.
- Rehabilitation of boreholes
- Drill rig, machinery, and vehicle movement.
- Water Management.
- Ablution Facilities.
- Domestic Waste Management
- Storage and Handling of Dangerous goods

Phase 3: Analytical assessment of prospecting data

Data will be assessed in a pre-feasibility study to determine resource estimates to commence with prefeasibility and feasibility assessments for mine planning and Mining Right Application processes.

In terms of NEMA and its EIA Regulations the abovementioned activities trigger listed activities in terms of GNR 327 (see Table 2 below) and is thus subject to a Basic Assessment ("BA") and EMP. The NEMA Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operation (GNR 114) requires that a final rehabilitation, decommissioning and mine closure plan is developed which includes the determination of financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of mining.

Table 2: Applicable listed activities

Listing notice	Activity No	Description of activity
GN. R 327 (Listing Notice 1)	20	<i>Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures, and earthworks, directly related to prospecting; or [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)]</i>

GN. R 327 (Listing Notice 1)	27	<i>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i>
GN. R 324 (Listing Notice 3)	12	<i>The clearance of an area of 300 square meters or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i>

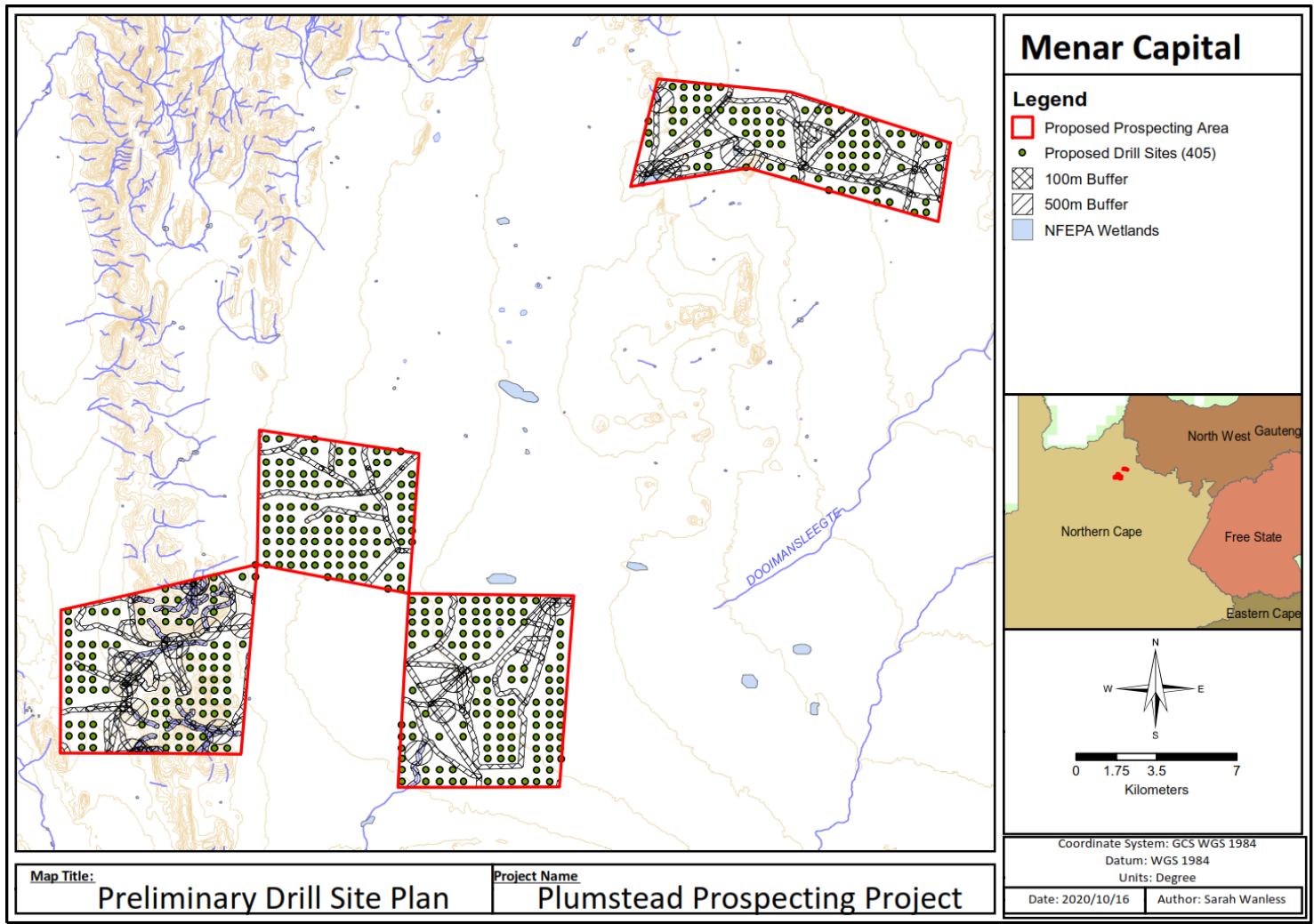


Figure 1: Preliminary Drill Site Plan

4.1.1 Prospecting plan and schedule for the full approved operations

The proposed prospecting plan and schedule is summarised in Table 3 below.

Table 3: Prospecting Schedule

Phase	Activity (what are the activities that are planned to achieve optimal prospecting)	Skill(s) required (refers to the competent personnel that will be employed to achieve the required results)	Timeframe (in months for the activity)	Outcome (What is the expected deliverable, e.g. Geological report, analytical results, feasibility study, etc.)	Timeframe for outcome (deadline for the expected outcome to be delivered)	What technical expert will sign off on the outcome? (e.g. geologist, mining engineer, surveyor, economist, etc)
1	Non-Invasive Prospecting – Geophysical Survey, Field surveys, Literature Studies, Obtaining historical borehole and trenching data and resource information	Geologist Geophysicist	12 months	Geological Maps, Plans, Report and Drilling plan if required.	Month 12	Geologist
2	Invasive Prospecting - Infill Drilling and Lab Analysis of cores/samples.	Geologist Labourers Laboratory Staff	12 months	Borehole Data Detailed resource information including average grades, volumes, locality of Reefs, Lithology.	Month 24	Geologist
3	Non-Invasive Prospecting – Analytical Desktop and Feasibility Studies	Mineral Economist Geologist	12 months	Pre-feasibility studies, resource statements, Competent Persons Report.	Month 36	Geologist (Competent Person)

4.2 Environmental Context

The prospecting area is 18 472.27 ha in extent and located 41km North West of Kathu in the Northern Cape Province. The directly affected farms the Remaining Extent (RE), Portion 1, 2, 3 and 4 of the Farm Gnoolooma 416, RE and Portion 1 of the Farm Melton 420, RE and Portion 1 of the Farm Diepwater 361, RE of the Farm La Rochelle 359 and RE and Portion 1 of the Farm Plumstead 418.

The application area falls over privately owned land used for animal breeding and feeding. The major land cover of the study area as classified by the SANBI is natural land and it is located in the savanna biome. It is situated in the Molopo catchment which is classified as endoreic i.e., catchments with large areas which do not contribute to runoff as the watercourses drain to inland pans. During the rainy season depression wetlands form in and around the application area. The study area itself can clearly be defined as a region with only periodic water flow. The major river within the applicable quaternary catchment (D41K) is the Ga-Mogara River which flows approximately 3.8 km to the east of the Northern Part of the application area. Two tributaries of the Ga-mogara river, the Dooiemansholte and GAA river, flows between 6 and 13km from the Southern Part of the application area. Graves and informal cemeteries can be expected anywhere in the landscape. Ancestral graves on the southwestern part of the RE of the Farm La Rochelle 359 and Gnoolooma 416 Portion 4 close to the current farmstead were pointed out by the landowners. Sensitive features found within the application area include depression wetlands, Ecological Support Areas, and heritage resources (grave sites and old buildings). Refer to Section 12 of the BAR for a more detailed description of the baseline environment.

4.3 Stakeholder Issues and Comments

The comments that were raised by Interested and Affected Parties (IAPs), that relate to, or influence closure are documented in Table 4. The comments in Table 4 relate to risks that might exist at closure as well as the requirements to implement remedial measures. The risks raised are considered in the risk assessment (Section 5) and the purpose of the closure plan is to comply with legislation.

Table 4: Stakeholder issues and comments

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant
AFFECTED PARTIES			
Landowners			
A Bergh	2021/05/19	(1) If water is found during prospecting the casing must be left in the borehole so the landowner can use it as an abstraction borehole in the future.	(1) Noted. Access agreements will be arranged before prospecting activities commence on site. This can be included in the land use agreements which will be arranged between Menar and the landowner before prospecting activities commence on site.
J van der Walt	2021/05/19	(1) There is a grave site on south western part of the RE of the Farm La Rochelle 359 which must not be disturbed by prospecting activities. (2) Damage to farm roads caused by the movement of the drill rig and other machinery.	(1) Noted. No drilling will take place inside the preclusion zones to be set around the identified heritage sites. (2) Drilling sites, access routes and camp sites are to be finalised in conjunction with the landowner / user and an agreement reached before prospecting activities commence on site.
K van Zyl	2021/05/20	(1) Potential injuries/loss of livestock and game caused by accidents, unrehabilitated drill sites and gates being left open. (2) Mining companies usually do not rehabilitate the areas properly.	(1) The BAR/EMPr will outline mitigation/management measures to prevent this impact from occurring but it will be the responsibility of the drilling team/contractor to implement these measures. It is recommended that this issue is addressed in the land use agreements which will be arranged between Menar and the landowner before prospecting activities commence on site.

			(2) Appendix 5 of the draft BAR contains a closure plan outlining how the drill sites must be rehabilitated.
M Terblanche	2021/05/25	<ul style="list-style-type: none"> • Archaeology: Potential disturbance of ancestral graves sites, old buildings and houses which have sentimental value. • Land use and planning: The land is exclusively used and purposed for animal breeding and feeding. • Soil would be damaged by heavy vehicles operating in the application area. • Visual: Mining sites are visually bad on the eye. Even when the site is rehabilitated, the environment is visually changed forever. 	This application focusses on the prospecting activities only and therefor the potential impacts of mining cannot be addressed at this stage. The potential impacts posed by the proposed prospecting operation is assessed in the BAR & EMPr and mitigation/management measures provided to prevent, reduce, or contain the impacts where they are unavoidable. Please refer to Section 14 of the draft BAR for the impact assessment and Part B: Section 5 for the EMPr.
B Kampfer	2021/08/03	<ol style="list-style-type: none"> (1) We live in a semi-arid area; vegetation takes long to grow and will take long to recover when disturbed. How much sensitive grass and scrub species will be destroyed by drilling equipment? Fuel and oil spills from drill rigs will kill vegetation and contaminate the soil. The deep spores created by the vehicles will cause erosion resulting in topsoil being washed away. (2) Safety and security. Concerned about farm attacks and stock theft. What influence will the prospecting employees have on the farm workers. After prospecting is done the farmer stays behind with the problems. (3) The farmers are conservation conscious and have grown the farming practices in the area which will be destroyed by prospecting (not even to talk about mining). 	<ol style="list-style-type: none"> 1. The existing roads will be utilised as far as possible. Where it is necessary to go off road, the prospecting routes will be surveyed to identify sensitive plant species which must be avoided. The exact location of the boreholes will be determined during Phase 1 of the prospecting operation in consultation with the landowner. Once the locations have been determined a route plan outlining how the drilling team will reach the sites will be drawn up. The machinery will be equipped with drip trays. Spill kits will also be available on site to clean any oil or diesel spills. Any tracks/erosion gullies formed by the drilling equipment will be remediated before the team move on to the next borehole. Refer to Appendix 6: Closure Plan for a detailed description regarding the rehabilitation of boreholes and access routes.

			<p>2. No employees will be allowed to remain on the property after working hours without the landowner’s consent. The drilling contractor is responsible to control and monitor the whereabouts of all the employees during the day. The drilling contractor will introduce himself to the landowner before drilling commences and any incidence must be reported to him.</p> <p>3. This application focusses on the prospecting activities only and therefore the potential impacts of mining cannot be addressed at this stage. The proposed prospecting activities is not anticipated to result in a change in character of the site and due to the limited footprint of invasive prospecting activities the current land use (grazing by livestock and game) can continue concurrently. Should the prospecting right be granted than prospecting would be done under an approved EMPr (Part B) and Prospecting Work Programme to ensure minimum damage to the environment.</p>
Adjacent Landowners, other IAPs and Farmer Associations			
Agri Kuruman (Env. Comm.) - Eben Anthonissen	2021/08/11	How will the rehabilitation work and how will it be ensured that proper rehabilitation takes place?	Refer to Appendix 5 of the BAR describing the closure plan.
		Due to the number of uncertainties, the Applicant needs to take-out third-party insurance policy because it is not only the landowners but also everyone using the access road who are the directly affected parties by means of dust, safety, and noise impacts	The drilling contractor is responsible to take-out third-party insurance.

JJ du Bruyn	2021/08/18	The water table must be measured on all the farms (this include the surrounding farms where drilling are going to take place) BEFORE drilling commences. It must again be measured AFTER drilling is completed. Any deviation must be financially compensated for.	<p>The following has been included as a condition of authorisation:</p> <ul style="list-style-type: none"> - A baseline groundwater study/hydrocensus must be done during Phase 1 of the prospecting operation to establish the baseline groundwater conditions against which the potential impacts can be monitored. <p>Financial compensation, if prospecting results in the depletion of surrounding abstraction boreholes, can be included in the access agreements.</p>
		We already spend a lot of time and money to just get our current roads driveable. In a lot of instances, each farmer still maintains the road passing his/her farm with our own equipment and funds. The current roads will not be able to handle an additional influx of vehicles and trucks. A plan to daily maintain the roads wrt surface and dust must be submitted.	A plan to maintain the roads can form part of the access agreement. If infrastructure were damaged by the drill team the Applicant must repair the damages (i.e., grade farm roads that have been damaged due to use by prospecting team). Any access road or portions thereof, constructed by the Applicant and which will no longer be required by the landowner, shall be rehabilitated as described in Appendix 5: Closure Plan. Finalization will only be agreed on with both project manager and landowner signatures agreeing that this has in fact been achieved. Rehabilitation of the area will start as soon as the drill team has finished on the site.
Competent Authorities			
No comments received to date regarding closure.			
Commenting Authorities			
No comments received to date regarding closure.			

5 Environmental Risk Assessment

Section 14 of the BAR provides a detailed description of the environmental impact/risk identification and assessment (including the methodology and findings) undertaken for the proposed prospecting operation. This risk assessment focusses on the potential risks which relate to final rehabilitation, decommissioning and closure of the prospecting operation.

5.1 Methodology

During the risk assessment, the residual risks associated with the project were identified and a determination was taken to assess the nature of the risk. The nature of the risk was assessed to fall into one of the following categories:

- Health and Safety
- Environment
- Financial, legal and regulatory obligations
- Reputational, Social or Community

This risk assessment assesses each identified environmental impact by considering the consequence (comprising Nature, Extent, Duration, Severity) and relate this to the probability of the impact occurring. The stepped approach is described below.

- (1) The environmental impacts and risks which relate to final rehabilitation, decommissioning and closure of the prospecting operation are identified.
- (2) Assess the consequence of the impact by providing a numerical score for each of the following factors using the ranking scales in Table 6: Variables with each category score:
 - Extent.
 - Duration.
 - Severity.

The consequence is determined using the sum of the extent, duration, and severity variables. The maximum value of points (SP) is 20.

- (3) Assess the probability of the impact occurring using the rating scales in Table 6: Variables with each category score.
- (4) Once these factors are ranked for each impact, the Risk Level is calculated by using the formula below.

$$\text{Risk Level} = \text{Consequence (Extent + Duration + Severity)} \times \text{Probability}$$

- (5) The Risk Level is ranked for each impact using the ranking scales in Table 5 below.
- (6) Mitigation measures are identified, and the above approach is repeated to determine the risk level of each impact post-mitigation.

5.1.1 Risk Level

The maximum value is 100 points. The risk level could therefore be rated as either Very High (VH), High (H), Medium (M), Low (L), or Very Low (VL) on the following basis:

Table 5: Ranking scales

Level	Definitions	Likelihood
Very Low	It is very unlikely that the impact will occur, not conceivable; 0-9% chance of occurrence; and Circumstances almost never encountered.	1-19
Low	Impact not expected to occur, but conceivable; 10% to 30% chance of occurrence; and Circumstances rarely encountered.	20-39
Medium	Impact may occur sometimes; 31 – 60% chance of occurrence; Circumstances occasionally encountered.	40-59
High	Impact will probably occur; 61 – 90% chance of occurrence; Circumstances frequently encountered;	60-79
Very High	Impact will almost definitely occur; 91 -100% chance of occurrence;	80-100

Table 6: Variables with each category score

CONSEQUENCE		Extent (Magnitude) of the Impact	SP
	Site	Limited to parts of the application area.	1
	Project area	Limited to within the application area.	2
	Local	Extends beyond the application area on a local scale.	3
	Regional	Extends beyond application area on a regional scale.	4
	National	Widespread, far beyond the application area (regional or greater area)	5
		Duration of the Impact	
	Immediate	One to two days.	1
	Short term	One Week to one Month.	2
	Medium term	Two Months to one Year	3
	Long term	Two to five years. Ceases with operational life of project.	4
	Permanent	Impact occurs beyond lifespan of the project.	5
		Severity of the Impact	
	Minor	Non-harmful. Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are not affected.	2
	Low	Potentially harmful. Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are negligibly altered.	4
	Medium	Slightly harmful. Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are slightly altered.	6

	High	Significantly Harmful. Impacts affect the environmental in such a way that natural, cultural and/or social functions and processes are notably altered.	8
	Very High	Extremely harmful. Impacts affect the environmental in such a way that natural, cultural and/or social functions and processes are severely altered.	10
Probability	Probability		
	None	0% chance of the impact occurring.	0
	Improbable	The possibility of the impact materializing is very low. 1% to 9% chance of occurrence.	1
	Low Probability	Impact not expected to occur, but conceivable. 10% to 30% chance of occurrence; and Circumstances rarely encountered.	2
	Medium Probability	Impact may occur sometimes. 31 – 60% chance of occurrence. Circumstances occasionally encountered.	3
	High probability	Impact will probably occur. 61 – 90% chance of occurrence. Circumstances frequently encountered;	4
	Almost Certain	91 -100% chance of occurrence.	5

5.2 Outcome of Risk Assessment

Table 7 below shows the risks that were identified during and after closure. The table also identifies the sources and consequences of the risks along with the proposed closure strategies to decrease the risk level.

Table 7: Risk Assessment

Potential Risks during and after closure	Source of risk	Consequence	Risk Level before implementation of closure strategy					Closure strategies	Risk Level after implementation of closure strategy						
			Extent (E)	Duration (D)	Severity (S)	Consequence (C)	Probability (P)		Risk Level (CXP)	Extent (E)	Duration (D)	Severity (S)	Consequence (C)	Probability (P)	Risk Level (CXP)
Health and Safety															
Boreholes or excavations which are not properly backfilled may pose health and safety risks	Leaving excavated areas open	Injuries to animals and local community members accessing the site during post closure activities	1	5	8	(14)	3	Medium (42)	Rehabilitation must be on-going as soon as drilling results are completed.	1	4	8	(13)	2	Low (26)
Environmental															
Erosion and cracking of surface from areas of unconsolidated rehabilitation	Poor rehabilitation of disturbed areas	Loss of soil resource and increase sediment runoff	1	5	6	(12)	4	Medium (48)	Replaced soil should be vegetated as soon as possible, where required, to prevent erosion and establishment of weed species. Any erosion gullies must be remediated immediately.	1	5	6	(12)	2	Low (24)
Collapsing of boreholes after material is replaced.		Localised dips in topography	1	5	8	(14)	3	Medium (42)	Inspect and take immediate action to repair any dips by levelling and grading the disturbed area.	1	5	8	(14)	2	Low (28)
Contamination of soils	Dismantling of oil storage tanks, and oil drips from machinery.	Change in soil properties	1	5	6	(12)	3	Low (36)	During closure, contaminated soils with iron or manganese particulates and hydrocarbon will be removed and disposed according to regulatory requirements.	1	5	6	(12)	1	Very Low (12)
Alien plant infestation	Rehabilitation of boreholes and disturbed areas	Loss of indigenous species	1	5	6	(12)	4	Medium (48)	Remove alien and invasive species that may establish around prospecting sites. Clear all vehicles coming to site of any vegetative material.	1	5	6	(12)	2	Low (24)
Financial, legal, and regulatory obligations															
Delaying closure once prospecting activities are completed may allow for vandalism and interference of infrastructure.	Poor security on site	Loss of equipment which may lead to costlier remedial measures being implemented when closure actions are undertaken	1	5	4	(10)	3	Low (30)	Appropriate security measures will be retained to secure infrastructure until it can be removed from site.	1	5	4	(10)	1	Very Low (10)
Closure material balance not sufficient to implement closure actions	Poor storage of subsurface material	Loss of indigenous backfill material leading to environmental impacts remaining unmitigated.	1	5	6	(12)	3	Low (36)	Effective managing of the topsoil during operation by covering or reseeded the stockpiles.	1	5	6	(12)	1	Very Low (12)
Underestimating the closure quantum resulting in insufficient funds to mitigate impacts at closure.	Underestimating impacts	Poor rehabilitation of site resulting in legal obligations not being met.	1	5	8	(14)	3	Medium (42)	Menar will continually evaluate closure liability and will adjust estimates as more information becomes available relating to operational impacts requiring mitigation, residual and latent closure risks, closure actions and rates for the implementation of the closure actions.	1	5	6	(12)	2	Low (24)
Reputational, Social or Community															
Risk that labour expectations are not achieved if there are no livelihood replacement opportunities, leading to unrest of those who loose employment.	Closure of project	Loss of livelihood	2	5	4	(11)	3	Low (33)	Continual engagement with internal stakeholders will be undertaken to assist with the transition to the post closure period.	2	5	4	(11)	1	Very low (11)

6 Design Principles

6.1 Legal and other obligations

There are a number of legal and regulatory frameworks with which Menar must comply that could affect rehabilitation and closure. Important legislation and their implications for closure are listed in Table 8 below.

Table 8: Summary of Legislation and how it pertains to closure

Legislation	Implications for closure
<p>The Constitution In terms of Section 24 of the Constitution “Everyone has the right to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations.</p>	<p>Constitutional requirement to ensure that the plan includes measures that protect the rights of people to an environment that is not harmful to health or well-being post closure.</p>
<p>National Environmental Management Act Sections 28 (1) and (3) of NEMA set out the duty of care principle, which is applicable to all types of pollution and must be taken into account in considering any aspects of potential environmental degradation. Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.</p>	<p>The measures required in terms of subsection (1) may include measures to –</p> <ul style="list-style-type: none"> • Investigate, assess and evaluate the impact on the environment; • Inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed to avoid causing significant pollution or degradation of the environment; • Cease, modify or control any act, activity or process causing the pollution or degradation; • Contain or prevent the movement of pollutants or the causes of degradation; • Eliminate any source of the pollution or degradation; or • Remedy the effects of the pollution or degradation.
<p>Environmental Impact Assessment Regulations (2014) These regulations were developed for the preparation, evaluation, submission, processing, and consideration of, and decision on, applications for environmental authorisations.</p>	<p>Any amendments to the prospecting right will be required to consider closure during planning, and to include a closure plan and closure estimate to support an authorisation application.</p>

Legislation	Implications for closure
<p>National Environmental Management: Waste Act Part 8 of Chapter 4 of the Act indicates the requirement to identify the status and risk of contaminated sites and provides a legal mechanism for remediation activities to be instigated and controlled.</p>	<p>Contamination resulting from operational activities will require remediation, with the final soil quality meeting requirements as specified in the Acts Regulations.</p>
<p>Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations</p> <p>The purpose of these Regulations is to regulate the determine and making of financial provision as contemplated in the Act for the costs associated with the undertaking of management, rehabilitation and remediation of environmental impacts from prospecting, exploration, mining or production operations through the lifespan of such operations and latent or residual environmental impacts that may become known in the future.</p> <p>The Regulations also include detailed descriptions of the wording required in the documentation to support the provisioning for liability using Bank Guarantees and Trust Funds. Finally, the legislation also provides detailed on the information to be contained in the following plans:</p> <ul style="list-style-type: none"> • Annual rehabilitation plan; • Final rehabilitation, decommissioning and mine closure plan; • Environmental risk assessment report; • Care and maintenance plan. 	<p>This report has been compiled according to these regulations.</p>
<p>Mineral and Petroleum Resources and Development Act (Act 28 of 2002) The MPRDA makes provision for equitable access to and sustainable development of South Africa’s mineral resources. The MPRDA requires that the environmental management principles set out in NEMA shall apply to all mining operations.</p>	<p>Historically requirements relating to closure planning and provisioning were included in the MPRDA. These have now been replaced by those in the Financial Provision Regulations under NEMA.</p>
<p>National Water Act Section 19 of the NWA sets out the principles for “an owner of land, a person in control of land or a person who occupies or uses land” to:</p> <ul style="list-style-type: none"> • Cease, modify or control any act or process causing pollution; • Comply with any prescribed waste standard or management practice; • Contain or prevent the movement of pollutants; 	<p>This places the obligation to mitigate any aspects that cause or have caused pollution as well as to remediate any residual contaminated water at closure.</p>

Legislation	Implications for closure
<ul style="list-style-type: none"> • Eliminate any source of pollution; • Remedy the effects of the pollution; and • Remedy the effects of any disturbance to the bed and banks of a watercourse. <p>It also described the actions that can be taken by the catchment management agency to enforce the requirements of the NWA.</p>	
<p>Mine Health and Safety Act, 1996: The Act deals with the protection of the health and safety of persons in the mining industry but has some implications for environmental issues due to the need for environmental monitoring within mine operations and maintenance of mine residue deposits.</p>	<p>All closure activities will have to be undertaken in a safe manner where the Health and Safety of all workers involved in closure activities is protected.</p>

6.2 Interpretation of the legislation

Legislation, as described in Table 8, influencing closure is varied, however, a common thread, is that after mitigation, the impacts of the operation on the environment need to be mitigated and the solutions implemented are required to be sustainable within the existing constraints presented by the environment, with there in particular being no significant residual impacts. As described below, closure objectives were developed as part of the EMP to support the closure vision, these objectives were developed to assist with complying with the various requirements of the legislation.

7 Closure vision and objectives

The closure vision for the proposed project is to establish a safe, stable and non-polluting post-prospecting landscape that can facilitate integrated, self-sustaining and value generating opportunities, thereby leave a lasting positive legacy. This plan is aimed at achieving the following targets:

- Creating a safe, physically stable rehabilitated landscape that limits long term erosion potential and environmental degradation.
- Sustaining long term catchment yield and water quality.
- Focusing on establishing a functional post-prospecting landscape that enables self-sustaining veld suitable animal breeding and feeding practices.
- To encourage, where appropriate, the re-instatement of terrestrial biodiversity.

The specific closure objectives for each environmental aspect that must be met are presented in Table 9 below.

Table 9: Closure objectives per environmental aspect

Environmental aspect	Closure objective
Geology	All boreholes must be sealed and the disturbed area stabilised.
Topography	The final elevation of drilled areas must be free draining.
Soils	Topsoil must be replaced over the disturbed area to restore vegetation growth and limit the risk of erosion.
Land capability and use	The disturbed areas must return to self-sustaining veld suitable for animal breeding and feeding practices.
Vegetation	Prevent the establishment and spreading of alien plant species on the disturbed areas.
Animal life	A non-aggressive environment, suitable to the natural re-habitation of indigenous animal life.
Surface water and aquatic ecosystems	Ensure that the surface water leaving the site is of acceptable quality, and enable through landscaping, as much as possible of the storm water runoff to flow off the rehabilitated areas without undue delay, to minimise infiltration without causing unacceptable erosion.
Groundwater	Ensure no contamination of the local ground water systems.
Air quality	To have rehabilitated the disturbed areas such that dust levels return to pre-drilled state through adequate vegetative cover.
Noise	The noise levels must return to the pre-drilled situation, typically in the region of 40 dB for rural areas.
Visual	The rehabilitated areas must resemble the pre-drilled landscape and sense of place.

8 Alternatives

The post closure risks associated with prospecting is not complex and can be mitigated at closure therefor alternative options for closure are limited. There are only two options that have been considered as activity alternatives for the closure plan:

- (1) Preferred Alternative: Closure/ backfill of boreholes with overburden removed during drilling.
- (2) Alternative 1: Leave boreholes open, in-order to allow for groundwater recharge by surface run-off.

8.1 Preferred Alternative: Rehabilitation/ Backfill of boreholes

Rehabilitation is the restoration of a disturbed area that has been degraded as a result of activities such as mining, road construction or waste disposal, to a land use in conformity with the original land use before the activity started. This also includes aesthetical considerations, so that a disturbed area will not be visibly different to the natural environment. This also involves maintaining physical, chemical, and biological ecosystem processes in degraded environments, hence the preferred option of backfilling the boreholes with the overburden removed during development and cover with growth medium to establish vegetation. This option has the following advantages:

- The site will be aesthetically acceptable.
- The site will blend in with the environment.
- The site will go back to being a suitable habitat for fauna and flora.
- The site will be safe and pollution free.
- Revegetating the site will ensure that the site is non-erodible.

8.2 Alternative 1: Leave boreholes open

Opting for alternative 1, which is to leave boreholes without backfilling poses a risk in that, these boreholes may fill in with water, which may become attractive to wildlife and communities leading to injuries. To mitigate these risks, it is necessary to backfill.

Advantages

- Where water strikes are encountered the boreholes can be equipped as abstraction boreholes by the landowner if the necessary authorisations are obtained where required.

9 Closure assumptions

This closure plan has been developed based on limited available information including environmental data. Some of the information currently available may need to be supplemented during the operational period. Therefore, a number of assumptions were made about general conditions, and closure and rehabilitation of the proposed infrastructure to develop the proposed closure actions. As additional information is collected during operations, these assumptions will be reviewed and revised as appropriate. The assumptions used to prepare this plan include the following:

- The closure period will commence once the last planned weight of iron ore and/or

manganese has been extracted from the application area for laboratory testing.

- The proposed prospecting sites will be adhered to minimize the potential impacts.
- Vegetation establishment will be in line with a project area's indigenous vegetation.
- Water management infrastructure developed for the operational phase will be retained for closure /end of the life of the project, as necessary.
- All infrastructure established on site will be demolished and removed.
- All hazardous and domestic waste will be transported offsite for disposal in licensed landfills.
- No roads are anticipated to be constructed to access the sites; existing roads will be used as far as possible. Where access tracks have been developed in cases where there are no roads, these will be rehabilitated and closed as part of normal closure actions.

10 Proposed Final Land Use

The current land-use of the directly affected farms is grazing by livestock and game. The major land cover of the study area as classified by the SANBI is natural land. The current land use on these farms will not be disturbed during prospecting activities and these will continue to exist post closure.

11 Closure Actions

The rehabilitation actions intended to be undertaken at the end of the life of the proposed prospecting activities are described under the headings below. These actions are designed to comply with the objectives of this plan which are derived from NEMA GN 1147.

11.1 Boreholes

All prospecting boreholes that will not be required for later monitoring or other useful purposes should be plugged and sealed with cement to prevent possible cross flow and contamination between aquifers.

The casing pipes must be withdrawn from the hole. If this is not possible, then the casing must be cut off at least one meter below ground level. The borehole may if necessary, have a wooden or bentonite plug inserted to assist in the effectiveness of positioning the grouting. The primary objective is to install a plug in the hole at a predetermined depth. The plug is then utilised as the foundation of the seal to be established. The effectiveness of the seal is determined by the integrity of the immediate surrounding material it is positioned in. The following must be considered in the installation of a plug:

- During the drilling of the hole, depth of the weathering of the strata must be recorded.
- The seal must be installed at least five metres below the depth of the recorded weathered zone.
- The plug must effectively seal the hole to prevent any grout from leaking past the plug.
- The plug must be able to remain in position until consolidation of the grout has taken place.

The plug installed acts as the foundation of the seal to support the grout. The placement of the grout must satisfy the following requirements:

- The grout must be pumped down the borehole, preferably through the drilling rods from the bottom of the hole to 2 meters below collar.

- The grout must be placed to a minimum depth of 5 meters.
- Rapid drying cement must be used.

The overburden core obtained from drilling will be dumped in sumps for rehabilitation purposes and the final surface reshaped to simulate surrounding topography while ensuring that the surface is free draining. Once backfilling is complete a growth medium cover must be placed, and vegetation will be established. There may be a requirement to include sacrificial erosion protection measures on the surface while vegetation is being established.

11.2 Contractor's yard

On completion of operations, all buildings, structures, or objects on the contractor's yard shall be dealt with as follows:

- Where the sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- Photographs of the sites, before and during the prospecting operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the prospecting operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.

11.3 Roads and parking areas

Any access road or portions thereof, constructed by the Applicant and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated which will involve the following activities:

- Removal of all signage, gates, fencing, shade structures, traffic barriers and the situation restored to the pre-prospecting situation.
- Roads shall be ripped or ploughed, and if necessary, appropriately fertilised (based on a soil analysis) to ensure the regrowth of vegetation.
- All 'hard top' surfaces to be ripped along with any concrete structures.
- All potentially contaminated soils are to be identified and demarcated for later remediation; and
- All access roads that have been treated with saline dust suppression water need to be treated, with the upper surface ripped, and removed to designated contaminant disposal areas.

11.4 Remediation of contaminated areas

Contaminated soil will be regarded as waste if hydrocarbon spills occur and will be handled according to Regulation 16 and 26 of the National Environmental Management: Waste Act 59 of 2008. The potentially contaminated areas (i.e hydrocarbon storage areas, vehicle parking areas) will be dealt with as follows:

- All soil, contaminated with hydrocarbons, will be identified, excavated, if possible, to at least 200 mm below the contaminated zone and then treated.
- All tanks, pipes and sumps containing hydrocarbons will be flushed or emptied.
- Removed soils will be managed as determined by the nature and extent of the contamination.
- Liquid storage tanks will be emptied, the structure removed/demolished and sub-surface holes filled; and
- All equipment in which chemicals have been stored or transported will be cleaned and disposed of in a suitable disposal facility.

11.5 Vegetation

Successful revegetation will help control erosion of soil resources, maintain soil productivity and reduce sediment loading in streams utilizing non-invasive plants that fit the criteria of the habitat (e.g., soils, water availability, slope and other appropriate environmental factors). Invasive species will be avoided, and the area will be managed to control the spread of these species. To counter the effects of erosion, naturally occurring grassland species will be planted on slopes. These species will provide soil holding capacity and reduce runoff velocity. The flatter areas will be re-vegetated with the objective of creating a sustainable ecosystem. The occurrence of protected plant species will need to be determined before vegetation is removed and the required permits will be obtained for either destruction or relocation.

11.6 Waste Management

Waste material of any description, including receptacles, scrap, rubble, and tyres, will be removed entirely from the prospecting area and disposed of at a recognised landfill facility. Waste management activities will include:

- Hazardous waste will be managed as per the Minimum Requirements for Handling, Classification and Disposal of Hazardous Waste.
- Non-hazardous will be disposed in the nearby licensed landfill site.
- Scrap and waste steel will be sold to recyclers.
- It may be necessary to fence temporary salvage yards for security reasons, particularly where these are located close to public roads.

11.7 Schedule of Actions

Ongoing rehabilitation will be conducted during the invasive prospecting phase. Final rehabilitation shall be completed within a period specified by the Regional Manager.

11.8 Relinquishment Criteria

Following the implementation of the closure actions described above, it is necessary to have measurable criteria against which to assess the effectiveness of the plan and its implementation. These criteria will assist the Applicant in identifying when the standard of closure achieved is sufficient to relinquish responsibility for a specific area. The relinquishment criteria for the proposed prospecting operation are summarised below:

- Soil quality – Soil quality as assessed against the Norms and Standards to support Chapter 8 of NEMWA.
- Land productivity - Land capability and productivity similar to that which existed prior to prospecting.
- Safety/stability – The sites are safe for use by humans and animals.
- Vegetation – Establishment of vegetation communities that stabilises the soil and is not invasive to the region.
- Social: There must be no unattended complaints. Where possible written confirmation from the affected landowner must be solicited confirming that outstanding issues have been addressed and closed out.
- Waste: There must be no waste materials remaining on site.

12 Closure Cost Estimation

The liability for closure of the aspects associated with the prospecting activities has been determined using the approach advocated by the Department of Mineral Resources and Energy (DMRE) Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provisions (2005). This document has been used and applied to assess the environmental liabilities associated with closure, and to quantify the provision that is consequently required. Based on the requirements of the Guideline document for the evaluation of the quantum of closure-related financial provision provided by a Mine, revision January 2005, the level of information available is defined as "limited". As such the "Rules based" approach must be followed in the determination of the Quantum. The approach to calculating the financial provision as specified in the DMRE Guideline that was utilised in this assessment is summarised as follows:

Table 10: Rules Based Approach followed

Steps followed	Comment
Step 1: Determine the Mineral Mined/Prospected	In the first step, the applicable minerals have been identified in the tables provided in the DMR guideline (Table B. 12) as "Iron ore and manganese".
Step 2A: Determine Primary Risk Class	The "Primary Risk Class" has been determined from Table B.12 of the DMR Guideline as "C (Low Risk)" based on the minerals involved and small size of the proposed operation.
Step 2B: Revision of Primary Risk Class	The Primary Risk Class can be revised based on saleable by-products if required. However, this is not applicable for the proposed prospecting operation.
Step 3: Determine Environmental Sensitivity	The "Environmental Sensitivity" has been determined by reference to Table B.4 of the DMR Guideline as "High" because the biophysical component was classified as 'high' since the application area is in a largely natural state.
Step 4: Determination of weighting factors	Weighting Factor 1: The nature of the terrain where the proposed operation is located is Undulating. Weighting Factor 2: The proximity of the operation to an urban centre. In this case the proposed operation is considered Peri-Urban since it is located approximately 41km from Kathu.

12.1 Closure Components

The final rehabilitation provision was calculated based on the quantities of the different closure components. The cost was calculated based on the quantities of each deliverable and the DMRE master rate. The closure components, taken from the Prospecting Work Program (PWP), is listed in the table below along with the quantities provided by Menar.

Table 11: Closure components

Closure Component	Closure Component Description	Units	Comment
10	General surface rehabilitation	0.873ha	A maximum of 405 boreholes and the contractor's yard will be rehabilitated. Each borehole will disturb an area of 20m ² and the contractor's yard 625m ² .
13	Water Management	0.873ha	The rehabilitated areas will have to be managed
14	Maintenance & aftercare	0.873ha	The rehabilitated area will require maintenance and aftercare for 2 to 3 years.

12.2 Quantum of Financial Provision

The quantum of financial provision is provided below in Table 12. The Master rates for the different components were obtained from the DMR guideline (2005) and the CPIX rates were used to allow for inflation for the life of operation. Based on the project schedule provided in Table 3, final rehabilitation is expected to occur in the year of 2024.

Weighting factors were applied based on the nature of the terrain (undulating) and the proximity to urban areas (peri - urban). Based on these calculations the Environmental Liability for the final rehabilitation, decommissioning and closure of the prospecting right area is R235 614.75 including VAT and contingencies.

Table 12: Quantum of Financial Provision

Applicant: Menar Capital (Pty) Ltd		Location: Kathu Magisterial District, Northern Cape Province							
Evaluators: uKhozi Environmentalists: Tommy Olivier		Date: June 2021							
Risk Class: C ; Area Sensitivity: High									
No.	Description	Unit	A	2005 based master rate	B	C	D	E=A*B*C*D	
			Quantity		Revised and escalated master rate 2024	Multiplication factor	Weighting factor 1	Amount (Rands)	
			Step 4.5	Step 4.3		Step 4.3	Step 4.4		
1	Dismantling of processing plant and related structures (including overland conveyors).	m ²	0.00	R 6.82	R 16.41	1.00	1.10	R 0.00	
2(A)	Demolition of steel buildings and structures .	m ²	0.00	R 95.00	R 228.65	1.00	1.10	R 0.00	
2(B)	Demolition of reinforced concrete buildings and structures	m ²	0.00	R 140.00	R 336.95	1.00	1.10	R 0.00	
3	Rehabilitation of access roads (8m wide)	m	0.00	R 17.00	R 40.92	1.00	1.10	R 0.00	
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	R 165.00	R 397.12	1.00	1.10	R 0.00	
4(B)	Demolition and rehabilitation of non-electrified railway lines	m	0	R 90.00	R 216.61	1.00	1.10	R 0.00	
5	Demolition of housing and/or administration facilities .	m ²	0.00	R 190.00	R 457.29	1.00	1.10	R 0.00	
6	Opencast rehabilitation including final voids and ramps	ha	0.00	R 96 700.00	R 232 738.88	1.00	1.10	R 0.00	
7	Sealing of shafts, adits and inclines	m ³	0.00	R 51.00	R 122.75	1.00	1.10	R 0.00	
8(A)	Rehabilitation of overburden and spoils - discard dump and slurry dam	ha	0.00	R 66 400.00	R 159 812.42	1.00	1.10	R 0.00	
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic salt-producing waste)	ha	0.00	R 82 700.00	R 199 043.49	1.00	1.10	R 0.00	
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0.00	R 240 200.00	R 578 116.63	0.81	1.10	R 0.00	
9	Rehabilitation of subsided areas	ha	0.00	R 55 600.00	R 133 818.84	1.00	1.10	R 0.00	
10	General surface rehabilitation .	ha	0.873	R 52 600.00	R 133 818.84	1.00	1.10	R 128 506.23	
11	River diversions	ha	0.00	R 52 600.00	R 133 818.84	1.00	1.10	R 0.00	
12	Fencing	m	0.00	R 60.00	R 144.41	1.00	1.10	R 0.00	
13	Water management	ha	0.873	R 20 000.00	R 48 136.27	0.33	1.10	R 15 254.34	
14	2 years of maintenance & aftercare	ha	0.873	R 7 000.00	R 16 847.70	1.00	1.10	R 16 178.85	
15 (A)	Specialist study detailed (closure plan)	Sum	0		N/A	1.00	1.10	R 0.00	
15(B)	Specialist studies	ha	0.00		N/A	1.00	1.10	R 0.00	
Sum of items 1 to 15 above								R 159 939.41	
Multiply by Weighting factor 2 (Step 4.4) = SUBTOTAL 1								1.05	R 167 936.38
1	Preliminary and General		≥	Add 6% of Subtotal 1 if Subtotal 1				N/A	
				R 100 000 000.00					
			≤	Add 12% of Subtotal 1 if Subtotal 1				R 20 152.37	
				R 100 000 000.00					
2	Contingencies			Add 10% of Subtotal 1				R 16 793.64	
SUB TOTAL 2: (sum of management (P's & G's) and contingency)								R 36 946.00	
SUB TOTAL 3 (SUBTOTAL 1 + SUBTOTAL 2)								R 204 882.39	
								15%	R 30 732.36
GRAND TOTAL: (Subtotal 3 plus VAT)								R 235 614.75	

13 Monitoring, Auditing and Reporting Requirements

Menar will be responsible for the execution of the monitoring programs and reporting to the relevant departments. In terms of auditing and monitoring the following will be conducted:

- Internal monitoring, auditing and reporting – a review undertaken by Menar to update the plan to account for changes to the environment and risk profile and to update the liability assessment to reflect liability at that point in time.
- External monitoring, auditing and reporting – a review undertaken by the financial auditors as part of the annual financial/accounting audit to determine that the plan is appropriate, and that the quantum of the liability is included in the operations provisions.
- Legislated audits – these are the auditing requirements of the Act, Regulation, EMPr and EA. Pertinent aspects relating to closure, such as changes to the risk assessment, changes in closure options and changes in the quantum of the liability will be reported.

The findings from the various audits will be captured in the company's Environmental Management System (EMS) and responsibilities and timelines allocated to the rectification of the findings, as practical. Once addressed, these findings will be closed out, only after a second party has assessed that the finding is appropriately addressed.

The objective of the monitoring programme will be to track the recovery of the site in accordance with the overall closure objectives. The anticipated monitoring will include:

- Surface water: Quality monitoring against parameters as required by DWS.
- Groundwater: Quality monitoring of aquifers against the parameters required by DWS.
- Erosion monitoring: This will take the form of developing a representative reference site on the disturbed footprints and undertaking visual and topographic assessments to determine erosion rate.
- Vegetation establishment: Vegetation condition will be monitored using standard field techniques to determine whether the vegetation has been established with a species composition and density similar to that of the site prior to prospecting activities.
- Photographic records should be maintained together with findings, follow up actions and close out records as part of the company's Environmental Management System.

14 Motivations for Amendments

Any issue that may arise during the life of the operation and that is not provided for in this closure plan may be addressed as an addendum to this report. An addendum will be submitted to the Applicant for approval prior to the implementation of the provisions contained and communicated to the Authorities.

15 Conclusion

Menar will provide for the closure liability associated with the project through the purchase of a Bank Guarantee as allowed by the Financial Provision for Prospecting, Exploration, Mining or Production Operations Regulations, with the Bank Guarantee provided to the DMRE following authorisation of the project.

Annual Rehabilitation Plan

The annual rehabilitation plan will form a component of the environmental management programme to be submitted in terms of section 24N of the Act and the Environmental Impact Assessment Regulations, 2014 and will be subjected to the same requirements of the environmental management programme with regards opportunities for stakeholder review and comment as well as auditing.

The objective of the annual rehabilitation plan, as they are stated in Appendix 3 of the regulations, are to—

- review concurrent rehabilitation and remediation activities already implemented;
- establish rehabilitation and remediation goals and outcomes for the forthcoming 12 months, which contribute to the gradual achievement of the post-mining land use, closure vision and objectives identified in the holder's final rehabilitation, decommissioning and mine closure plan;
- establish a plan, schedule and budget for rehabilitation for the forthcoming 12 months;
- identify and address shortcomings experienced in the preceding 12 months of rehabilitation; and
- evaluate and update the cost of rehabilitation for the 12-month period and for closure, for purposes of supplementing the financial provision guarantee or other financial provision instrument.

No invasive prospecting activities will occur within the first 12 months. As indicated in the project Schedule (Table 3) the first year will involve an in-depth desktop assessment to finalise the proposed borehole locations and as such, no rehabilitation will be required during this period. At this stage, core drilling is only planned from the second year. It is therefore anticipated that the annual review of the annual rehabilitation plan, as required under Section 11 of the NEMA GNR 1147, will consider the more detailed works programme at that time and provide for, schedule and budget for rehabilitation for the forthcoming 12-month period.

Environmental Risk Assessment

The environmental risk assessment report will form a component of the environmental management programme to be submitted in terms of section 24N of the Act and the Environmental Impact Assessment Regulations, 2014 and will be subjected to the same requirements of the environmental management programme with regards opportunities for stakeholder review and comment as well as auditing.

The objective of the environmental risk assessment report, as they are stated in Appendix 5 of the regulations, are to –

- ensure timeous risk reduction through appropriate interventions;
- identify and quantify the potential latent environmental risks related to post closure;
- detail the approach to managing the risks;
- quantify the potential liabilities associated with the management of the risks; and
- outline monitoring, auditing and reporting requirements.

Section 14 of the BAR provides a detailed description of the environmental impact/risk identification and assessment (including the methodology and findings) undertaken for the proposed prospecting. Further details of the potential residual risks associated with the prospecting operation is provided under Section 5 of the Final Rehabilitation, Decommissioning and Closure Plan above. The EMPr outlines the recommended mitigation measures identified to reduce and/or minimize potential impacts and risks. It is anticipated that the mitigation measures envisaged will be adequate to manage the potential negative impacts and risks of the proposed prospecting operation. However, it is recommended that annual reports are prepared to document the results of the rehabilitation activities during the operation and closure phases. These reports will provide important information required to manage the ongoing closure activities with the data and reports being used to provide recommendations for improving subsequent rehabilitation activities and indicate whether rehabilitation activities have not been successful so this can be addressed in the future.

Complied by:



Tommy Olivier – Project Manager
Reg. EAP (EAPASA) No. 2020/1162