# ENVIRONMENTAL SCOPING REPORT UPDATE FOR THE EXPLORATION IN THE KARINGARAB AREA IN ML43 AND EPL 3749 FOR NAMDEB FOR THE PURPOSES OF AN ECC AMENDMENT AND RENEWAL

Period: 2022-2025





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#### 1 Chapter 1: Background

#### 1.1 Aims of the Annex to the scoping report

Namdeb currently possess an Environmental Clearance Certificate for exploration in the Karingarab area in ML43 and EPL 3749, which is valid until October 2022 (copy in Appendix A).

A scoping document was done in line with the Regulations of the Environmental Management Act, 2007 (Act 7 of 2007). This report is an Annex to the scoping report, in order to present the proposed drilling activities for the period 2022-2024, for the application of the ECC renewal. The EMP has also been updated, and is attached in Appendix B.

The original scoping report was compiled by Namdeb and this annex review was compiled by Stephanie van Zyl, Enviro Dynamics.

#### 1.2 Purpose of the exploration at Karingarab

Namdeb is mining diamonds in the southwestern corner of Namibia. Namdeb currently holds four diamond mining licences (ML, as well one one exclusive prospecting licence (EPL) covering both land and sea areas (Figure 1). In addition to the mineral rights to mine diamonds, Namdeb investigates through prospecting and exploration, a carbonatite in the Karingarab area in ML43 and EPL 3749 for the presence of rare earth elements (REE) (Figure 2 and Figure 3). Work done by Ambase on EPL3749 identified significant concentrations of REE from surface samples, and with REE being essential components of most new and 'green' technologies, this is expected to be a worthwhile commodity for Namdeb to invest in. Mapping, geophysical information and the systematic examination of the deposit through drilling during the exploration phase, will indicate whether there is a chance to transform the mineral occurrence into a mineral resource. In doing so, Namdeb will ensure that it is sustainable for years to come and will continue to support the national economy through profits.



# **NAMDEB MINING LICENCES 2020**

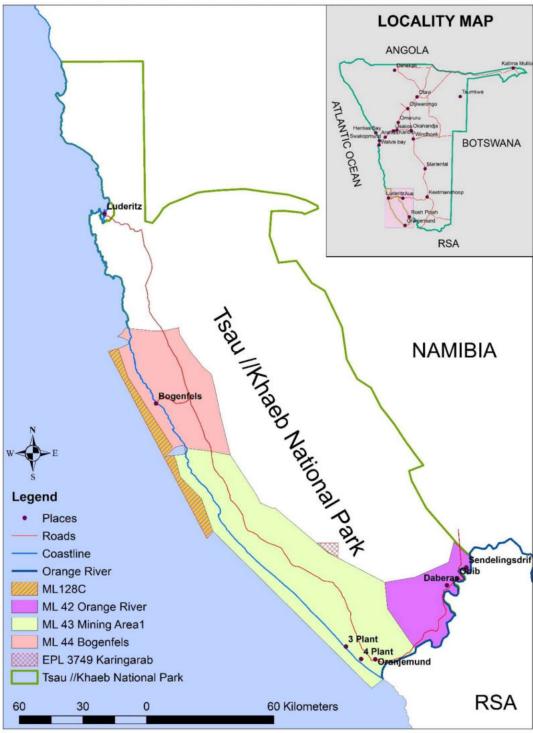


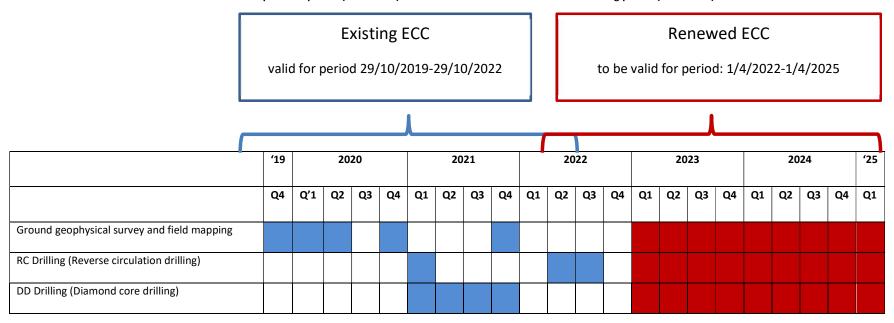
Figure 1: Namdeb's mining licenses



#### 1.3 Schedule

Table 1 below indicates Namdeb's work schedule for drilling, geological mapping and geophysical surveys for the past ECC validity period and for the one being applied for through this report. The blue blocks indicate periods of activity at site, and the interruptions are mainly due to inactivity in line with Namdeb's response to the Covid-19 pandemic. The red blocks are indicative of the activity expected for the ensuing period. More information on these activities are provided in Chapter 11. The reason for the overlap in the periods for the ECC's is the ramped-up activities with associated resources and equipment needed for the drilling programme. The RC and DD drilling will be spaced out over the period, with supporting phases of geophysical survey and field mapping included.

Table 1: Namdeb's work schedule for the past ECC period (2019-2022) and indicative work schedule for the ensuing period (2022-2025).





#### 2 Chapter 2: Legal Framework

The original scoping report contains a legal register with an extensive explanation of the environmental legal instruments that apply to the project. Below (Table 2) follows a list of the permits that apply to the Karingarab area, together with the status of each.

Table 2: Description of the legal environment concerning the proposed exploration activities in the project area

Aspect	Impact description	Mitigation measures and management actions	Responsibility	Significant Ranking	Monitoring
Environmental Clearance Certificate	Comply with legislative requirements for the exploration activities  (Environmental Management Act, 2004 and Regulations, 20012)	Renew and amend the Environmental Clearance Certificate issued by the Ministry of Environment and Tourism for the planned exploration and potential mining in the Karingarab area in ML43 and EPL 3749. Currently valid 2019-10-29 until 2022-10-29. There are changes to the proposed activities and therefore a renewal and amendment is needed.	Environmental Section	High	Correspondence and all communications enacted.
Park Entrance authorization	Comply with Section 18 (1)a of the Nature Conservation Ordinance of 1975	Obtain authorization to enter the Karingarab areas which is within the Tsau //Khaeb National Park from the Parks Executive Committee-Ministry of Environment and Tourism-Department of Parks and Wildlife, prior to drilling activities.	Environmental Section	High	Ongoing  Correspondence enacted.
Export permit	Compliance with Section 55 of the Diamond Act No. 13 of 1999	Obtain the export permits from both the Mining and Diamond Commissioner from the Ministry of Mines and Energy for the export of the core material out of the Karingarab areas.	Exploration Section	Medium	Correspondence and all communications enacted
Security plans	Compliance with Section 55 of the Diamond	Amend the current security plan to include the exploration and potential	Exploration Section	Medium	Correspondence and all



Aspect	Impact description	Mitigation measures and management actions	Responsibility	Significant Ranking	Monitoring
	Act No. 13 of 1999	mining of REE in the Karingarab area in ML43 and EPL 3749 and submit to the Ministry of Mines and Energy			communications enacted
Heritage Conservation	Compliance with the National Heritage Act (27 of 2004)	Demarcate and protect the old track on the site	Environmental Section / Exploration Manager	Medium	
Fauna and Flora Conservation	Conservation Ordinnance (4 of 1975)	Four (4) protected species – consultation with MEFT for removal/rescue	Environmental Section	Medium	
Stakeholder consultation	Maintain a good stakeholder relationship by keeping them informed (Environmental Management Act, 2004 and Regulations, 2012)	Communicate the Environmental Clearance Certificate and the time frame of the Drilling Programme to the relevant stakeholders. Invite inspections as necessary.	Environmental Section	Medium	Correspondence of this document to stakeholders.



#### 3 Chapter 3: Project Description

#### 3.1 Location

The area of interest is located in ML43 and EPL 3749 (see *Figure 1*). It comprises an area of approximately 10 124 ha. EPL 3749 covers an area of 3 854 ha and the area of interest situated within ML 43 covers an area of approximately 6 270 ha. The target area includes one main intrusion and four satellite intrusions (Figure 2). It is situated approximately 50 km from Oranjemund and is accessible *via* the Chameis road. The prospect is located approximately 13 km to the east of the Chamais road. Access to the area is *via* a two-spoor track and a 4 x 4 is necessary to get to the site.

The coordinate reference is: 28 deg 05'51.0"S and 16 deg 11'44.1"E

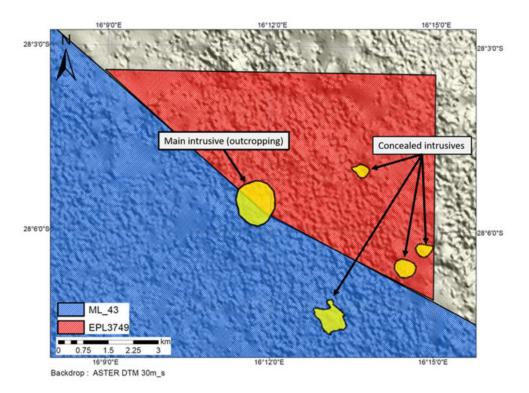


Figure 2: One main and four concealed intrusives comprise the Karingarab Deposit



#### 3.2 Environmental sensitivity and change

The condition of the environment when exploration commenced by Namdeb in the Karingarab area was near-pristine — only a few signs of human activity in the form of tracks and a small mound of building material left behind had been found. Subsequent drilling conducted by Namdeb was successfully rehabilitated. The only prominent features in the area are various foothills; and a large gravel plain. The rest is all made up of various undulating and largely identical sandy terrain covered in dune hummocks. Current activities and rehabilitation occur concurrently on site (see Figure 4).

The ecological sensitivities were identified and described in the Scoping Report, all based on extensive field work (Archaeology - Noli, 2013; Invertebrates - Irish, 2014; Vegetation-Kolberg, 2014, Vertebrates - Cunningham, 2013). Below follows a summary of the habitats of the area, as described in the Scoping Report.

#### 3.2.1 Gravel Plains

These Plains are covered in either light or dark coloured gravel, are relatively flat with a slight descending slope southwards and a few small depressions. The surface layers are protected by gravel, pebbles and small to large stones from wind erosion.

The function of this habitat is to receive and infiltrate rainwater from the higher lying areas and during good rainfall, produce ephemeral plant species that serve as fodder for wildlife. It serves an important role as seed bank for these annual species. Physical features that could provide niches for life forms are not very diverse. Restoration of this habitat is partly possible, but will be difficult and occur only over an extended period. The top soil layer and the covering gravel cannot be re-created and will have to develop over time. Reseeding or planting of dominant perennial species are recommended approaches.

#### 3.2.2 Hills

The hill slopes are relatively short, gentle to moderate and often covered with wind-blown sand. The summits usually show some low rocky outcrops.

This habitat sustains a large diversity of perennial plant species mainly due to the structure of the substrate that provides many different micro-habitats. The physical features are diverse and this vegetation type provides niches for many forms of wildlife. This habitat is also home to a variety of fauna, and a brown hyena denning site (being monitored for activity) is located in it. It has some rock outcrops which are considered sensitive from a conservation aspect, but these are not affected by exploration activities.

Restoration of this habitat will be difficult because the structure cannot be recreated and because of the great diversity of perennial, long-lived species present. Reseeding or planting together with recolonization from surrounding areas will be options.

#### 3.2.3 Hummock Plains

The landscape is mostly gently undulating with some flat parts and a few higher dunes. The surface layers consist mostly of unstable, wind-blown sand and a few areas where the harder lower layers, which have some gravel and stones, are exposed.

This habitat is formed through the erosion and deposition of sand by wind. The perennial plants have an important role in stabilizing the sand through hummock formation. Species diversity is not very high but as discussed before, annual species and geophytes are not included in this assumption. Restoration of this habitat will be partly possible but hummock formation needs to be encouraged through re-introduction of perennial plants. Re-seeding and planting of perennial species together with providing shelter for young plants, is the recommended approach.

From a vertebrate perspective, the rocky ridges in the hills and the gravel plains were identified as priority as far as biodiversity is concerned. The habitats, however, are all represented elsewhere. Since some of the terrain cannot be avoided during drilling, rehabilitation is the only option. The archaeological study found the none of the sites identified were representative enough for preservation and the recommendation made was to preserve the overall integrity of the habitats, which will also benefit archaeology overall. The coordinates and sensitivities identified during the original field surveys were incorporated into Namdeb's EMS and database.

#### 3.3 Exploration activities description

#### 3.3.1 Background

Exploration Drilling for the Karingarab REE Target uses both Reverse Circulation (RC) and Diamond Drilling (DD). Some DD holes require pre-collars which can include larger diameter DD drilling or RC drilling due to sandy and calcareous material and possible conglomerate overlying the targeted intrusions. Casing may be inserted at the top of RC drill holes

The following is envisaged over the next three years:

- 6,000m RC drilling for ~40 holes
- 1,250m DD drilling for ~5 holes
- 5,000m Infill DD drilling for ~20 holes
- 8,000m Infill RC drilling for ~40 holes

The amount of drilling might be increased pending the results obtained from the abovementioned drilling. The number of additional meters cannot be quantified at this stage but is estimated not to exceed 15,000m RC drilling and 5,000m DD drilling.

Drilling will be conducted using 2-3 drill rigs per method with a total crew not expected to exceed 30 staff. Geological services will be rendered in support of the drilling services and are not expected to exceed 25 staff on site at any given time. All holes will be downhole surveyed by a service provider with an expected staff compliment not exceeding 6 people. Additional ground geophysics if required pending results which will require approximately 14 staff members.

It is planned to erect a field camp to house company and contractor staff during the planned work programmes. The camp will consist of prefabricated accommodation, ablution, kitchen and mesh facilities. The field camp will be designed to accommodate a maximum of 75 people at any given time. It

is envisaged to make use of solar power. The camp will be completely "mobile" and all structures will be removed during rehabilitation.

Table 3: Assumptions for the next three-year period

Maximum number of people on site at any point in time	75
Drills rigs	2-3 RC rigs, 2-3 DD rigs
Support trucks	2-3 RCC, 2-3 DD
Light duty vehicles (incl. ad hoc management visits)	18

Drill rigs mobilise from Oranjemund to site via the existing road and track to Karingarab. Only this access is being used. The drill holes are irregularly spaced with some sites on the existing track. Access to all sites is done in a systematic manner as approved by the project geologist and project environmentalist. Withdrawal from the site will make use of the access routes created. The number of tracks is being kept to the bare minimum. Each drill site may consist of the following depending on the methodology; a drill rig, compressor, support truck, two to three 4x4 vehicles for transport, the core recovery racks, core trays and sampling systems (splitters) with associated bags. A drill crew will consist of a maximum of eight people. The crew commutes daily between Oranjemund and Karingarab. Water and biodegradable, environmentally friendly drilling fluids are being used during the drilling process. Core recovered is not processed on site but will be transported to Oranjemund for logging, sampling and storage. All drill sites are being rehabilitated but the tracks have remained for follow-up work to be conducted on the boreholes, i.e., geophysical logging, monitoring etc. Tracks will be rehabilitated should it be found that the project is not viable to pursue any further.



#### 4 Chapter 4: Environmental Performance

The original Environmental Management Plan was integrated into the Namdeb Environmental Management System and is being implemented. Below are the salient aspects of performance on the EMP management actions for the period: 2019 to 2021.

#### 4.1 2019

During this period, the ECC was renewed and is valid until 22/10/2022. EMPRs are updated on the Isometrix system and were initiated for implementation.

#### 4.2 2020

During 2020, a joint exploration campaign was developed using multiple exploration techniques modern technology to process core. This joint campaign included the following activities:

- Rock chip sampling and mapping
- Ground Mapping and aerial surveys
- Photogrammetry Surveys
- Re-assay of previous samples and various mineralogical studies
- Conversion of Old Power Station to core processing facility (core shed)

All work done was superficial and track management was in place (Figure 3).



Figure 3: Geologists visiting the site (Photo's: Namdeb Environmental Performance Report, 2020).



#### 4.3 2021

In 2021 another 456m of RC drilling was conducted but the project was suspended and postponed to the first quarter of 2022, for when another 6,000m is planned. The RC rigs with a crew of 13 people was utilised for this drilling programme. Currently a DD drilling project is underway for 4,500m, with some 3,600m completed to date. This team has 14 crew members. This drilling is envisaged to be completed by the end of 2021. A third ground geophysical survey will be conducted during the last Quarter of 2021. A minimum impact temporary field camp as per the previous geophysical surveys will be erected. The crew will vary in size with the maximum number of staff not exceeding 14 at any given point in time.

Figure 4 below indicates the drilling undertaken during 2021, their location within the various habitats, and their rehabilitation status. Although concurrent rehabilitation of drill sites is employed as drilling progresses, final rehabilitation will be done once areas are deemed not feasible for further development.

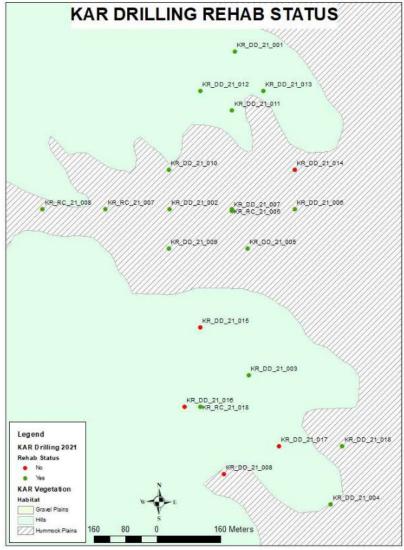


Figure 4: Current drilling status versus sensitive areas at Karingarab



#### Rehabilitation and biodiversity plans

Namdeb in consultation with stakeholders, developed a detailed Rehabilitation Plan, which identified the end-land uses of the operations and the plan received governmental approval in 2008. Rehabilitation is being integrated with the mine plan to ensure that the area does not compromise any future nature-based tourism. Namdeb is currently updating this plan and, has to this end developed a Waste Management Strategy (2021), Integrated Water Management Strategy (2021), Cultural Heritage Management Plan (2020) and a Demolition and Landscaping report (2021). Stakeholder engagement towards the Integrated Closure Plan (ICP) is scheduled for implementation in the near future.

Since mining operations are in a globally recognized biodiversity hotspot and in a National Park, Namdeb prepared a Biodiversity Strategy and Action Plan in October 2008, which has been updated in 2021. Its purpose is to:

- Identify information gaps and opportunities to improve biodiversity management;
- Provide an umbrella for biodiversity-related environmental management;
- Achieve a management objective for improving Namdeb's knowledge on restoration of vulnerable habitats, ecosystems and species.

Environmental Management, conservation and restoration at Karingarab is being and will finally be carried out according to the principles contained in these plans.



#### 5 Chapter 5: Stakeholder Consultation

Consultation with The Ministry of Environment, Forestry and Tourism was undertaken during the application for the initial ECC for this exploration project. Follow-up consultation is currently undertaken by circulating this document to those on Namdeb's stakeholder database. This database was updated and advertisements were placed for any new/changed stakeholders to join.

This draft document was circulated to stakeholders from 11 January to 25 January 2022 for comments. The comments received are summarised in Appendix C. All appropriate comments have been acted on, either through editing the document, or ensuring that the sensitivities raised are included in the database of Namdeb.



# 7 Chapter 6: Identification and assessment of Potential Environmental Impacts

The purpose of this section is to assess and identify the most pertinent environmental impacts and provides possible mitigation measures that are expected from the exploration and potential mining in the Karingarab area in ML43 and EPL 3749. The following summarises some impacts identified.

- Ecological impacts
- Archaeological and historical impacts
- Health & Safety impacts
- Waste Production

These impacts have been identified during the original scoping study for the project and mitigation measures were proposed. The methodology that was used to identify the impacts are also described in the Scoping Report. These impacts are summarised and reconsidered here, with the understanding of the new assumptions set for the project, as listed in Table 3. This impact assessment only covers the exploration phase. Should mining be contemplated a submission will be made for an amendment of the ECC.

Table 4: Ecological (Fauna and Flora Biodiversity) and Archaeological & historical Impact

Risk Event	Creation of access road to Karingarab, creation of internal roads to each drill site, creation of camp on site, and general movement in between the camp and the drill sites.
Nature of Impact	The effect of drilling activities on the ecosystem structure and function, biodiversity, archaeological and historical resources
Status (+ or -)	Negative
Extent	Site specific
Duration	Medium
Intensity	Minor to moderate effects
Probability	Definite
Prevention	To prevent any impact on the biodiversity of the flora and fauna can only be attained through the no-go option, i.e., drilling of Rare Earth Elements



	does not continue. However, with Namdeb's intention to diversify its mining efforts in the future, diversification opportunity might be lost.  Sensitive habitats can be identified and movement in them limited and unnecessary impact prevented. Environmental sensitivity maps generated and shared with contractors and employees as part of induction prior to accessing the site.
Mitigation	<ul> <li>Treat all habitats as sensitive and prevent any unnecessary movement or new areas opened up as far as possible.</li> <li>New roads should only be made to new drill sites. Otherwise, existing tracks should be used.</li> <li>Making new roads over hard or gravelly areas should be avoided or kept to a minimum and wherever possible, alternative routes over sandy areas (Hummock Plains habitat) should be chosen</li> <li>Due care should be taken that the jeep track is not followed by idle drivers intending to find out "where it goes". When they lose the track —they will create numerous other ones trying to find it, thereby obliterating the original one.</li> <li>Ensure strict control over the creation of new tracks and removal of archaeological and historical finds, any plant material, including firewood, seed and whole plants</li> <li>Personnel (Namdeb and contractors) at the site must be reinformed/reminded of the environmental sensitivity of the areas prior to drilling activities</li> <li>Construction personnel should be issued with permits and made aware of the rules and regulations when entering the site.</li> </ul>
Significance	Moderate prior to mitigation, low with mitigation
Confidence Level	High

#### **Table 5: Health and Safety impacts**

Risk Event	Safety and health incidents
Nature of Impact	Drilling activities come with inherent risks to workers. Some possible risks during drilling process include: -
	<ul> <li>Product contact with eyes and skin</li> <li>Working at heights</li> <li>Muscular injury from incorrect lifting techniques</li> <li>Falling objects</li> <li>Tripping</li> </ul>
	<ul> <li>Operating potentially dangerous equipment</li> </ul>

Status (+ or -)	Negative			
Status (1 of -)	Negative			
Extent	Site Specific			
Duration	Medium			
Intensity	No Lasting Effect for minor impacts to Serious Effects for major impacts			
Probability	Highly probable			
Prevention	To prevent health and safety risks the following should be implemented/available:			
	<ul> <li>Operational and procedural manuals</li> <li>Health and Safety training</li> <li>Housekeeping rules</li> <li>Safe work procedures and permits to work</li> <li>Emergency response plans</li> <li>Material Safety Data Sheets (MSDS) freely available</li> <li>Protective equipment</li> <li>Regulations for handling fuel and chemicals</li> <li>Proper supervision</li> <li>Qualified personnel for specialist jobs</li> </ul>			
Mitigation	<ul> <li>Safety and health risk impacts can be mitigated by:</li> <li>Wearing of Personal Protective Equipment (e.g., protective clothing like safety boots and hard hats)</li> <li>First aid training and available treatment</li> <li>Medical procedures and emergency services</li> <li>Daily safety moments (toolbox talks) and/or drills</li> </ul>			
Significance	Medium to high (without mitigation), Low (with prevention and mitigation)			
Confidence Level	High			

#### **Table 6: Waste Management**

Risk Event	Waste Production
Nature of Impact	Products that act as a waste must be cleaned up and disposed of in an appropriate manner. Wastes associated with the drilling process include left over drilling fluid and casing materials, domestic waste, and soils that become contaminated with fuels or other hazardous chemicals.
Status (+ or -)	Negative

Extent	Site Specific
Duration	Medium
Intensity	Minor Effects but may be Moderate Effects where hazardous waste enters the environment, waste generated are for a significant size of operation which caters for 75 people on site at any given time.
Probability	Definite
Prevention	Waste will be produced, but the impact can be mitigated
Mitigation	<ul> <li>Leftover drilling fluid and casing material or domestic waste volumes must be reduced by re-using or recycling where possible. Waste that cannot be recycled must be disposed of at appropriate waste disposal sites.</li> <li>Waste should be disposed of regularly.</li> <li>Hazardous wastes must be disposed of according to MSDS specifications and at suitable hazardous waste disposal sites.</li> <li>Contaminated soils (e.g., by hydrocarbons) can be remediated in accordance with accepted procedures at a site dedicated for this purpose.</li> </ul>
Significance	Without mitigation: medium  With mitigation: Low
Confidence Level	High



#### 8 Chapter 7: Environmental Plan

The Environmental Management Plan (EMP) was compiled with the original ECC application and has been incorporated into the Namdeb's ISO 14001 Environmental Management System database, thus ensuring that the project does not deviate from the environmental profile. Environmental performance monitoring is being carried out on site and corrections made as necessary.

The EMP has been updated and the revised version is attached.

#### 9 Chapter 8: Conclusion

REE is an essential component of most new and 'green' technologies; this is expected to be a worthwhile commodity for Namdeb to invest in. The exploration of REE will assist Namdeb to diversity and continue to contribute to the Namibian economy. Namdeb continuation to contribute to the Namibian economy will ensure jobs and provide opportunities for continued diversification of regional and national economic activity.

The updated Environmental Management Plan should be used as an on-site reference document for the exploration activities at the Karingarab area in ML43 and EPL 3749. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken. Namdeb's Health, Safety, Security and Environment Management System should be used in conjunction with the Environmental Management Plan. All employees responsible for the drilling activities should be informed of the contents of this document.



#### 11 References

Cunningham, P, L. 2013. Baseline Study: Vertebrate Fauna Associated with the Karingarab Area. Prepared for Namdeb Diamond Corporation.

Irish, J and Greyling, T. 2014. Invertebrate baseline study for the Karingarab area in ML 43 and EPL 3749. Prepared for Namdeb Diamond Corporation.

Kolberg, H. 2014. Karingarab Vegetation Baseline Study. Unpublished Report. Prepared for Namdeb Diamond Corporation.

Noli, D. 2013. A historic and archaeological baseline study of the Karingarab area. Prepared for Namdeb Diamond Corporation.

#### 12 Appendixes

- A. EPL 3749- Karingarab and ECC for the period 2019-2022
- B. Environmental Management Plan for 2022-2024
- C. Communication trail of report review



# EXCLUSIVE PROSPECTING LICENCE – 3749 AMBASE PROSPECTING (NAMIBIA) (PTY) LTD





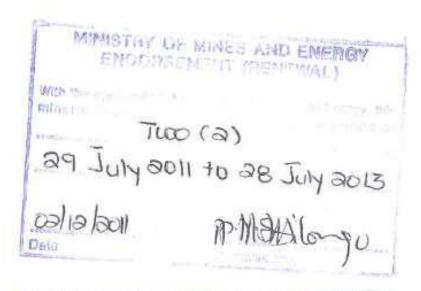
## REPUBLIC OF NAMIBIA MINISTRY OF MINES AND ENERGY

EXCLUSIVE PROSPECTING LICENCE
(Issued in terms of Section 70 of the Minerals (Prospecting and Mining) Act, 1992)

Exclusive Prospecting Licence No 3749 Office Reference No 14/2/1/4/2/3749	
Subject to the provisions of the Minerals (Prospecting and Mining) Act, 1992, this exclusive prospecting licence is hereby issued to	
Full Name of Licence Holder AMBASE PROSPECTING (NAMIBIA) (Pry) Ltd	
Identity or Passport No (natural person)  Company Registration Nc (company)  Address (natural person) or Registered Address (company)  P. O. Box 40669  WINDHOEK	
Pull Name of Accredited Agent (if applicable) Address of Accredited Agent	
for the period of 3 years from (date of issue) 29 Jul 2008 to (date of 28 Jul 2011 expiry)	( Alma
unless abandoned or cancelled on any prior date, or extended to such later date as may be endorsed on this licence in the event that this licence is renewed.	
This exclusive prospecting licence is issued in respect of	
Name of Mineral(s)/Group(s) of Minerals  Base & Rare Metals and Precious Metals	
over a certain portion of land situate in Region(s) Karas	
Registration Division(s) N Magisterial District(s) Luderitz	1
as more fully depicted in the attached diagram No EPL 3749 signed by the Commissioner	
and is further subject to the terms and conditions contained in the notice of the Minister's intention to grant the	87371
licence dated 16 Jun 2008 and agreed to in writing by the applicant on 29 Jul 2008	
as appended hereto.	
Signed at WINDHOEK this 27th day of JANKANY 2009	
MINISTRY OF MINES AND ENERGY	
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F-11-11-12-1-19	
MINISTER OF MINES AND ENERGY OFFICIAL STAMP	







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ENDOPSEMENT (ALKNARON)

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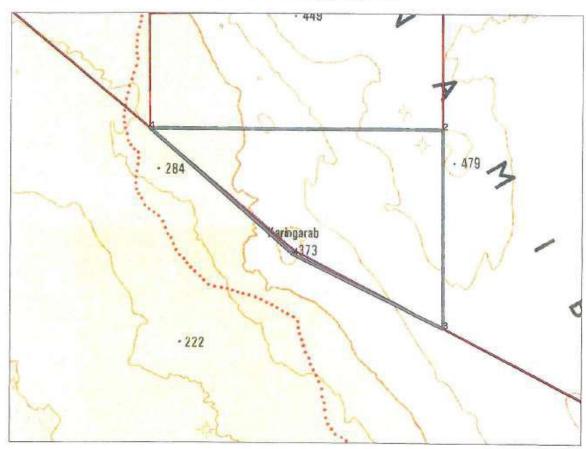
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	ine Minister of Mines and Energy, this icense has been renewed for a period of
29 3	only 2013 lb 28 July 2015
08   11   Date	8013 PCommissioner





# DIAGRAM - EPL-3749 Issued in favour of: Namd

#### Namdeb Holding (Pty) Ltd



Latitude and Longitude lines refer to the Bessel 1841 Spheroid

SCALE: 1:100,000

AREA: 3,853.80 ha

MAP(S): 2816

LOCALITY:

\* Region(s): Karas
\* Magisterial District(s): Luderitz

\* Registration Division(s): N

Certified by:

Mining Commissioner









**B.** Environmental Management Programme



# THE ENVIRONMENTAL SCOPING REPORT FOR EXPLORATION IN THE AREA IN ML43 AND EPL 3749 – FOR NAMDEB

# ENVIRONMENTAL MANAGEMENT PLAN UPDATE FOR PERIOD 2022-2025





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#### 1. Introduction

#### 1.1 Justification for the project

The Karingarab carbonatite intrusion is known to contain anomalous rare earth element (REE) concentrations. REEs are all metals used in various every day devices and appliances such as computer memory, DVDs, cell phones, "green" technologies etc. The first phases of exploration (mapping, geophysics and both diamond (DD) and reverse circulation (RC) drilling have shown the Karingarab deposit to be of sufficient volume to possibly host an economic deposit for REEs. In addition, there are several satellite intrusions identified by mapping and geophysics. Assay results from the drilling returned very encouraging results. The current phase, which commenced in 2019, is to define the lateral extent of the intrusion as well as the continuity of the anomalous REE concentrations laterally and at depth and therefore the need for follow up drilling programmes and geophysical campaigns. If the project is proven to be economically viable, it will be both economically and socially beneficial to the region as well as contribute to the economy of Namibia. An Environmental Clearance Certificate was obtained in 2019, based on a Scoping report with an EMP. This document is an update of the 2019 EMP to serve as application for the renewal of the ECC for the period: 2022-2025.

#### 1.2 Purpose of the EMP

The Environmental Management Plan (EMP) provides management options to ensure that the impacts from the exploration and potential mining in the Karingarab area in ML43 and EPL 3749 are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur.

The EMP on its own can be used to assist with the mitigation of the environmental impacts during the the exploration activities in the Karingarab area in ML43 and EPL 3749. All contractors and sub-contractors taking part in the exploration programme should be made aware of the contents of the EMP, so as to plan the relevant activities accordingly in an environmentally sound manner.

The objectives of the EMP are:

- to include all components of the project;
- to prescribe the best practicable control methods to lessen the environmental impacts associated with the project;
- to monitor and audit the performance of the exploration personnel in applying such controls;
   and
- to ensure that appropriate environmental training is provided to responsible exploration personnel.

The EMP, in short, provides consistency in environmental management, identifies project specific environmental risks, their associated management measures, and procedures for compliance with environmental legislation and contract requirements. It shall be submitted to the Ministry of Environment, Forestry and Tourism (MEFT) as part of the application to amend the Environmental Clearance certificate for ML43 and EPL 3749.

#### 1.3 The EMP and Namdeb's ISO 14001 System

Namdeb's commitments to responsible and sound environmental management of its activities are reflected in its Environmental Policy. Namdeb follows the ISO14001 Environmental Management System (EMS) for its operations. An EMS is an internationally recognized and certified management system that ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks.

The EMP will be incorporated into the greater EMP for the Mineral Resources Department - Exploration.

#### 2. Objectives for Namdeb's EMS

ISO 14001 requires that Company environmental objectives are set on an annual basis, and progress towards achieving them is reviewed continually on a consistent basis. These objectives are linked to the strategic objectives of Namdeb's environmental policy, and they broadly describe the levels of environmental quality to be maintained throughout the life cycle of all projects.

The 2021 Environmental Objectives and Key Performance Indicators are:

- Teams integrate responsible environmental practices across the operation by maintaining ISO14001:2015 certification
- Fulfil national statutory legal requirements and increasing maturity of permitting systems, tools and processes.
- Have ≤ 2 reportable environmental incidents. Level 4-5 potential High Potential Hazards (HPH) and actual High Potential Incidents (HPI). Zero (0) repeats of level 3 incidents¹.
- Plan and implement biophysical rehabilitation.
- Reduce river/fresh water abstraction and reuse and recycle process water at operations.
- Avoid accumulation of non-mineral waste and minimize general waste going to the landfill
- Reduce energy consumption and greenhouse gas emissions.
- Support Biodiversity Stewardship (including the extention of the Brown Hyena research project to Karingarab).
- Maintain internal and external stakeholder relations.

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#### 3. Environmental Considerations

The environmental objectives for this EMP fall within the objectives of the EMS outlined above, and will focus on the following.

#### **Exploration process -**

• The environment is ecologically sensitive and exploration activities should be restricted to the smallest area possible.

<sup>&</sup>lt;sup>1</sup> According to the standard Anglo America incident reporting procedures.

- By far the greatest concern for the natural environment is the destruction of vegetation during the creation of the access roads to the site, geophysical activities and the various drilling positions.
- The construction of a camp calls for the careful execution of best practice principles to avoid additional damage to vegetation and waste.
- Due care should be taken that the jeep track is not followed by idle drivers intending to find out "where it goes". When they lose the track—they will create numerous other ones trying to find it, thereby obliterating the original one.
- During drilling, fire prevention should be adequate, and health and safety regulations should be adhered to in accordance with the regulations pertaining to relevant laws and internationally accepted standards of operation.
- Report all environmental incidents as specified in the environmental incident reporting and response procedure (PR-EV-19) on the intranet.
- The rocky outcrops are part of the exploration target. Activity at these sensitive features should be limited to the minimum necessary. Prevent act
- The rock outcrops are part of the exploration target Activity at these sensitive features should be limited to the minimum required.
- Prevent activity at the brown hyena denning site.

#### Closure and decommissioning-

- Any waste produced must be removed from site and disposed of in an appropriate way or reused or recycled where possible.
- Fix photo points to see the before and after impacts of drilling are needed. This applies to the old sites being rehabilitated end 2021 and the new sites being drilled in 2022.
- Report all environmental incidents as specified in the environmental incident reporting and response procedure (PR-EV-19) on the intranet.

#### 4. Implementation of EMP

The management of the environmental aspects that may be affected by exploration activities are grouped by responsibility and in order of phase development. These phases are as follows:

- Pre-exploration Planning
- Exploration process
- Closure and decommissioning phase

**Table 7: Pre-exploration Planning** 

#### **Pre-exploration planning**

#### **Management Objectives:**

• Ensures that operations are conducted in such a manner that it is legally compliant with legal and other requirements, including the Environmental Management Act of 2007, The Minerals (Prospecting and Mining) Act of 1994, Nature Conservation Ordinance of 1975, Diamond Act No. 13 of 1999, etc.

Aspect	Impact description	Mitigation measures and management actions	Responsibility	Significant Ranking	Monitoring
Environmental Clearance Certificate	Comply with legislative requirements for the exploration activities	Obtain the Environmental Clearance renewal approval by the Ministry of Environment and Tourism for the planned exploration and potential mining in the Karingarab area in ML43 and EPL 3749.	Environmental Section	Medium	Correspondence and all communications enacted.
Park Entrance authorization	Comply with Section 18 (1)a of the Nature Conservation Ordinance of 1975	Obtain authorization to enter the Karingarab areas which is within the Tsau //Khaeb National Park from the Parks Executive Committee- Ministry of Environment and Tourism-Department of Parks and Wildlife, prior to drilling activities.	Environmental Section	Medium	Correspondence and all communications enacted.
Export permit	Compliance with Section 55 of the Diamond Act No. 13 of 1999	Obtain the export permits from both the Mining and Diamond Commissioner from the Ministry of Mines and Energy for the export of the core material out of the Karingarab areas.	Environmental Section	Medium	Correspondence and all communications enacted
Security plans	Compliance with Section 55 of the Diamond Act No. 13 of 1999	Amend the current security plan to include the exploration and potential mining of REE in the Karingarab area in ML43 and EPL 3749 and submit to the Ministry of Mines and Energy	Security Department	Medium	Correspondence and all communications enacted
Stakeholders consultation	Maintain a good stakeholder relationship by keeping them informed	Circulate the Karingarab documents for comment and communicate the Environmental Clearance Certificate and the time frame of the exploration programme to the relevant stakeholders. Invite inspections as necessary.	Environmental Section	Low	Correspondence and all communications enacted.
EMS	Continuous improvement	Consider the past period 2019-2022 of the ECC validity. Review past experiences of successes and	Environmental Section and	High	To be communicated.

#### **Pre-exploration planning**

#### **Management Objectives:**

• Ensures that operations are conducted in such a manner that it is legally compliant with legal and other requirements, including the Environmental Management Act of 2007, The Minerals (Prospecting and Mining) Act of 1994, Nature Conservation Ordinance of 1975, Diamond Act No. 13 of 1999, etc.

Aspect	Impact description	Mitigation measures and management actions	Responsibility	Significant Ranking	Monitoring
		failures and incorporate any lessons and improved work methods, if any, into the EMS.	Exploration Manager.		
Siting the field camp	Ensure least ecological damage by field camp and associated activities.	Aim to site the temporary field camp in an already disturbed area.	Environmental section and Exploration Section		To be communicated.
Resources for the EMP	Overall compliance	Consider the resources that were employed to ensure EMP compliance for the past period 2019-2021, consider any possible changes or additional resources required for the period 2022-2024.	Environmental section and Exploration Section		To be communicated.

#### Table 8: Exploration Process – Ecological (Fauna and Flora) and Archaeological & Historical Impact

#### Ecological Impacts

#### **Management Objectives:**

- Ensures that operations are conducted in an environmentally responsible manner;
- Mitigation and Monitoring of Ecological and Archaeological & Historical Impacts

Aspect	Impact description	Mitigation measures and management actions	Responsibility	Significant Ranking	Monitoring
Creation of access road to Karingarab	The effect of exploration activities on the ecosystem	To reduce the impact of the access road creation on the biodiversity (fauna and flora),		Medium	

#### **Ecological Impacts**

#### **Management Objectives:**

- Ensures that operations are conducted in an environmentally responsible manner;
- Mitigation and Monitoring of Ecological and Archaeological & Historical Impacts

Aspect	Impact description	Mitigation measures and management actions	Responsibility	Significant Ranking	Monitoring
Access roads to	structure and	and the Archaeological & Historical; the	Exploration		Visual
the various drill	function.	following measures should be considered:	Section		inspections
and exploration sites		<ul> <li>Making new roads over hard or gravelly areas should be avoided or kept to a minimum and wherever possible, alternative routes over sandy areas (Hummock Plains habitat) should be chosen</li> <li>Due care should be taken that the jeep track is not followed by idle drivers intending to find out "where it goes". When they lose the track –they will create numerous other ones trying to find it, thereby obliterating the original one.</li> <li>Ensure strict control over the creation of new tracks and removal of archaeological and historical artefacts, any plant material, including firewood, seed and whole plants. One track per site should be delineated at the start of the programme and the environmental officer should constantly ensure that only this road is used.</li> <li>Personnel (Namdeb and contractors) at the site must be informed about environmental sensitivity of the areas prior to exploration activities.</li> </ul>			Training records

#### **Ecological Impacts**

#### **Management Objectives:**

- Ensures that operations are conducted in an environmentally responsible manner;
- Mitigation and Monitoring of Ecological and Archaeological & Historical Impacts

Aspect	Impact description	Mitigation measures and management actions	Responsibility	Significant Ranking	Monitoring
Access control	The effect of exploration activities on the ecosystem structure and function.	The site is in a restricted area as well as in a national park and to control access to the exploration sites and to reduce the impacts the following measures should be considered:  All relevant personnel should be issued with permits and made aware of the rules and regulations when entering such sites.	Security Department	Low	Restricted Area permit and training and awareness record
Incident reporting	Exploration activities come with inherent risks of incidents happening	Report all environmental incidents as specified in the environmental incident reporting and response procedure (PR-EV-19) on the intranet. Introduce mitigation where appropriate.	All	Low	Incident cards
Environmental sensitive area map	Mitigation Hierarchy	Develop an environmentally sensitive area map of the area to ensure any biodiversity hotspots areas are avoided. (Where rocky outcrops cannot be avoided, exploration activities on them should be agreed on between the Environmental and Exploration Sections and this indicated on the map).	Environmental Section	Medium	Environmental sensitive areas map overlaid with drilling positions and any other relevant exploration sites.

Table 9: Management Plans for the exploration process – Waste Management

	Waste Management					
Management objectives: Pollution prevention						
Aspect	Impact description	Mitigation measures and management actions	Responsibility	Significance Ranking	Monitoring	
Waste production	Products that act as waste must be cleaned up and disposed of in an appropriate manner.	<ul> <li>Leftover drilling fluid and casing material or domestic waste volumes must be reduced by re-using or recycling where possible. Waste that cannot be recycled must be disposed of at appropriate waste disposal sites.</li> <li>Waste should be disposed of regularly.</li> <li>Hazardous wastes must be disposed of according to MSDS specifications and at suitable hazardous waste disposal sites.</li> <li>Contaminated soils (e.g. by hydrocarbons) can be remediated in accordance with accepted procedures at a site dedicated for this purpose ((PO-EV- 07) available on the intranet).</li> <li>Drip trays are to be provided for heavy vehicles and the oil disposed of in a drum, for disposal at an approved waste disposal site.</li> <li>LDVs shall be in a sound mechanical condition. Ant LDVs will oil leaks should not be permitted on site.</li> </ul>	Exploration Section	Low	Monitoring of waste and any environmentally detrimental activities must be done on a daily basis.	
Incident reporting	Exploration activities come with inherent risks of incidents happening	Report all environmental incidents as specified in the environmental incident reporting and response procedure (PR-EV-19) on the intranet.	All	Low	Incident cards	

Table 10: Management Plans for exploration process – Health and Safety impacts

#### **Health and Safety Impacts** Management objectives: Health and Safety Impact description Responsibility Significant **Monitoring Aspect** Mitigation measures and management Ranking actions Safety and health To prevent health and safety risks the **Exploration activities** following should be implemented/must incidents come with inherent Exploration Low Monitoring of risks to workers be available: waste and any Section Operational and procedural manuals environmentally detrimental Health and Safety training Housekeeping rules activities must be done on a Safe work procedures and permits to daily basis. work Emergency response plans Material Safety Data Sheets (MSDS) freely available Protective equipment Regulations for handling fuel and chemicals Proper supervision Qualified personnel for specialist jobs Incident reporting **Exploration activities** Report all environmental incidents as ΑII Low Incident cards specified Lost Control Procedure (PR-LCcome with inherent

02) on the intranet.

risks to workers

Table 11: Management Plans for the Closure and Decommissioning Phase

#### Closure and decommissioning phase

#### Management objectives:

- Ensure that the Karingarab areas are restored to ensure the future land use of the National Park is not compromised.
- Pollution prevention

Aspect	Impact description	Mitigation measures and management actions	Responsibility	Significant Ranking	Monitoring
Restoration of the Karingarab area	Ecological restoration of the areas either after exploration activities or after the potential mining of the REE	Compile a report post-2021 exploration activity of rehabilitation status. Identify areas that will require follow-up environmentally impactful exploration and ensure all areas where work is complete are rehabilitated satisfactorily.  Allocate resources for implementation of the restoration ecology programme at Karingarab, including:  A visit by a restoration specialist to identify	Exploration Section	Low	Restoration Plan developed
		restoration targets and recommend the desired restoration methodology in line with the Biodiversity Action Plan.			
Rehabilitation	Rehabilitation	Fix photo points to see the before and after impacts of drilling and later the potential mining impacts	Exploration Section	Medium	Panoramic images
Waste management	Redundant infrastructure will have visual impact in the Tsau //Khaeb (Sperrgebiet) National Park.	Map the survey beacons, drilling collars, and selected RC holes to remain for possible future geophysical probing and water table monitoring.  Removal of equipments (solar panels, base transceiver, batteries, etc.)	Exploration and Environmental Section	Low	Inventory of waste removed and visual inspection
		Demolition of all existing structures (mast, plinths, building, etc.,; Removing all wastes.)			

#### 5. Conclusion

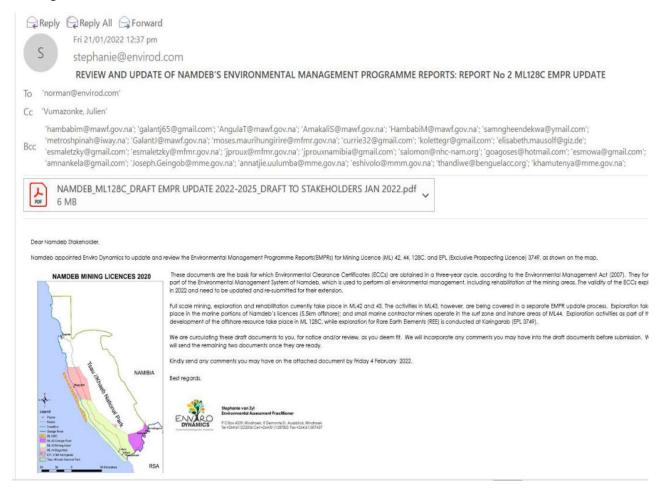
The Environmental Management Plan should remain the on-site reference document during the exploration phase and auditing should take place in order to determine compliance with the EMP for the proposed site. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

The past period of exploration at Karingarab provides an opportunity to reassess the impacts that occur and to re-evaluate the rehabilitation methods used. They can be fine-tuned to accommodate the unique challenges and features of the project and its terrain. It will therefore be the aim to re-evaluate environmental performance and to adapt where necessary for the ensuing period: 2022-2024.

The significance of all the impacts have increased, due to the scale of the exploration programme being ramped up and more people being accommodated on site. The EMP is still relevant for the upcoming period, but its implementation will require resources, especially to satisfy restoration targets, to ensure its measures are complied with. It is recommended that a restoration specialist visit the site to identify specific restoration targets coupled with specific tasks, for the site.

#### Appendix C: Communication trail: Report review

#### Message sent to all on the stakeholder database:



#### Comments and response trail:

COMMENT	SOURCE	RESPONSE	ACTION
New species of Miocene fossil eggshells have been described from Karingarab and this is the type-locality for them. Here are the coordinates: 28°12'16.2"S, 16°21'34.7"E	Prof. Brigitte Senut CR2P – MNHN, CNRS, Sorbonne Université Muséum National d'Histoire Naturelle Département	Noted.	Check whether the data is included in the ESMS.
Fauna study done in 2013.	Peter Cunningham Environment & Wildlife Consulting Namibia Windhoek	Data from reports included in the ESMS.	None
Power supply infrastructure for the project appears to be limited (i.e. solar supply at the field camp). However, if possible, it would be good to include a generic recommendation that any power supply structure should be monitored for signs of wildlife interactions and, should these give cause for concern, appropriate mitigation should be applied.	Africa Conservation Services Mike and Ann Scott	There will be no power supply infrastructure that are a threat to wildlife.	EMP edited to monitor threats to wildlife.
Data from Scientific studies quoted without references	Herta Kolberg Botanical Consulting	Noted. This report is an update from the original scoping report.	Report edited to include references.
Quote provided to review the document for archaeological content. Scoping report not adequate.	RC Heritage Services cc	Original scoping report completed in 2014 with thorough archaeological study.	Text edited. Archaeology already included in the ESMP. EMP requires that sensitivity areas be mapped and identified before operations commence.