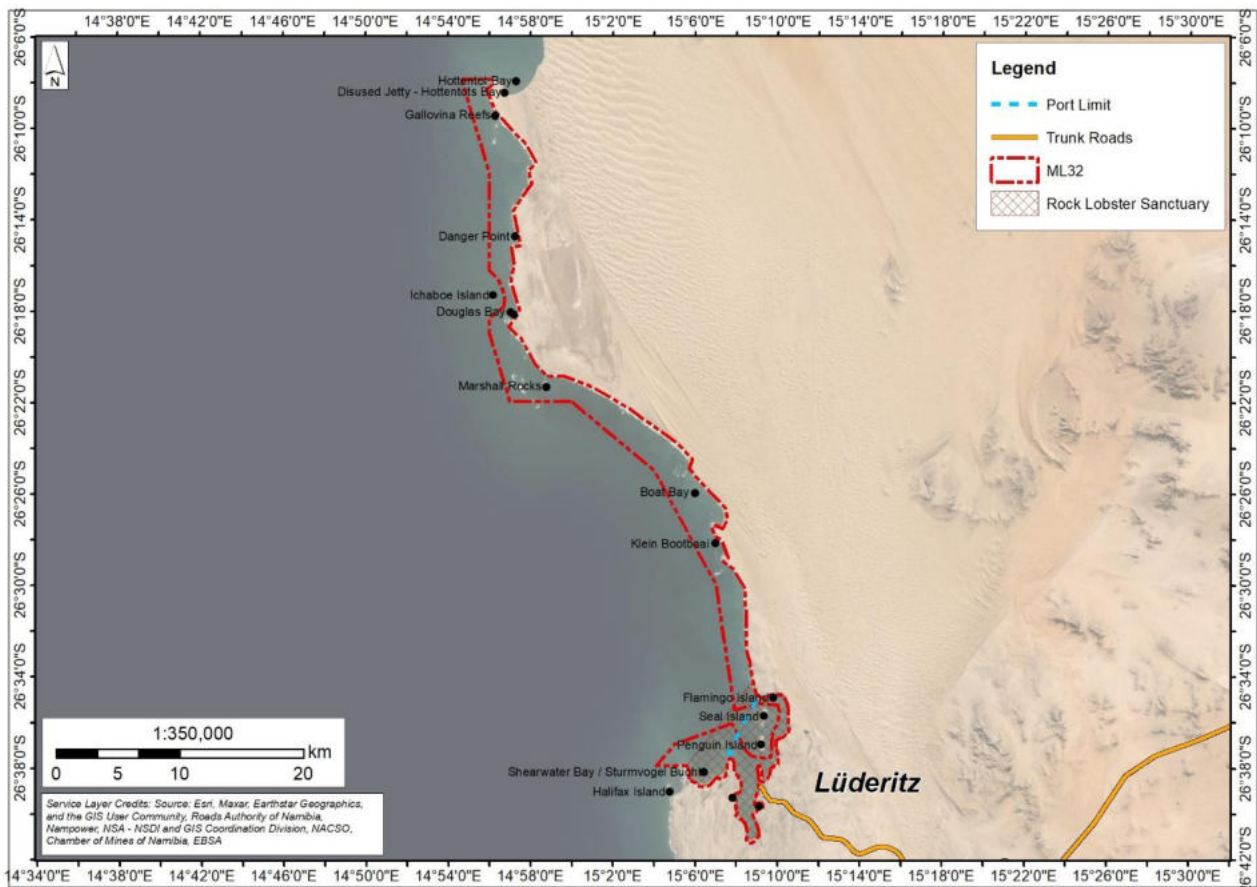


**IMPLEMENTATION OF AND COMPLIANCE WITH THE UPDATED (2019)  
ENVIRONMENTAL MANAGEMENT PLAN FOR MARINE DIAMOND  
EXPLORATION AND MINING BY NAMIBIAN DIAMOND COMPANY (PTY) LTD  
IN MINING LICENSE (ML) 32, LÜDERITZ AREA, //KARAS REGION, NAMIBIA**



Source: Maike Prickett, GIS Specialist, August 2022

02 December 2022

Prepared by:



Prepared for:

**NAMIBIAN DIAMOND COMPANY (Pty) Ltd**  
Reg. No. 2011/0546

## CONTACT DETAILS

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**NAMIBIAN DIAMOND COMPANY (Pty) Ltd**  
Reg. No. 2011/0546

Mr Hans Hückstedt  
Chief Geologist  
Namibian Diamond Company (Pty) Ltd  
P.O. Box 9600  
Windhoek  
Namibia  
Tel: +264 61 226672  
E-mail: hans@diamondfields.com



Dr Lima Maartens  
LM Environmental Consulting  
P.O. Box 1284  
Windhoek  
Namibia  
Tel: +264 61 255750  
Fax: +264 88 619004  
E-mail: lima@iway.na

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Letter from the Chief Executive Officer, Namibian Diamond Company (Pty) Ltd, to the Executive Director, Ministry of Environment, Forestry and Tourism (19 April 2022);  
Application and Verification Notices from the Ministry of Environment, Forestry and Tourism;  
Application for Renewal of the Environmental Clearance Certificate (15 July 2022).

## ABBREVIATIONS / ACRONYMS / SYMBOLS / UNITS

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The following is a list of the abbreviations, acronyms, symbols, and units used in this Report:

AIDS	Acquired Immunodeficiency Syndrome
AU	African Union
CBD	Convention on Biological Diversity
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CEO	Chief Executive Officer
DEAF	Directorate of Environmental Affairs and Forestry
EAP	Environmental Assessment Practitioner
EAPAN	Environmental Assessment Professionals of Namibia
EBSA	Ecologically or Biologically Significant Marine Area
ECC	Environmental Clearance Certificate
ED	Executive Director
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
EPL	Exclusive Prospecting License
GRN	Government of the Republic of Namibia
ha	hectare
HIV	Human Immunodeficiency Virus
IBA	Important Bird Area
ICESCR	International Covenant on Economic, Social and Cultural Rights
IEMA	Institute of Environmental Management and Assessment
IFC	International Finance Corporation
ILO	International Labour Organization
kHz	kilo Hertz
km	kilometre
kVA	kilo Volt-Ampere
LAC	Legal Assistance Centre
m	metre
m <sup>2</sup>	square metre
mm	millimetre
MET	Ministry of Environment and Tourism
MEFT	Ministry of Environment, Forestry and Tourism
MFMR	Ministry of Fisheries and Marine Resources
ML	Mining License
MME	Ministry of Mines and Energy
MPA	Marine Protected Area
NamPort	Namibian Ports Authority
NCE	Namibia Chamber of Environment
NDC	Namibian Diamond Company (Pty) Ltd
NDP5	National Development Plan 5
NIMPA	Namibian Islands' Marine Protected Area
NMPCP	National Marine Pollution Contingency Plan
OPRC	Oil Pollution Preparedness, Response and Co-operation
RBS	Risk-Based Solutions
SA	South Africa
SADC	Southern African Development Community

SEA	Strategic Environmental Assessment
SOLAS	Safety of Life at Sea
UK	United Kingdom
UN	United Nations
UNAM	University of Namibia
UNCLOS	United Nations Convention on the Law of the Sea
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization

## 1 Introduction

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### 1.1 Background

Namibian Diamond Company (Pty) Ltd (“NDC”) is owned in a partnership with 30% share ownership by the Namibian company, Full Screen Investment (Pty) Ltd, and 70% share ownership by Kimberley Overseas (“KO”). KO is wholly owned by Diamond Fields Resources Inc., a Canadian TSX (Toronto Stock Exchange)-Venture listed company (“DFR”) with properties in Namibia and Madagascar (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

NDC holds the Namibian offshore diamond Mining License (ML) 32. The Company applied for the mineral license on 17 April 1998 and the Ministry of Mines and Energy (MME) granted ML 32 to NDC on 17 February 2019; ML 32 will expire on 17 December 2023 (see <https://portals.landfolio.com/namibia/>). NDC’s primary focus is to further develop the license towards a profitable mining project (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

NDC was granted an Environmental Clearance Certificate (ECC) by the Office of the Environmental Commissioner, Ministry of Environment and Tourism (MET) for marine diamond exploration and mining in ML 32 on 25 April 2016 (the ECC expired on 25 April 2019).

In January 2019, Risk-Based Solutions (RBS) prepared two reports:

- i) Final Updated Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) Report for Marine Diamond Exploration and Mining in the Mining License (ML) No.32, Lüderitz Area, //Karas Region, Southern Namibia (RBS, 2019a); and
- ii) Final 2016 - 2019 Overall Environmental Compliance Monitoring Report to Support the Application for Renewal of Environmental Clearance Certificate (ECC) for Marine Diamond Exploration and Mining in Mining License (ML) No. 32, Lüderitz Area Environment, //Karas Region, Southern Namibia (RBS, 2019b).

During the period between April 2016 and April 2019, no exploration or mining operations were undertaken in ML32. The latter was mainly due to low resource prices and subsequent challenging global diamonds trading environments (see RBS, 2019a). Note that geophysical surveys (and thus exploration) were conducted during 2018 (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm).

The (renewed) ECC was issued by the Office of the Environmental Commissioner, MET, on 14 May 2019 (the ECC expired on 14 May 2022) (see Annexure A).

No exploration or mining operations were undertaken in ML 32 for the period between May 2019 and May 2022. Namibian Diamond Company (Pty) Ltd is, however, planning to carry out a shallow water mining campaign within ML 32 in the near future (see Annexure A: Letter from the Chief Executive Officer (CEO), Namibian Diamond Company (Pty) Ltd, to the Executive Director (ED), Ministry of Environment, Forestry and Tourism (MEFT), and the Mining Commissioner, MME, dated 19 April 2022).

An application for the Renewal of the ECC was submitted via MEFT’s online portal on 14 July 2022 (and again on **23 November 2022**). The MEFT noted that the application has been registered with application number APP-0010421 (14 July 2022) and **APP-00413** (23 November 2022). On 15 July 2022, the hard copy of the application for the Renewal of the ECC was submitted to the Directorate of Environmental Affairs and Forestry (DEAF) (see Annexure A). MEFT subsequently verified the application and requested the submission of the following documents (17 July 2022; and 23 November 2022): i) *updated EMP to effect amendment*; ii) *confirmation of screening notice received (through email) in terms of assessment procedures (Section 35 (1)(a)(b) of the Environmental Management Act, No 7 of 2007)*; iii) *preliminary site map with coordinates (decimal degrees) and a legend*; iv) *copy of the previous Environmental Clearance Certificate issued in terms of Section 37(1)(a) of EMA*; and v) *CV of Environmental Assessment Practitioner (EAP)*.



## 1.2 Project Location

ML 32 is located within the shallow marine environment around Lüderitz (see Figure 1), //Karas Region, Namibia.

The license area, 17,000 hectares (ha) in size, is bordered by ML 103A (Samcor Diamond Mining (Pty) Ltd) to the north; ML 139 (NDC), ML 36H (Samcor Diamond Mining (Pty) Ltd), ML 111 (NDC), and ML 36F (Samcor Diamond Mining (Pty) Ltd) to the west; ML 45 (Sperrgebiet Diamond Mining (Pty) Ltd) to the south-west; Exclusive Prospecting License (EPL) 5306 (Serve Investment One Three Eight (Pty) Ltd) to the south, ML 46 (on land) to the east (see <https://portals.landfolio.com/namibia/>); the Lüderitz Townlands to the south-east, and the Tsau //Khaeb National Park to the east.

Note that Seal (44 ha in size) and Penguin (36 ha in size) Islands are excluded from the ML 32-area; both islands support populations of breeding, foraging and/or roosting coastal seabirds; several species that are considered threatened breed on the islands, and often in large numbers (Kemper, 2020).

ML 32 overlaps with the waters of the Port of Lüderitz, operated by the Namibian Ports Authority (NamPort), the Namibian Islands' Marine Protected Area (NIMPA), and a rock lobster sanctuary (see Figure 1).

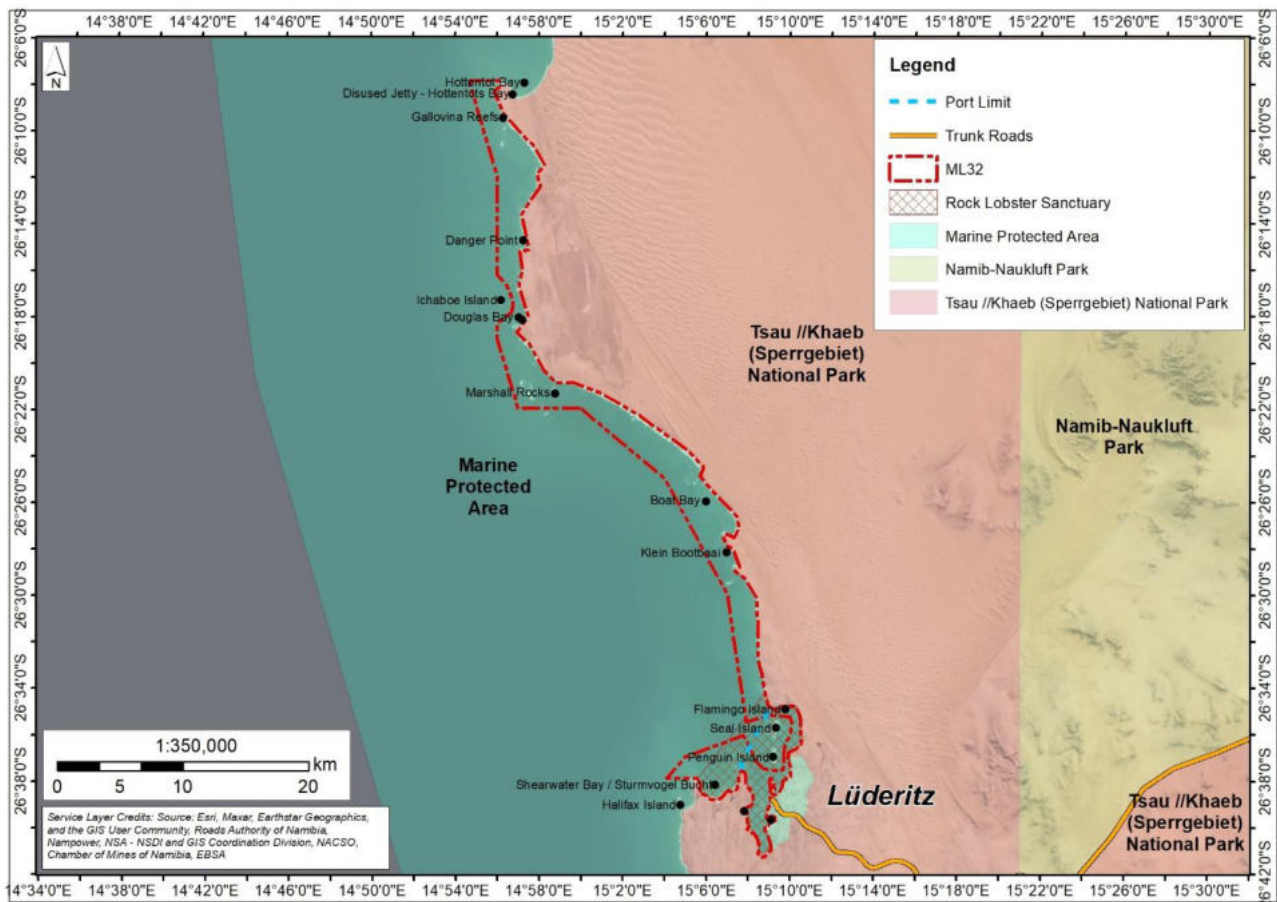


Figure 1: Map showing the location of Mining License (ML) 32, Lüderitz area, //Karas Region, Namibia (Source: Miss Maike Prickett, GIS Specialist, August 2022).

The NIMPA was declared in 2009 (Government of the Republic of Namibia (GRN), 2009). It stretches for 400 kilometres (km) from Meob Bay in the north to Chameis Bay in the south. The NIMPA extends roughly 30 km from the high water mark into the sea; Lüderitz is roughly at its centre (Currie *et al.*, 2009; Kemper, 2020).

Currie *et al.*, (2009) noted that it is intended that the Marine Protected Area (MPA) will contribute to: i) *sound management and conservation of marine resources under Namibia's jurisdiction*; ii) *the protection of spawning and nursery grounds of the commercially exploited rock lobster (*Jasus lalandii*) and that of certain fish stocks and other marine resources, to promote stock recovery*; iii) *protection of the foraging requirements of top*

predators in the Benguela Upwelling Ecosystem, including a number of globally threatened seabirds; iv) MFMR's "precautionary principle" management strategy, whereby representative habitats are set aside to mitigate potential future threats, as well as MFMR's legal obligations to EAF (Ecosystems Approach to Fisheries Management) management; v) improved vigilance with regard to risks posed by shipping-related threats, such as oil spills; vi) continued collection of oceanographic and biological data from offshore island sites, constituting important monitored indicators of the state of Namibia's marine environment and coastal ecosystem (contributing an integral link to Namibia's environmental monitoring system); vii) awareness, in a regional context, regarding novel approaches to the declaration and management of offshore MPAs; and viii) enhancement of Namibia's international relations by illustrating steadfast commitment to international environmental treaties, regional and national needs and requirements, and international law.

The NIMPA is divided into four zones of protection (Currie *et al.*, 2009). Zone 4 represents areas of priority conservation and highest protection status (i.e. on the islands, islets, rocks, rock lobster sanctuaries and line fish sanctuaries). Zone 3 restrictions are enforceable to a perimeter of 120 metres (m) (or less in specified cases in the approved management zonations) around each island, islet or rock. Zone 2 enforceable conditions apply to near-shore and on-shore mining areas up to a water depth of 30 m (GRN, 2012b) and Zone 1 represents the buffer zone with generalised and the fewest restrictions (GRN, 2012b).

Zone 2 restrictions 17. (1) Only minimal mining processing plant discharge is allowed between Prince of Wales Bay and Chamais Bay provided that settling pond systems are being implemented in order to minimize the mining processing plant discharge. (2) Any sediment buildup that forms land bridges to any island in the Namibian Islands' Marine Protected Area must be monitored and remedial action must prevent the formation of the land bridges to the islands. (3) No more than two active mining sites using sea walls may operate simultaneously. (4) Processing plant discharge points into the sea and onto the beach must be minimized with the development of any new mining activities in the Namibian Islands' Marine Protected Area (see GRN, 2012b).

The rock lobster sanctuary extends from Diaz Point north to a point north of Lüderitz at 26°34'S. No person may, in any manner or for any purpose harvest rock lobster in this area (GRN, 2001). Kemper (2020) noted that rocky areas, including sub-tidal reefs, are important rock lobster recruitment areas (K. Grobler, pers. comm.) and that this sanctuary is considered an important recruitment settlement area because of the sheltered environment afforded by a number of narrow rocky bays and fjords, the lagoon, as well as Seal and Penguin Islands.

Important Bird Areas (IBA) are areas that are considered critical for birds at a global or regional scale. Although they do not carry legal weight, they provide decision-makers with an inventory of areas of high bird conservation importance. The Lüderitz Bay Islands global IBA consists of Penguin Island, Seal Island and nearby Halifax Island (Barnes, 1998: see Kemper, 2020). The island complex is considered to be globally important as it regularly supports more than 10,000 seabirds, many of which are threatened (see Table 1).

Table 1: Threatened seabirds breeding on Penguin and/or Seal Islands (Source: Kemper, 2020).

Common name	Scientific name	Conservation status		Comments <sup>3</sup>
		Namibia <sup>1</sup>	Global <sup>2</sup>	
African penguin	<i>Spheniscus demersus</i>	Endangered	Endangered	Was extinct from the two islands for a century; up to five breeding pairs have been recorded on Penguin Island since 2003.
Bank cormorant	<i>Phalacrocorax neglectus</i>	Endangered	Endangered	Penguin Island currently supports the second largest breeding colony in the world. Feeds mostly on rock lobster in nearby kelp beds as well as on fish in more open water.
Cape cormorant	<i>Phalacrocorax capensis</i>	Endangered	Endangered	Up to several thousand pairs may breed on both islands in some years.
Crowned cormorant	<i>Microcarbo coronatus</i>	Near-Threatened	Near-Threatened	Breeds on both islands (up to several hundred nests). Feeds on crustaceans and small fish in nearby kelp beds.



African oystercatcher	<i>Haematopus moquini</i>	Near Threatened	N/A	Both islands support a large and globally significant number of breeding pairs. Feeds on intertidal mollusks.
Hartlaub's gull	<i>Chroicocephalus hartlaubii</i>	Vulnerable	N/A	Both islands may support several hundred breeding pairs in some years, often together with large numbers of (non-threatened) swift terns <i>Sterna bergii</i> .

<sup>1</sup>Source: Simmons *et al.* (2015) (see Kemper, 2020)

<sup>2</sup>Source: International Union for Conservation of Nature (IUCN) (2020) (see Kemper, 2020)

<sup>3</sup>Source: Ministry of Fisheries and Marine Resources (MFMR) unpublished data; J. Kemper pers. obs.

The NIMPA was also proposed as a Type 2 Ecologically or Biologically Significant Marine Area (EBSA) (see <https://cmr.mandela.ac.za/Research-Projects/EBSA-Portal/Namibia/Namibian-EBSA-Status-Assessment-Management>).

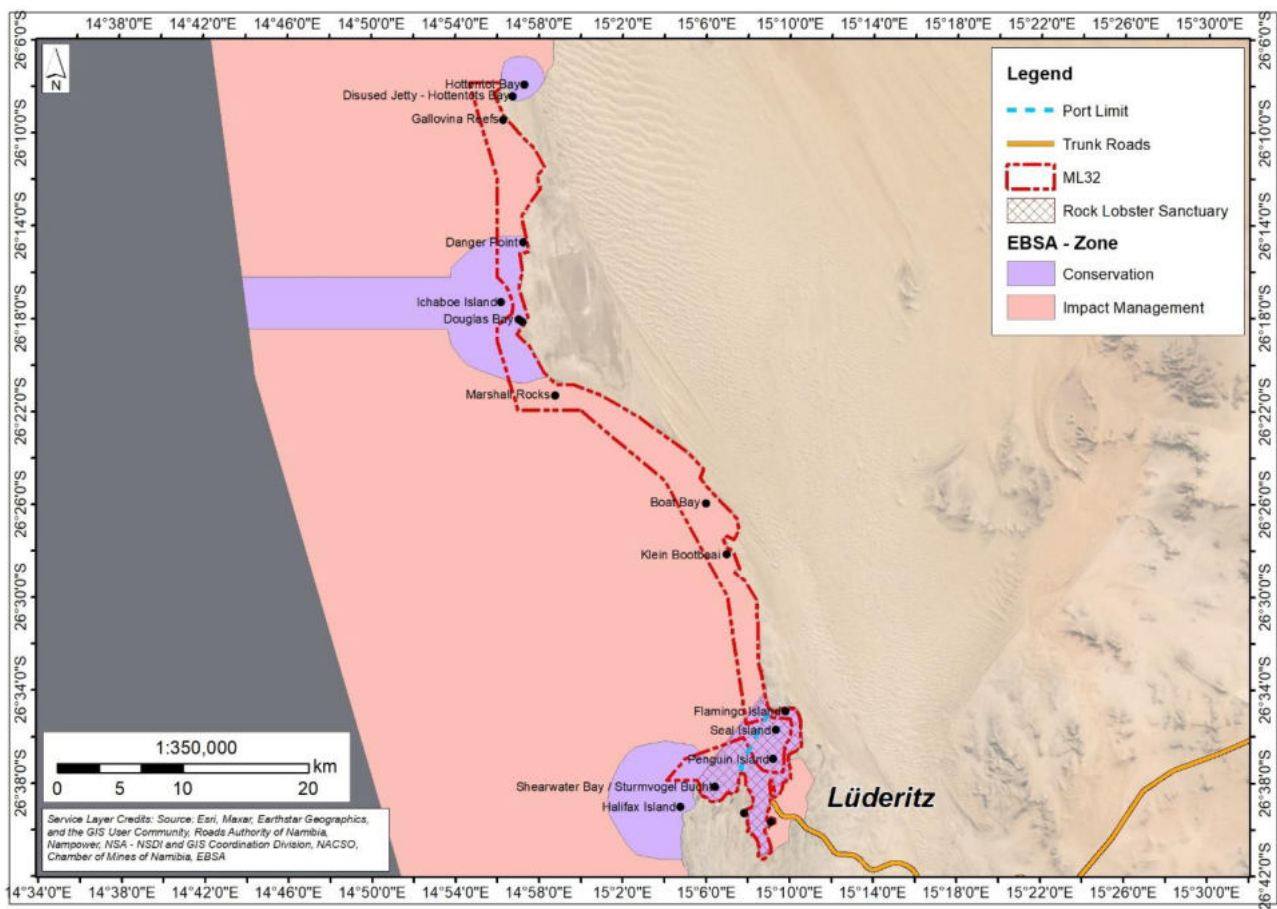


Figure 2: Map showing the proposed Ecologically or Biologically Significant Marine Area (EBSA) zones, Lüderitz area, //Karas Region, Namibia (Source: Miss Maike Prickett, GIS Specialist, August 2022).

### 1.3 Terms of Reference

LM Environmental Consulting was appointed by Namibian Diamond Company (Pty) Ltd to update the Project Description, Legislative Requirements, and Environmental Management Plan (EMP) in aid of an application for the renewal of the Environmental Clearance Certificate (ECC) on 14 June 2022.

#### 1.4 Environmental Assessment Practitioner

The author of this Report is Dr Lima Maartens who has more than 29 years' experience in natural resource management (she gained her doctorate (Ph.D.) in Fisheries Science from Rhodes University, South Africa (SA) while working for the Namibian Ministry of Fisheries and Marine Resources (MFMR) in 2000, lecturing (University of Namibia (UNAM)), environmental science and management (De Beers Marine Namibia and the Canadian Forsys Metals Corp), and consulting). Dr Maartens is registered as a Lead Practitioner and Reviewer with the Environmental Assessment Professionals of Namibia (EAPAN) (she served on the Executive Committee during 2016/17), an Associate Member and Environmental Auditor with the Institute of Environmental Management and Assessment (IEMA) in the United Kingdom (UK), a Full Member of the Namibia Chamber of Environment (NCE), and a Member of the Namibia Scientific Society. LM Environmental Consulting was established by Dr Maartens in October 2009.

## 2 Regulatory Framework - Updated

The (updated) most pertinent legislation (Ruppel and Ruppel-Schlichting, 2022; Legal Assistance Centre (LAC), 2019; 2020), with the aim of informing the Namibian Diamond Company (Pty) Ltd of the legal requirements pertaining to exploration and mining activities in ML32 is listed in Table 1.

Table 2: Regulatory framework for Namibian Diamond Company (Pty) Ltd exploration and mining activities in Mining License (ML32), //Karas Region, Namibia.

<b>National Law</b>
<b>Acts of Parliament, Regulations, Ordinances, Proclamations</b>
The Constitution of the Republic of Namibia 1990 (and First Amendment Act 34 of 1998, Second Amendment Act 7 of 2010, and Third Amendment Act 8 of 2014)
Employees' Compensation Act 30 of 1941 (as amended in South Africa prior to Namibian independence) (Amendment Act 5 of 1995 amends the Act substantially and changes its name from the Workmen's Compensation Act to the Employees' Compensation Act) (and the General Regulations 1961 (as amended))
Merchant Shipping Act 57 of 1951 (and amendments: Act 7 of 1991, Namibian Ports Authority Act 2 of 1994, and Wreck and Salvage Act 5 of 2004) (and the Record Book Regulations 1977 (amended 1998), Previous Examination Regulations for Certificates of Competence as Marine Motormen and Fishermen (repealed in 2004), Construction and Equipment Regulations for fishing vessels 2002, Manning of Ships Regulations 2003, Certificates of Qualifications Regulations 2004 (amended in 2007), Merchant Shipping Fees Regulations 2009, and Merchant Shipping (Radio Installations) Regulations 2010)
Water Act 54 of 1956 (as made applicable in Namibia)
Sea Shore Ordinance 37 of 1958
Soil Conservation Act 76 of 1969 (as amended in South Africa to March 1978)
Hazardous Substance Ordinance 14 of 1974 (and the General Regulations 1979; no post-independence regulations have been promulgated)
International Health Regulations Act 28 of 1974 (as amended to December 1977)
Nature Conservation Ordinance 4 of 1975 (and the Regulations Relating to Nature Conservation 1976 and the amended Regulations)
Atmospheric Pollution Prevention Ordinance 11 of 1976 (Regulations are authorised by several sections of the Act; no post-independence regulations have been promulgated)
Marine Traffic Act 2 of 1981 (as amended by the Marine Traffic Amendment Act 5 of 1983, the Marine Traffic Amendment Act 15 of 1991, and the Namibian Ports Authority Act 2 of 1994)
Prevention and Combating of Pollution of the Sea by Oil Act 6 of 1981 (as amended by the Prevention and Combating of Pollution of the Sea by Oil Amendment Act 59 of 1985 (RSA), Prevention and Combating of Pollution of the Sea by Oil Amendment Act 63 of 1987 (RSA), and Act 24 of 1991, the Namibian Ports Authority Act 2 of 1994; and Act 5 of 2019)
Territorial Sea and Exclusive Economic Zone of Namibia Act 3 of 1990 (and Territorial Sea and Exclusive Economic Zone of Namibia Amendment Act 30 of 1991)
Petroleum Products and Energy Act 13 of 1990 (as amended by the Petroleum Products and Energy Amendment Act 29 of 1994, Act 3 of 2000, and Act 16 of 2003) (and the Regulations relating to the purchase, sale, supply, acquisition, possession, disposal, storage, transportation, recovery and re-refinement of used mineral oil 1991, Petroleum Products Regulations 2000 (amended in 2002 and 2016), Regulations for arbitration procedures 2003, Regulations on funding of approved agencies 2004 (withdrawn 2005) (GN 247/2013 purports to amend the regulations in GN 230/2004, leaving the correct text of these regulations uncertain), and the Regulations relating to the reselling price of petrol and petrol products (issued frequently, with each one revoking or replacing the previous one)
Foreign Investment Act 27 of 1990 (and amendment Act 24 of 1993) (and the Regulations 1992)
Regional Councils Act 22 of 1992 (and Amendment Acts 17 of 1997, 30 of 2000, 12 of 2002, 12 of 2010, 16 of 2010, and 7 of 2017) (and the Regulations: Commercialisation Regulations 2001; Joint Business Venture Regulations 2001; and Tender Board Regulations 2001)
Local Authorities Act 23 of 1992 (and amendments) (and the Model Pound Regulations 1994, the Model Electricity Supply Regulations 1996, Model Water Supply Regulations 1996, Model Sewerage and Drainage Regulations 1996, Model Regulations for the Control of Dogs in Local Authority Areas 2008, Commercialisation Regulations 2001 (amended in 2007), Joint Business Venture Regulations 2001 (amended in 2007), and Tender Board Regulations 2001 (replaced in 2011), and Recruitment and Selection Regulations for Local Authority Councils 2019)
Local Authorities Act 23 of 1992 Town of Lüderitz: Regulations relating to waste management
Minerals (Prospecting and Mining) Act 33 of 1992 (and Minerals (Prospecting and Mining) Amendment Act 8 of 2008)
Namibian Ports Authority Act 2 of 1994 (as amended by the National Transport Services Holding Company Act 28 of 1998, the Namibian Ports Authority Amendment Act 12 of 2000, and the State-owned Enterprises Governance Act 2 of 2006) (and the Port Regulations 2001)
Environmental Management Plan for the Operations of the Port of Lüderitz (Faul <i>et al.</i> , 2019)
Social Security Act 34 of 1994 (as amended by the State-owned Enterprises Governance Act 2 of 2006/ Public Enterprises Governance Act 2 of 2006, and the Labour Act 11 of 2007 (and the General Regulations 1995, and amendments))

Arms and Ammunition Act 7 of 1996 (and amendments: Combating of Domestic Violence Act 4 of 2003; and General Law Amendment Act 14 of 2005) (and the General Regulations 1998)
Namibia Water Corporation Act 12 of 1997 (and amendments: Namibia Water Corporation Amendment Act 17 of 2001; Water Resources Management Act 24 of 2004 (not yet been brought into force); State-owned Enterprises Governance Act 2 of 2006 (re-named the Public Enterprises Governance Act 2 of 2006); and the Water Resources Management Act 11 of 2013 (not yet been brought into force))
Affirmative Action (Employment) Act 29 of 1998 (as amended by Act 6 of 2007 and the Labour Act 11 of 2007) (and the General Regulations 1999)
Diamond Act 13 of 1999 (and the Regulations relating to the Search of Employees and Visitors in Diamond Areas 1950; the Diamond Regulations 2000; and the Amendment of the Diamond Regulations 2003)
Road Traffic and Transport Act 22 of 1999 (as amended by the Road Traffic and Transport Amendment Act 6 of 2008) (and the Road Traffic and Transport Regulations 2001)
Marine Resources Act 27 of 2000 (and the Regulations relating to the Namibian Islands' Marine Protected Area 2012)
Wreck and Salvage Act 5 of 2004
Research, Science and Technology Act 23 of 2004 (amended by the State-owned Enterprises Governance Act 2 of 2006/Public Enterprises Governance Act 2 of 2006) (and the Regulations 2011 (amended 2016))
National Heritage Act 27 of 2004 (as amended by the State-owned Enterprises Governance Act 2 of 2006/Public Enterprises Governance Act 2 of 2006) (and the National Heritage Regulations 2005)
Environmental Management Act 7 of 2007 (and the Environmental Impact Assessment Regulations 2012)
Labour Act 11 of 2007 (and the Labour Amendment Act 2 of 2012) (and the Regulations relating to the Health and Safety of Employees at Work 1997, and the Labour General Regulations 2008)
Namibian Islands' Marine Protected Area (NIMPA) 2009
Tobacco Products Control Act 1 of 2010 (and the Regulations 2014)
Public and Environmental Health Act 1 of 2015 (and section 20(1) of the National Health Act 2 of 2015) (and the Public Health Covid-19 General Regulations 2021) (and amendments)
Marine Notice No. 02 of 2017: Requirements and Conditions for the Transfer of Oil within Namibian Waters
Marine Notice No.04 of 2018: Garbage Management Requirements in Namibia under MARPOL Annex V
<b>Policies, Guidelines, National Strategies &amp; Action Plans</b>
<b>Policies</b>
Conservation of Biotic Diversity and Habitat Protection 1994
Namibia: National Code on HIV/AIDS in Employment 2000
Minerals Policy of Namibia 2002
National Policy on HIV/AIDS 2007
National Gender Policy 2010 - 2020
National Health Policy Framework 2010-2020 - "towards quality health and social welfare services"
National Policy on Climate Change for Namibia 2011
National Policy on Coastal Management for Namibia 2012
National Policy on Prospecting and Mining in Protected Areas 2018
<b>Guidelines</b>
Petroleum Products Regulations, 2000 Guidelines for Consumer Installations
Draft Water Quality Standards for Effluent 2008
<b>National Strategies &amp; Action Plans</b>
Namibia's Green Plan 1992
Vision 2030 2004
Towards a Coastal Policy for Namibia, Green Paper 2009
National Policy on Climate Change for Namibia 2011
National Climate Change Strategy & Action Plan (2013 – 2020)
Namibia's Second National Biodiversity Strategy and Action Plan (NBSAP 2) (2013 – 2022)
Namibia's 5th National Development Plan (NDP5) – Working together towards prosperity (2017/18 – 2021/22)
National Marine Pollution Contingency Plan (NMPCP) 2017
National Solid Waste Management Strategy 2018
<b>National Parks Environmental Management Plans (EMPs)</b>
Management Plan for Tsau //Khaeb (Sperrgebiet) National Park 2020/2021-2029/2030
<b>Town Planning Schemes, Structure Plans, &amp; Land Use Plans</b>
N/A
<b>Strategic Environmental Assessments (SEAs)</b>
Strategic Environmental Assessment (SEA) for the coastal areas of the Hardap and //Karas Regions 2012
<b>Good Industry Practice</b>
Best Practice Guide. Environmental Principles for Mining in Namibia 2019
<b>International Law</b>
<b>African Union (AU)</b>
African Charter on Human and Peoples' Rights (Banjul Charter) 1981, the Protocol to the African Charter on Human and Peoples' Rights on the establishment of the African Court on Human and Peoples' Rights 1998 (non-binding), and the Protocol to the African Charter for Human and Peoples' Rights on the Rights of Women in Africa 2003

Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region and Protocol (Abidjan Convention) 1981 (Additional Protocol to the Abidjan Convention concerning Cooperation in the Protection and Development of Marine and Coastal Environment from Land-based Sources and Activities in the Western, Central and Southern African Region 2012)
African Convention on the Conservation of Nature and Natural Resources (Revised Version) 2003 (non-binding)
Agreement for the Establishment of the Africa Institute for the Environmentally Sound Management of Hazardous and Other Wastes Agreement 2004
Benguela Current Convention 2013
<b>Southern African Development Community (SADC)</b>
Treaty of the Southern African Development Community (SADC) 1992 (and Agreement Amending the Treaty 2001; Agreement Amending Article 22 of the Treaty 2007; Agreement Amending the Treaty 2008; Agreement Amending the Treaty 2009 – DES; and Agreement Amending the Treaty 2009 – ORGAN)
SADC Protocol on Mining 1997
SADC Protocol on Health 1999
Charter of Fundamental Social Rights in SADC 2003
SADC Protocol on Gender and Development 2008 (and an Agreement Amending the SADC Protocol on Gender and Development 2016)
SADC Protocol on Environmental Management for Sustainable Development 2014 (not yet binding)
SADC Protocol on Employment and Labour 2014 (not yet binding)
<b>United Nations (UN) / International Conventions</b>
Constitution of the International Labour Organization (ILO) 1919 (as amended), and *Instrument of Amendment of the ILO Constitution, 1986 (not yet binding), and the Instrument of Amendment of the ILO Constitution 1997
Constitution of the World Health Organization (WHO) 1946 (and *Amendment to Article 7 of the Constitution of the World Health Organization 1965 (not yet binding); *Amendment to Article 74 of the Constitution of the World Health Organization 1978 (not yet binding); Amendments to Articles 24 and 25 of the Constitution of the World Health Organization 1986; and Amendments to Articles 24 and 25 of the Constitution of the World Health Organization 1998)
ILO Convention concerning Discrimination in Respect of Employment and Occupation (No. 111) 1958 (and including the Forced Labour Convention 1930 (No. 29); Abolition of Forced Labour Convention 1957 (No. 105); Freedom of Association and Protection of the Right to Organise Convention 1948 (No. 87); Right to Organise and Collective Bargaining Convention, 1949 (No. 98); Equal Remuneration Convention 1951 (No. 100); Discrimination (Employment and Occupation) Convention 1958 (No. 111); Minimum Age Convention 1973 (No. 138); and Worst Forms of Child Labour Convention 1999 (No. 182))
International Convention on the Elimination of All Forms of Racial Discrimination 1966
International Covenant on Economic, Social and Cultural Rights (ICESCR) 1966
Convention Concerning the Protection of the World Cultural and Natural Heritage 1972
Convention on the International Regulations for Preventing Collisions at Sea (COLREGs) 1972 (as amended in 1981, 1987, 1989, 1993, 2001, 2007 and 2013)
International Convention for the Prevention of Pollution from Ships (MARPOL) 1973, as modified by the Protocol of 1978 ("MARPOL 73/78") (and Annex I - Regulations for the Prevention of Pollution by Oil; Annex II - Regulations for the Control of Pollution by Noxious Liquid Substances (NLS) in bulk; Annex III - Regulations for the Prevention of Pollution by Harmful Substances in Packaged Form; and Annex V - Regulations for the Prevention of Pollution by Garbage from Ships)
International Convention for the Safety of Life at Sea (SOLAS) 1974 (as amended) (and its Protocol of 1978 relating to the International Convention for the Safety of Life at Sea, 1974)
International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978 (and 17 sets of amendments)
Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) 1979 and the Optional Protocol to the Convention on the Elimination of all Forms of Discrimination against Women 1999
International Convention on Maritime Search and Rescue (SAR) 1979 (as amended)
United Nations Convention on the Law of the Sea (UNCLOS) 1982 (and the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, 1994 and the United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (Fish Stocks Agreement) 1995)
Vienna Convention for the Protection of the Ozone Layer 1985 and the Montreal Protocol on Substances that Deplete the Ozone Layer 1987 (and Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Second Meeting of the Parties at London on 29 June 1990 (London Amendment); Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Fourth Meeting of the Parties at Copenhagen on 25 November 1992 (Copenhagen Amendment); Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Ninth Meeting of the Parties at Montreal on 17 September 1997 (Montreal Amendment); Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Eleventh Meeting of the Parties at Beijing on 3 December 1999 (Beijing Amendment); and Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Twenty-Eighth Meeting of the Parties at Kigali from 10 to 15 October 2016 (Kigali Amendment))

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention) 1989 and the Amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1995
International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) 1990
Convention on Biological Diversity (Biodiversity Convention) 1992, the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Montreal 2000, and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity 2010
Protocol of 1992 to Amend the International Convention on Civil Liability for Oil Pollution Damage 1969 (CCL PROT 1992) and Protocol of 1992 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971 (FUND PROT 1992) (1992 Fund Convention)
United Nations Framework Convention on Climate Change (UNFCCC) 1992, the Kyoto Protocol to the UN Framework Convention on Climate Change 1997 (and the not yet binding Doha Amendment to the Kyoto Protocol to the United Nations Framework Convention on Climate Change 2012), and the Paris Agreement 2015
Convention on the Protection of the Underwater Cultural Heritage 2001
Convention for the Safeguarding of the Intangible Cultural Heritage 2003
Convention on the Protection and Promotion of the Diversity of Cultural Expressions 2005
United Nations Guiding Principles on Business and Human Rights 2011
<b>International Best Practice</b>
International Finance Corporation (IFC) Environmental Health and Safety (EHS) Guidelines 2007 and the EHS Guidelines for Mining 2007



### 3 Project Description – Updated

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Risk-Based Solutions (2019a) noted that “Since 1995, Diamond Fields has commissioned several environmental studies relating to its diamond sampling and/or mining activities, as well as monitoring of their sampling activities.”

The sequence of events, since 1995 and as far as could be ascertained, are as follows:

- 2001 to 2004: mining operations were conducted on an irregular basis under various joint venture and contracting arrangements (RBS, 2019a);
- Late-2004: NDC acquired its own twin airlift mining vessel, MV “DF Discoverer” (RBS, 2019a);
- Mid-2005: mining in ML32 with the MV “DF Discoverer” (operations were suspended in 2008) (RBS, 2019a);
- In 2008 and in 2016: a number of research and monitoring activities and project-specific studies have been undertaken by NDC as part of the EIA and EMP reporting (RBS, 2019a);
- Anonymous (2016) refers to a “fly-in/fly-out (FIFO)” “roster system” and “a 2:1 month-rotation for personnel on board of the mining vessel” for work within ML 111, ML 138 & 139, and ML 32. Reference is also made to: “projected labour requirements for the Development are 53 employees that are needed to operate the mining system of vessel (over two shifts, and including catering personnel)”, “The service contractor responsible to the job arrangement is Nutam Operations (Pty)” and “There are preliminary discussions for involving local operators in the development of ML 32.”;
- April 2016 to April 2019: no exploration or mining activities (RBS, 2019a); note that geophysical surveys (see below) were conducted during 2018;
- May 2019 and May 2022: no exploration or mining activities (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm);
- 2022: planned shallow water mining campaign within ML 32 (0-42 m; see below).

Previous exploration activities included: geophysical surveys (during 2018, for example, an area of 720,000 square metres (m<sup>2</sup>) was covered with a sidescan sonar) / techniques were used to delineate potential targets; data were collected over a grid of regularly spaced lines whose separation varied according to the swathe width and resolution of the survey required. Surveying techniques commonly include(d):

- Multibeam echo-sounder and high resolution sidescan sonar surveys; these are conducted at a constant height above the seafloor and at specified line spacing. Transducers emit an acoustic signal in the form of a swathe. Depending upon the resolution of the data required, a variable, high frequency of 100 - 500 kilo Hertz (kHz) is used to produce textural maps of the seafloor. The data are recorded and mosaiced digitally onboard the surveying vessel; and
- Medium-frequency, low energy (<12 kHz) seismic are used during sub-bottom acoustic profiling surveys to map the uppermost 10 to 15 m of unconsolidated sediment. Acoustic pulses (chirps) are emitted at constant height above the seafloor at specified line intervals, and the reflected signals are recorded digitally. Such surveys are used to determine bedrock morphology, the types of sediments lying upon the consolidated footwall, particularly the position and thickness of the diamond-bearing gravel ore body, and the thickness and composition of overlying sediments (RBS, 2019a and Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

Previous mining activities involved the extraction of seabed materials using diver based mining methods and/or diver assist remote tool mining (RBS, 2019a; Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

Note that the shallow water areas (as within ML32) only has an estimated 16% weather window (average over one year; it may vary between zero and 20 days/month) for operations (mining and exploration). Thus, during the following months (2000 to 2021), there was therefore on average only 16% calendar days of operation: April 2000; August 2004; June 2005; December 2006; January 2009; November 2010; March to July 2011 and September to December 2011; August to November 2012; and January to March and May to June 2013 (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm., 14 September 2022).

In May 2022, Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty), provided the following general information re **mining methods in shallow water areas** and consisting of land- and **boat-based** operations:

The divers are required to work in shallow water depths only, usually less than 12 m, but occasionally divers may be required to dive to depths of at least 20 m with consequent physiological hazards. At depths less than 12 m, a diver can spend long periods on the sea floor, which in exceptional cases may reach eight hours in a day, with only minor breaks. Three to four hours is a normal daily shift, weather permitting.

Since all the diving is done in or near the surf zone, this activity is extremely sea dependent and the number of working days in any calendar month has varied between zero and 22, with a common range between five and 12. Also, the weather typically only allows for eight months/year of operations. Since good diving conditions are so influenced by the sea regime, they tend to occur close together and a month's diving may all be concentrated into a ten-day period, with prolonged spells of inactivity during stormy cycles.

For **land-based operations**, the parts of the mining license that is accessible is confined to areas where the beach topography and relief allow for access from land by a diver walking into the surf zone and dragging the suction hose behind him/her. Further access into the surf zone is determined by the length of the suction hose (estimated to be between 100 to 180 m) from the on land gravel pump which is often mounted on a tractor. The simplest method of working in the surf zone is to utilise a tractor-mounted gravel pump, which is mobile, easy to set up, and to maintain. Ancillary requirements include a gravel classifier, a gravel trailer, a second tractor, divers' air supply, diving gear, and pipes to lay out to the pump site.

**Boat-based operations** are used in order to reach cliffed and other areas inaccessible from the shore. The boats range from 8 to 35 m in length. Essentially the method of a diver using a suction hose powered by a gravel pump is similar to that of **land-based operations**.

A major advance in the success of these **inshore gravel recovery boats** has been the introduction of blowers. These are essentially cowls which can be placed over the boat propeller, deflecting the water flow vertically onto the sea floor and displacing sand. Up to 5 m of overburden sand can be blown away using this technique, which was perfected by wreck divers. Within water depths up to 25 m, the blower may expose basal gravels without any input from the divers, leaving them with maximum diving time to move the diamondiferous gravels. This technique is particularly important in the 10 to 25 m water depth range.

A steel nozzle is attached to the end of the diver suction hose, which only allows pebbles of up to 90 millimetres (mm) to pass up the hose. The nozzle has a by-pass flap on the side to permit water flow when the nozzle mouth becomes clogged with large(r) pebbles or other debris.

**On land**, the processing and diamond recovery involve the following: the gravel pump is connected to a movable (tractor towed) rotating screen/classifier of the double-decker type which is locally known as a trommel screen. The function of the screen is to de-water and de-sand the gravel and to reject oversize cobbles. The two screens are normally 1.5 mm and 12 mm so that material retained for processing is + 1.5 mm to 12 mm. The screens are so designed that a trailer with a 2 cubic metre (m<sup>3</sup>) capacity can receive the gravel and transport it to the centralised recovery plant.

All gravels are usually processed through a centralized land-based plant at the shore-based campsite for security reasons. The plant may be a DMS/sortex combination or a Jig plant. The concentrate produced by the DMS or Jig plant will be hand sorted to recover the diamonds.

For **boat-based operations** the gravel slurry is pumped through a trommel screen mounted on deck. The oversize fraction is dumped straight overboard, while the sized gravel (around 1.5 to 12 mm) is stored in 20 to 40 kg bags normally securely placed in the hull of the boat. Processing of the sized gravel from the bags are normally done during weather periods when the divers cannot work. The sized gravel will be processed through a final recovery which may be a DMS/sortex combination or a Jig plant. The concentrate produced by the DMS or Jig plant will be hand sorted to recover the diamonds.

All processes at the land- and boat-based operations are under strict security surveillance as defined by a pre-approved security plan.

Namibian Diamond Company (Pty) Ltd is currently planning a shallow water (boat-based) mining campaign within ML 32 (0 - 42 m); there will also be a land-based component, i.e. a campsite within ML46 (see Figure 3) and with permission from Sperrgebiet Diamond Mining (Pty) Ltd. Between 2010 and 2013, Namibian Diamond Company (Pty) Ltd (Diamond Fields Namibia at the time) had a similar setup, i.e. a campsite above the high water mark.

A contractor will be employed by Namibian Diamond Company (Pty) Ltd to carry out the shallow water (boat-based) mining campaign. A camp will be set up, most likely 12 km north of Lüderitz in the Boulder Bay area, but the appointed (second) contractor will make the final decision as to the best location for the camp. Access to the camp will be via existing roads and tracks; water and fuel (around 2x 210 litres of diesel and 1x 210 litre of petrol) will be taken to the camp and power will be obtained from a generator (*Type: E1W10 200AC; 6 kVA; SN EWM14682; 50 HZ; 26,1 A; and with a Honda GX 390 engine*), as well as solar panels. The contractor's staff (estimated 12 people in total) will be housed in three caravans (6 m x 2.4 m). Solid and liquid (use will be made of a chemical toilet) waste will be disposed of at the waste management facility outside Lüderitz (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

Additional equipment will include: mining equipment (tractors; classifier; gravel pumps; suction pipes; jig concentrator; prime pumps); diving equipment (diver air lines; diving compressors; and diver equipment); and two to three 4x4 vehicles (Anon., n.d.).

It is foreseen that one boat, between 8 and 35 m in length, will be operated from Lüderitz (see Figure 4 for examples of the boats typically used for shallow water mining operations).

Note that Oranjemund will not be used as a logistics base, there will be no crew changes via helicopter to any offshore diamond mining vessels/crawlers, and that no refuelling will take place at sea (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

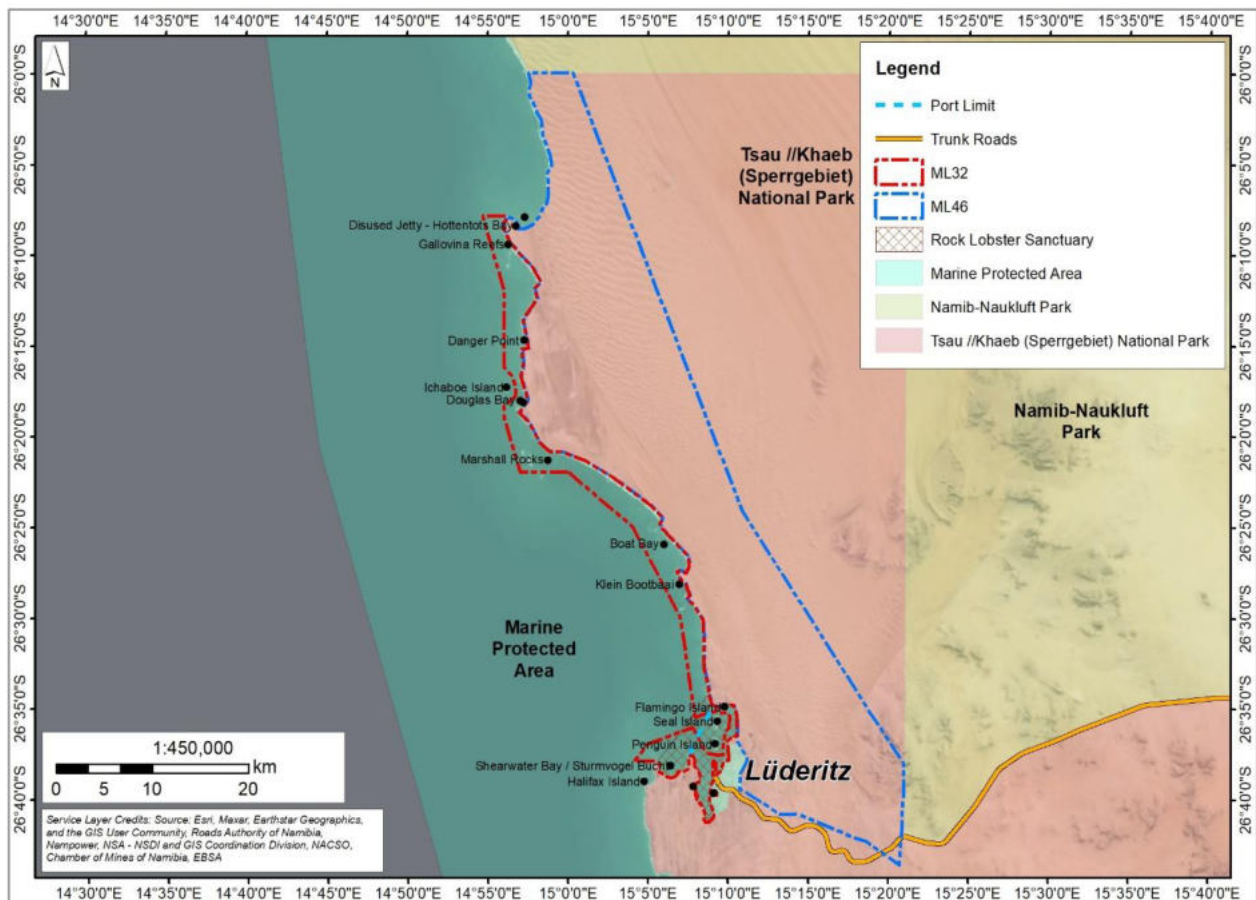


Figure 3: Map showing the location of Mining License (ML) 46, Lüderitz area, //Karas Region, Namibia (Source: Miss Maike Prickett, GIS Specialist, August 2022).



Figure 4: Pictures showing the boats typically used for shallow water mining operations (Source: Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd).

Anon. (n.d.) provided more information re **land-based operations**: The equipment for sampling and mining will be the same, however, the operational methods will be different. For sampling only a small area within an identified trap-site features (gullies and potholes) will be selected to test the mineralization; should mineralization be high enough, then that trap-site feature will be earmarked for mining at a later stage. The mining method is the process of mining all the lower lying sediment from the mineralized trap-site feature.

Sampling and mining will be done with divers who will walk from the shoreline into the shallow water equipped with a land based compressed air line and a drag suction hose to suck-up the loose material from mineralized trap-site features.

The compressed air for diver breathing will be provided via a land-based air compressor while the suction hose will be driven by an 8 inch gravel pump which in turn is driven by a tractor (see Figure 5).

The delivery pipe from the pump runs to a portable rotary trommel screening unit (see Figure 6) where the sediment is screened at an estimate bottom cut of 1.6 mm and top cut of 12 mm, which is the gravel concentrate.



Figure 5: Picture showing a tractor, gravel pump, and suction hose (Source: Anonymous, n.d.).

The sized concentrate material (1.6 to 12 mm size sediment) produced from the trommel screen is immediately bagged, sealed and logged before being transported to the jiggling facility (see Figure 7) at the campsite. The



tailings sediment (-1.6 mm and +12 mm size) will accumulate on the ground at the trommel screen and will be levelled out once the trommel screen is relocated. Also, the natural high energy wave action during monthly spring high tide events, will redistribute the tailings material back to the original natural sorting within a year or two.



Figure 6: Picture showing a sediment delivery pipe running from the tractor to the trommel screen (*Source: Anonymous, n.d.*).

The jigging facility is an enclosed room with high security. Here the concentrate material is treated to separate the low density material from the high density material. From here, the high density material will be moved to the sorting area table where the final product will be picked out, logged, and secured in a drop safe.



Figure 7: Picture showing a jig being operated (*Source: Anonymous, n.d.*).

The most significant operational challenge is the restricted number of days on which diving is possible due to operations being in shallow water areas with high wave energy and often unfavourable weather conditions. The sea swell and waves cannot be too high and visibility in the water must be at least one (1) m (Anon., n.d.).



## 4 Environmental Management Plan: Implementation and Compliance

### 4.1 Introduction

As part of the EMP Performance Review / Update, the following actions were carried out:

- i) Review of the following documents:
  - a. Surf Zone Environmental Operations Records. 10-16 February 2013; 24 February to 02 March 2013; 17 to 23 March 2013; and 24-30 March 2013 (Diamond Fields Namibia, 2013);
  - b. Final Updated Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) Report for Marine Diamond Exploration and Mining in the Mining License (ML) No.32, Lüderitz Area, //Karas Region, Southern Namibia (RBS, 2019a):
    - i. Annex 1 – Copy of the Current ECC;
    - ii. Annex 2 – Combined Marine Specialist Study on Fisheries, Marine Life for the Mining Licences (MLs) 111, 138, 139 and 32 (Rau, 2016);
    - iii. Annex 3 – EMPR Report 2008 (Lane *et al.*, 2000 revised by Midgley, 2008);
    - iv. Annex 4 - Socioeconomic Study –March 2016 (Anonymous, 2016);
    - v. Annex 5 - The Exploration Vessel mv Explorer– January 2019 (not made available to LM Environmental Consulting);
    - vi. Annex 6 – The Mining Vessel mv Ya Toivo-January 2019 (not made available to LM Environmental Consulting);
    - vii. Annex 7 - Legal Register EMP- January 2019;
  - c. Final 2016 - 2019 Overall Environmental Compliance Monitoring Report to Support the Application for Renewal of Environmental Clearance Certificate (ECC) for Marine Diamond Exploration and Mining in Mining License (ML) No. 32, Lüderitz Area Environment, //Karas Region, Southern Namibia (RBS, 2019b);
  - d. Mining within marine ML32 from a land-based facility. Campsite and diamond processing facility based adjacent on land in ML46. Description of procedures and operations (Anonymous, n.d.);
  - e. Environmental control requirements for Mining Licence. Marine ML: 32. Namibian Diamond Company (Pty) Ltd & Diamond Contractors: Shallow Water Boat and Shore-Based Surf Zone Operations (Namibian Diamond Company (Pty) Ltd, n.d.);
  - f. ML46-related (note that ML46 was taken over by Sperrgebiet Diamond Mining (Pty) Ltd, a subsidiary of the Lewcor Group):
    - i. Environmental Management Programme Report for Namdeb’s Mining Licence 46 (Douglas Bay) (Burke and Pulfrich, 2018);
    - ii. Copy of the Current ECC (ECC-00622; issued 11 May 2020; expiry 11 May 2023);
- ii) Meetings (telephonic) with Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd on 17 and 23 November 2022.

### 4.2 Compliance: Environmental Management Plan

In order to illustrate compliance with the EMPs for: i) environmental performance monitoring and procedures; ii) environmental and safety management systems; iii) exploration and mining; iv) vessels at sea (including contracted vessels); v) waste management and pollution control; vi) ecosystem services / values, biological diversity conservation and resource use; vii) socio-economic issues; and viii) mine closure (see Tables 3 to 10), the following colour codes were applied:

	Compliance/Completed
	In Progress/Ongoing
	Non-compliance
	Not (Currently) Applicable
	Changes made to existing EMP
	Unknown
	Not audited

Please note the following: During the period between April 2016 and April 2019, no exploration (apart from geophysical surveys in 2018) or mining operations were undertaken in ML32.

RBS (2019b) noted (*text highlighted in green is of importance*):

Despite the fact that no exploration or mining have been taking place since 2008, the environmental performance monitoring and research undertaken for the period 2008 – 2018 provides a great source of valuable resources on the state of environmental around the ML 32 Area. Previous environmental assessments as well as ongoing environmental monitoring programmes have all been reviewed in this report (i.e. RBS, 2019b).

In accordance with the results of the impact and risk assessment for the revaluated ongoing exploration and mining activities undertaken for the period under review, a detailed Environmental Management Plan (EMP) was prepared by Risk-Based Solutions (RBS) on behalf of Namibia Diamond Company (Pty) Ltd for implementation over the period under review 2016-2019. The EMP framework reviewed in this report covered the following areas: (i) Environmental performance monitoring and procedures; (ii) Environmental and safety management systems; (iii) Exploration and mining; (iv) Vessels at sea (including contracted vessels); (v) Waste management and pollution control; (vi) Ecosystem services / values, biological diversity conservation and resource use; (vii) Socioeconomic issues, and; (viii) Mine closure.

This report reviews the implementation of all the above key EMPs and monitoring measures taken with key objectives of determining the effectiveness of the implemented mitigation measures. The following is summary of the environmental performance monitoring covered in this report for the period under review:

- ❖ **Monitoring Plan:** Environmental monitoring is partly in-house (data collection during exploration and mining processes) and outsource (employ a consultant) to undertake the assessment and recommend measures to be implemented. Key aspects that are monitored include: Water quality, marine fauna and benthic compositions and variability. The monitoring programme is supported by an external laboratory and technical facilities on water quality monitoring and benthic communities with respect to the ongoing exploration and mining processes;
- ❖ **Implementation of the EMP:** The implementation of the EMP monitoring plan by Namibia Diamond Company (Pty) Ltd is focused on collecting and analysing the required datasets and propose recommendations on what needs to be done for both the long-term and short (day to day) monitoring operations. The EMP implementation is undertaken as an in-house activity;
- ❖ **EMP Auditing:** Compliance auditing of the EMP implementation and monitoring thereof is a key component of the environmental performance monitoring. The EMP auditing is an internal activity that is often supported by an external consultants and linked to the EMS monitoring and auditing requirements, and;
- ❖ **EMS Auditing:** Personnel within Namibia Diamond Company (Pty) Ltd are responsible for the management of these impacts through regular internal environmental audits to evaluate compliance with statutory requirements. This includes both internal audits and external surveillance audits as maybe required.

RBS (2016b) concluded: “During this period under review, no marine diamond exploration or mining operations have been undertaken due to depressed global diamond markets. Environmental performance / compliance monitoring activities were not implemented by Namibia Diamond Company (Pty) Ltd for the period under review 2016 - 2019 because there were no exploration or mining activities that took place in the ML No. 32.”

The following recommendations were made (see RBS, 2016b): The following is the summary of the key recommendations that may be considered for implementation once full-scale mining operation starts in order to further improve the quality of the baseline and monitoring data sets collected and interpreted with respect to the ongoing exploration and mining operations in the ML No. 32:

1. Review and undertake a detailed updated baseline mapping of key the coastal and shallow marine environmental resources / receptors and delineate key sensitive areas or targets that must be protected within the Namibian Islands' Marine Protected Area (NIMPA);
2. Undertake Marine Diesel Oil (MDO) or Marine Gas Oil (MGO) spill modelling study in light of current vessels fleet that Namibia Diamond Company (Pty) Ltd is operating. The fuel oil spill modelling study shall be supported by the updated coastal and shallow marine mapping exercise under (1) above, for emergency preparedness / development of appropriate contingency plans in an event of a major accidental MDG spill with respect to key receptor as mapped under (1) above;
3. Implement a continuous onboard seawater quality sampling and testing programme for each vessel. Monitoring data sets may be collected by either an environmental officer or through an automated system;
4. Implement a benthic monitoring programme within the ML area in order to contribute to the understanding of the natural, exploration and / or mining induced variabilities;
5. Undertake water column modelling in order to understand the short and long-term effects of fine sediments discharges and resultant plumes on the seawater column;

6. Undertake seabed modelling of sediments discharges (oversize) in order to understand the short and long-term effects of sediments discharges on the seafloor natural and mining variabilities, and;
7. Undertake, underwater marine noise numerical modelling with respect to the ongoing geophysical survey (low energy acoustics) as well as noise from mining and normal vessels operations, including cumulative impacts.

A summary of the **core elements and additional data to be collected as part of the new long term monitoring programme** is also provided (see RBS, 2019b):

- ❖ High resolution AUV (bathymetry) data must be available for each of the designated impact stations prior to the station being mined. AUV surveys should be repeated at the impact stations as soon as possible after mining is complete (maximum 12 months after mining) and should be repeated approximately 24 months later and again approximately 60 months (5 years) and 120 months (10 years) later;
- ❖ A programme for continuous monitoring of water quality (temperature, pH, salinity, dissolved oxygen and turbidity) should be initiated at a designated position within each of the three monitoring regions as soon as possible to provide long term information on natural variations in these key water quality parameters. These designated water quality monitoring stations should be located as far as possible from any mining activities (at least 2000 m away), and;
- ❖ A separate dedicated water quality monitoring programme is required to assess the operational impacts of mining activities on water quality in the area surrounding the mining tool. Such monitoring surveys should be undertaken in conjunction with tailings plume dispersion modelling studies and should be used to validate the outputs from the dispersion models. Assessing the impacts of mining on water quality should take the form of relatively short-term experiments undertaken at the time of mining, and will not necessarily require prolonged post-mining monitoring.

**All of the environmental monitoring programmes that were assessed in the review which have provided, or are in future likely to provide, some useful insights into the impacts of mining on these receiving environment.** A programme for continuous monitoring of a range of water quality variables such as temperature, pH, conductivity, dissolved oxygen, and turbidity at strategic locations in the ML 32 is highly recommended.

RBS (2019b) only provides one reference of work conducted since 2008: *PENNEY, A.J., PULFRICH, A., ROGERS, J., STEFFANI, N. & V. MABILLE, 2008. Project: BEHP/CEA/03/02: Data Gathering and Gap Analysis for Assessment of Cumulative Effects of Marine Diamond Mining Activities on the BCLME Region. Final Report to the BCLME mining and petroleum activities task group. December 2007. xxpp. It is thus uncertain as to exactly which environmental performance monitoring, research, and/or (ongoing) environmental monitoring programmes have been undertaken for the period 2008 – 2018.*

**Mr Hans Hückstedt, Chief Geologist, joined Namibian Diamond Company (Pty) Ltd in October 2018.**

**No exploration or mining operations were undertaken in ML 32 for the period between May 2019 and May 2022.**

The **Company currently only employs one person on a permanent basis** (Windhoek Office); additional people will be employed as/when required on a consultancy basis (e.g. four consultants are currently employed to conduct *ad hoc* tasks and a contractor will be appointed to carry out the shallow water mining campaign; see below) (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

Namibian Diamond Company (Pty) Ltd is planning to carry out a shallow water (0 - 42 m) mining campaign within ML 32 in the near future and **the EMP prepared by RBS (2019a) (see Tables 3 to 11) was thus updated** taking this into consideration.

**Permission for the land-based component, i.e. a campsite within ML46, will have to be obtained from Sperrgebiet Diamond Mining (Pty) Ltd.**

Table 3: Compliance with the environmental performance monitoring and procedures (after Risk-Based Solutions, 2019a).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments (November 2022)
<b>Management Objectives:</b> <ul style="list-style-type: none"> <li>❖ The EMP process is employed, so that operations are conducted in an environmentally responsible manner</li> <li>❖ All action plans outlined in this EMP are achieved, including continued consultation with all stakeholders and Compilation of Performance Monitoring</li> <li>❖ Understanding about potential impacts of mining operations and environmental management is increased</li> <li>❖ An ethic of environmental responsibility is instilled in all staff and contract workers</li> <li>❖ Ensure that exploration, mining and processing operations does not impact significantly on existing water quality. Maintain the integrity and ecological functions of the seabed, the bay, islands and coast.</li> <li>❖ Maintenance of ecosystem integrity – the Bay and Islands within and near the ML area</li> <li>❖ Sound environmental integrity for the Bay and Islands maintained.</li> <li>❖ Maintain the seawater and marine sediment quality standards to its natural state in order to minimize direct loss of abalone and rock lobster by smothering effects due to sediment resuspension.</li> </ul>							
1	Implementation of the environmental management policy and procedure	Improved Environmental Management and Awareness	High	<ul style="list-style-type: none"> <li>– Define the roles and authorities of staff members (and any specialist consultants) responsible for implementation of the various facets of this EMP.</li> <li>– Address training needs of staff required to implement specialised aspects of the EMP.</li> <li>– Maintain records of plans, decisions, data collected, communications made, emergency responses, etc., which document the implementation of the EMP.</li> </ul>	Environmental Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) and/or the previous period under review (2016-2019) (geophysical surveys only took place in 2018), hence no monitoring activities / results (also see Risk-Based Solutions (RBS), 2019b).
2	Internal communication about the EMP	Improved Environmental Management and Awareness	High	<ul style="list-style-type: none"> <li>❖ All personnel will be made aware of the contents Environmental Policy Statement, EMP and EMS requirements.</li> <li>❖ All personnel who are in a position to make decisions or take actions that will influence environmental protection and management will be made aware of the contents, and their respective responsibilities for implementation, of the Environmental Policy Statement, EMP and EMS requirements.</li> </ul>	Environmental Manager	Ongoing	Namibian Diamond Company (Pty) Ltd does not have an Environmental Management System (EMS) (e.g. ISO 14001) in place.

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments (November 2022)
3	Instructions to all staff, including contractors	Improved Environmental Management and Awareness	High	<ul style="list-style-type: none"> <li>❖ Provide instructions and appropriate training to all staff about aspects of the EMP that affect their specific work, including hydrocarbon pollution prevention and clean-up, general waste management, protection of natural resources, and rehabilitation.</li> <li>❖ Conduct an environmental awareness programme for the marine and terrestrial environments.</li> <li>❖ Prior to working in the ML area all contractors must undergo an environmental and safety awareness induction and such awareness must form part of the debriefing before workers take-up their respective work stations.</li> <li>❖ Incorporate environmental aspects and management interventions applicable to particular outsourced tasks into contracts and performance appraisals to improve environmental awareness and performance, and specify penalties for non-compliance.</li> <li>❖ Report all environmental incidents as specified in the Company Procedures.</li> </ul>	Environmental Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) and/or the previous period under review (2016-2019) (geophysical surveys only took place in 2018), hence no monitoring activities / results (also see RBS, 2019b).
4	EMP Monitoring and Performance Assessments	Improved Environmental Management and Awareness	High	<ul style="list-style-type: none"> <li>❖ <del>Undertake a detailed currents circulation modelling followed by a continuous (on the monthly basis)</del></li> <li>❖ <del>Analyses of the water quality realised at source before discharge to the marine environment and around the mining area using the Benguela Current Large Marine Ecosystem (BCLME) guideline</del></li> </ul>	Environmental Manager	First due 12 months after EMP approval date	Not feasible (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments (November 2022)
				<p>values for concentration of metals in seawater</p> <ul style="list-style-type: none"> <li>❖ Analyses of the sediment quality realised at source before discharge to the marine environment and around the mining area using the Benguela Current Large Marine Ecosystem (BCLME) guideline values for concentration of metals in marine sediments</li> <li>❖ The EMP monitoring process will carefully examine all monitoring results and combine them with current circulation models to mitigate any harmful impact to the Mariculture industry around Lüderitz.</li> <li>❖ Undertake formal EMP performance assessments every 12 months to check progress in meeting the objectives and targets of this EMP</li> <li>❖ Compile and submit EMP Performance Assessment Reports to the Environmental Commissioner containing as a minimum the following information: <ul style="list-style-type: none"> <li>▪ Information regarding the period applicable to the assessment</li> <li>▪ Scope of the assessment</li> <li>▪ Procedure used for the assessment</li> <li>▪ Interpreted information gained from monitoring</li> <li>▪ Evaluation criteria used</li> <li>▪ Results of the assessment</li> <li>▪ Recommendations on how and when non-compliances or deficiencies will be rectified.</li> </ul> </li> </ul>			<p>No exploration or mining activities undertaken for this (2019-2022) and/or the previous period under review (2016-2019) (geophysical surveys only took place in 2018), hence no monitoring activities / results (also see RBS, 2019b).</p> <p>Bi-Annual Environmental Reports have been submitted to the Office of the Environmental Commissioner (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).</p>



No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments (November 2022)
5	EMP Amendments	Improved Environmental Management and Awareness	High	<ul style="list-style-type: none"> <li>❖ On an ongoing basis, assess the applicability of actions and activities required by the EMP, identify and address all new environmental issues arising from changed operations and/or communications with interested parties, through amendments to the EMP if/where necessary.</li> <li>❖ Communicate and consult with I&amp;APs through appropriate fora to inform them of proposed changes and address any concerns.</li> <li>❖ Amend and revise this EMP, if required and submit to the Environmental Commissioner for approval.</li> </ul>	Environmental Manager	Ongoing	<p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p> <p>It is advised that the I&amp;AP Register (see Lane <i>et al.</i>, 2000 revised by Midgley, 2008: Appendix 3) be updated and maintained.</p> <p>This Report.</p>
6	Communications with stakeholders	Improved stakeholder relationships	High	<ul style="list-style-type: none"> <li>❖ Maintain an up-to-date I&amp;AP database.</li> <li>❖ Maintain open communication with the relevant stakeholders listed in Namibia Diamond Company (Pty) Ltd database by sharing the results of the monitoring and informing them of proposed changes to the EMP, addressing any issues of concerns that may arise, maintain records of communications, and where relevant, address their needs.</li> <li>❖ Participate actively in appropriate fora to share information and co-operate with other stakeholders and resource managers in the marine environment.</li> </ul>	Environmental Manager	Ongoing	<p>It is advised that the I&amp;AP Register (see Lane <i>et al.</i>, 2000 revised by Midgley, 2008: Appendix 3) be updated and maintained.</p> <p>For example, Kelp Blue (see <a href="https://kelp.blue/namibia/">https://kelp.blue/namibia/</a>) carries out monthly environmental monitoring (collection of ROV (remotely operated vehicle) footage and water sampling) within ML111 and at two sites within ML32 (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).</p>
7	Pecuniary provision/ Allocation of environmental Management Funding	Improved Environmental Management	High	<ul style="list-style-type: none"> <li>❖ Allocate operational costs to maintain the EMP objectives, including all associated requirements, such as. funding of research and monitoring to understand, and where possible, mitigate impacts.</li> </ul>	Environmental Manager	Ongoing	<p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p>

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments (November 2022)
				❖ Maintain Protection and Indemnity (P&I) Insurance Cover of US\$ 100 million to allow for clean-ups in the event of oil spills, and unlimited (P&I) Insurance Cover for other eventualities.	Mine Secretary	Ongoing	The amount must be linked to size (vessel size, capacity, etc.) and duration of the operation. Insurers do not provide cover of higher than the vessel hull value (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

Table 4: Compliance with the environmental and safety management systems (after Risk-Based Solutions, 2019a).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
<b>Management Objectives:</b>							
<ul style="list-style-type: none"> <li>❖ In order to build-up an accurate database of discharge characteristics / composition, levels and distribution of potential toxic elements that could be associated / mobilised / released through the exploration, mining and processing operations around the ML area</li> <li>❖ Maintain compliance with the standards in the Labour Act, Environmental regulations and mining regulations</li> <li>❖ Maintain compliance with operational and national and international occupational standards</li> <li>❖ Internally and externally audited Environmental Management System (EMS) for exploration, mining and processing are maintained for all certified areas of activities and all identified vessels and shore-based areas have NOSA grading</li> </ul>							
1	Maintain Environmental Management System (EMS)	Improved Environmental Management	High	<ul style="list-style-type: none"> <li>❖ Ensure that all requirements of Environmental Management System are met, including compliance with the national legislation, environmental awareness training, environmental monitoring, waste management and pollution control including the following requirements: <ul style="list-style-type: none"> <li>▪ employ "good housekeeping" onboard;</li> <li>▪ awareness for waste reduction through re-use and recycling maintained;</li> <li>▪ only water containing &lt;15 ppm oil discharged overboard (MARPOL standard);</li> <li>▪ no overboard disposal of waste (MARPOL standard);</li> <li>▪ food waste overboard only after maceration through a 25 mm screen (MARPOL standard);</li> <li>▪ No discharge allowed in the ML area. Sewage processed in approved</li> </ul> </li> </ul>	Environmental Manager	Ongoing	<p>Namibian Diamond Company (Pty) Ltd does not have an Environmental Management System (EMS) (e.g. ISO 14001) in place.</p> <p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see Risk-Based Solutions (RBS), 2019b).</p>

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				<p>treatment plants before discharge beyond 4 nautical miles offshore (MARPOL standard);</p> <ul style="list-style-type: none"> <li>▪ all scrap metal, cans, paper and cardboard, laser and ink cartridges separated and sent for recycling ashore;</li> <li>▪ all vessels fitted with desalination units to purify seawater for use onboard;</li> <li>▪ all vessels painted with TBT-free anti-fouling hull paint;</li> <li>▪ other waste incinerated in IMO-approved shipboard incinerators, and remainder sent by sea to waste sites meeting legal requirements;</li> <li>▪ use of gas oil containing less than 0.55% sulphur;</li> <li>▪ regular service and repair of all equipment to reduce consumption of fuels and other petrochemical materials, and to minimise the release of greenhouse gases;</li> <li>▪ used oil returned to supplier for recycling / disposal;</li> <li>▪ no CFC-based fire-fighting equipment used;</li> <li>▪ phasing out of ozone-depleting products and equipment (refrigerators, engines etc.) with alternatives (Montreal Protocol on Ozone Depleting Substances as well as United Nations (UN) Framework Convention on Climate Change 1992 and Kyoto Protocol to the UN Framework Convention on Climate Change 1997);</li> <li>▪ monitoring and recording of the following from the vessels: <ul style="list-style-type: none"> <li>– wind speed and direction (4-hourly in vessel's bridge log)</li> <li>– Official Garbage Record Book for all discharges of waste /</li> </ul> </li> </ul>			<p>N/A to small boats operating in the shallow water (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).</p>

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				<p>incinerations</p> <ul style="list-style-type: none"> <li>- electronic logging and data-basing of separated waste forms with quantities, storage type etc</li> </ul> <p>❖ Ensure that the EMP is annually internally and externally audited and submit copies of audit reports with Environmental Performance Reports</p>			Ongoing (not annually; see RBS, 2019b; this report).
2	Integration of Environmental Management	Improved Environmental Management	High	<p>❖ Quantify natural variability in the ecosystem by integrating data collection requirements with other research and monitoring initiatives (to be addressed through the Namibia Diamond Company (Pty) Ltd long term monitoring programme).</p> <p>❖ Incorporate sediment plume modelling with ongoing overall monitoring for exploration and mining</p> <p>❖ Modelling of potential oil spill scenarios and development of appropriate contingency plans.</p> <p>❖ Integration of future mine plans with existing mariculture, lobsters operations and sanctuary areas, other user's interests and overall Marine Protected Areas as well as proposed MPA's in the future.</p>	Environmental Manager	Ongoing	<p>Not feasible for small boats operating in shallow water for short periods of time (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).</p> <p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p>
3	Establishment and review of Environmental Risks and Improved Environmental Performance	Improved Environmental Management	High	<p>❖ Update and develop new sets of environmental risks based on the results of the ongoing monitoring.</p> <p>❖ Adopt a monitoring results-based approach in managing environmental impacts by focusing on the potentially medium and high risk impacts.</p> <p>❖ Improve on performance reporting by determining key indicator species by which recovery rates of impacted areas can be determined more effectively.</p>	Environmental Manager Environmental Scientist	Ongoing	<p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p> <p>Not feasible for small boats operating in shallow water for short periods of time (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).</p>

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
4	Maintain Safety Management System (SMS)	Improved Health and Safety	High	❖ Maintain high safety standards onboard each vessel and arrange annual audits by the National Occupational Safety Association (NOSA) to ensure ratings are maintained.	Loss Control Coordinator	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
5	International Safety Management (ISM) Code Prevention	Improved Health and Safety	High	<ul style="list-style-type: none"> <li>❖ Ensure compliance with the International Maritime Organisation's International Safety Management (ISM) Code developed and implemented.</li> <li>❖ Ensure that the required external assessments of compliance to the ISM Code are conducted.</li> <li>❖ Submit certificates of compliance with Environmental Performance Reports to the Environmental Commissioner.</li> </ul>	Operations Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).

Table 5: Compliance with regards to exploration and mining (*after Risk-Based Solutions, 2019a*).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
<b>Management Objectives:</b> <ul style="list-style-type: none"> <li>❖ Improved understanding and develop appropriate mitigation measures with respect to the direct impacts of prospecting/mining on the environment</li> <li>❖ Exploration and mining-related impacts on the marine environment are managed, to avoid compromising current and future utilisation of renewable marine resources</li> <li>❖ The information base that will provide improved insight into the cumulative impacts of exploration and mining on marine environment</li> <li>❖ Recovery rates of marine habitats impacted or destroyed during prospecting/mining are established, recolonisation of areas within a reasonable period of time is allowed</li> <li>❖ Key habitats of high ecological sensitivity and importance (e.g. mariculture, lobster sanctuary and kelp beds) are protected</li> <li>❖ Conflict between the fishing industry and diamond mining is minimised by maintaining open and frequent communications</li> <li>❖ Archaeological and historic sites are protected, thereby preventing the loss of information and research material</li> <li>❖ Information exchange with all relevant stakeholders is promoted</li> </ul>							
1	Seismic surveying (airgun, towfish)	Vibration or noise disturbance of marine fish and mammals	Medium	❖ Maintain the Marine Life Sightings Programme (including turtles and jellyfish etc.) from vessels, to record the presence, proximity to and behaviour patterns of marine	Environmental Manager and onboard Environmental Monitors	Ongoing	<p>Observations (marine fauna) were recorded in 2013 (Diamond Fields Namibia, 2013).</p> <p>Note that the risk rating (medium) is unlikely / minor: survey work is</p>

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				<p>mammals and seabirds near the exploration vessel.</p> <ul style="list-style-type: none"> <li>❖ Consider providing specialised marine mammals observer training for the relevant monitors.</li> <li>❖ Depending on the results of the bridge log, further studies on the impact of sonar on marine mammals</li> </ul>			<p>difficult and data of poor quality in the shallow, high energy swell conditions. These surveys are short (few days only), only conducted during day time and only once every four to eight years (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).</p> <p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see Risk-Based Solutions (RBS), 2019b).</p>

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
2	Sampling programme	Disturbance of benthic communities and habitat	High	<ul style="list-style-type: none"> <li>❖ Undertake to develop a programme whereby data-collection requirements to quantify natural variability in the ecosystem and facilitate habitat/sensitivity mapping are integrated with ongoing exploration and mining.</li> <li>❖ Conduct high resolution geophysical surveys (SSS, bathymetry and seismic profiling) prior to mining, and of the target areas ~2-3 years post-mining to determine the depth, wall steepness and infilling rates of mining excavations.</li> <li>❖ Conduct benthic macrofaunal surveys to record seabed topography and types of marine life present to gain an understanding of the marine environment, using a suitable sampling device: <ul style="list-style-type: none"> <li>• Grab sampling or box coring surveys.</li> <li>• Video footage collected from a Remotely Operated Vehicle.</li> <li>• Geophysical (e.g. high resolution AUV) surveys.</li> <li>• Submersible video footage (when submersible is available).</li> </ul> </li> </ul>	<p>Environment Manager / Environmental Scientist</p> <p>Environmental Manager / Environmental Scientist</p> <p>Environmental Manager / Environmental Scientist</p> <p>Geological Manager / Environmental Manager</p> <p>Environmental Manager</p>	<p>Ongoing</p> <p>Prior to mining (ongoing)</p> <p>Ongoing</p> <p>Ongoing</p> <p>Annually</p>	<p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p> <p>Not feasible for shallow water operations with a 16% weather window only (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).</p> <p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p>
3	Mining excavations	Destruction of geological record, and reorganisation of sediment structures	Medium	<ul style="list-style-type: none"> <li>• Video footage collected from a Remotely Operated Vehicle.</li> <li>• Geophysical (e.g. high resolution AUV) surveys.</li> <li>• Submersible video footage (when submersible is available).</li> </ul>	Geological Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
4	Exploration and Mining in the mudbelt	Hydrogen sulphide eruptions	Medium	<ul style="list-style-type: none"> <li>❖ Consider conducting a coring survey to determine the presence of H<sub>2</sub>S pockets before mining is conducted in thick mud overburden areas.</li> </ul>	Onboard Environmental Monitors Geological Manager	Ongoing  When targeting of mudbelt planned	NA; mining activity takes place in 0 to 20 m water depth, this is an active swell energy zone and mud does not accumulate to form a mud belt (Mr Hans Hückstedt, Chief Geologist, Namibian



No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				<ul style="list-style-type: none"> <li>❖ Monitor on-board air quality during exploration and mining operations in the ML-32 Area.</li> <li>❖ Consider training of Health and Safety personnel in handling of personal safety issues in the event of H<sub>2</sub>S eruptions during exploration and mining</li> </ul>	Environmental Scientist	Prior to mining	Diamond Company (Pty) Ltd, pers. comm.).
5	Disposal of all tailings overboard during mining	Suspended sediment plumes	Low	<ul style="list-style-type: none"> <li>❖ If the levels recorded in the sacrificial mixing zone exceed set water quality criteria, conduct an ecological hazard assessment on the suspended sediment plumes and report the results to the DEA and MAWF who should decide on further action.</li> </ul>	Environmental Scientist	Prior to mining	Not feasible (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).  No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
					Environmental Scientist	During mining	
				<ul style="list-style-type: none"> <li>❖ Ensure that the water sample analyses are carried out by a laboratory certified to conduct the analyses.</li> <li>❖ Have the monitoring results scientifically evaluated by an appropriate expert.</li> <li>❖ Submit the monitoring results together with the evaluation to the Environmental Commissioner</li> </ul>	Environmental Scientist	Prior to mining	
				During mining operations: <ul style="list-style-type: none"> <li>❖ Record wind speed and direction in vessel's bridge log.</li> <li>❖ Conduct visual observations of the plumes.</li> <li>❖ Monitor the proportion of clay (&lt;63 µm) in the overspill.</li> </ul>	Onboard Environmental Monitors	Ongoing	
6	Disposal of mine tailings overboard	Smothering of benthic invertebrates	High	<ul style="list-style-type: none"> <li>❖ Through modelling, assess the effects of the tailings plume on the marine and coastal environments.</li> </ul>	Environmental Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
				<ul style="list-style-type: none"> <li>❖ Based on results of bottom oxygen levels, consider undertaking further field/laboratory studies</li> </ul>	Environmental Scientist	Ongoing	

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				regarding the physiological oxygen tolerance for some large benthic species, considered characteristic of mined and unmined areas.			Not feasible (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).
7	Archaeological Sites	Destruction of wrecks	Medium	<ul style="list-style-type: none"> <li>❖ While no wrecks have been identified from surveys in ML 32, the following actions will be undertaken if shipwreck material is encountered in the course of sampling/mining: <ul style="list-style-type: none"> <li>▪ Immediately inform the Marine Superintendent or Environment Manager who will inform the National Monuments Council;</li> <li>▪ Retain artefacts recovered and, where possible, maintain a photographic record. Note the date, time, location and types of artefacts found in the logbook;</li> <li>▪ Contract a marine archaeologist in consultation with Government to survey the site;</li> <li>▪ Avoid mining or prospecting within 500 m from the centre of the site once the area has been surveyed to obtain baseline data (approximately 2-3 years baseline required)</li> </ul> </li> </ul>	Vessel Master / Marine Superintendent /	If shipwreck	<p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p> <p>National Heritage Council of Namibia</p>
8	Use of ferrosilicon in onboard treatment process	Increased primary productivity	Low	<ul style="list-style-type: none"> <li>❖ Monitor use of ferrosilicon on an ongoing basis.</li> <li>❖ Continue initiatives to use shell crushing equipment to maximise retrieval of ferrosilicon where operating in shelly substrates as this compound accumulates in shells.</li> </ul>	Plant Superintendent	Ongoing	N/A; FeSi is not used in the processing plants of small boats operating in the high energy zone areas (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).

Table 6: Compliance with regards to vessels at sea (including contracted vessels) (after Risk-Based Solutions, 2019a).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
<b>Management Objectives:</b> <ul style="list-style-type: none"> <li>❖ Disruption to other legitimate users of the sea is minimised by respecting their rights</li> <li>❖ Conflict between the fishing industry and diamond mining is minimised by maintaining open and frequent communications</li> <li>❖ Pollution of marine and coastal habitats and resources is prevented</li> <li>❖ Manage waste streams to reduce wastage and promote reuse/recycling of resources are in an effective manner</li> <li>❖ Natural resources are used conservatively</li> </ul>							
1	Presence of vessels	Potential exclusion of alternative resource use (e.g. aquaculture, fishing, tourism / recreational, shipping and township development along the coast bordering the ML area)	High	At least 14 days in advance of commencement of mining activities: <ul style="list-style-type: none"> <li>❖ Notify the Permanent Secretary: MME in writing providing particulars regarding the location, nature and extent of such operations.</li> <li>❖ Notify other potential user groups (maritime authorities, fishing / aquaculture industry, NamPort and Lüderitz Town Council) in the area in writing, providing particulars regarding the location, nature and extent of such operations.</li> <li>❖ Notify Walvis Bay Radio of intended vessel activities, light buoys and exclusion zones.</li> </ul>	Vessel Manager	Prior to commencement of activities	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see Risk-Based Solutions (RBS), 2019b).  Note that the risk rating (high) is unlikely / minor for shallow water operations with a 16% weather window only (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).
				<ul style="list-style-type: none"> <li>❖ On cessation of activities inform Walvis Bay radio on completion of operations.</li> </ul>	Vessel Masters	On cessation of activities	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
				<ul style="list-style-type: none"> <li>❖ In the vessel logbook, record sightings of and interactions with other vessels to note potential conflicts over rights of passage and access to resources.</li> </ul>	Vessel Masters	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
2	Presence of vessels	Vibration or noise disturbance of marine mammals and seabirds	Low	<ul style="list-style-type: none"> <li>❖ Maintain the Marine Life Sightings Programme (including turtles, jellyfish, rock lobsters and anything else of interest) from vessels, to</li> </ul>	Environmental Manager and onboard	Ongoing	Observations (marine fauna) were recorded in 2013 (Diamond Fields Namibia, 2013).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				<p>record the presence, proximity to and behaviour patterns of marine mammals and seabirds near the mining vessels, particularly during mining operations.</p> <ul style="list-style-type: none"> <li>❖ Consider providing specialised marine mammals observer training for the relevant monitors.</li> <li>❖ To avoid disturbance of whales, vessels should not approach within 300 m of a whale whilst underway</li> <li>❖ If a whale surfaces within this distance of the vessel when at anchor, or during discharging of tailings sediments, the vessel should remain stationary until the whale has moved to a distance 300 m away.</li> </ul>	Environmental Monitors		No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
3	Oil-spill Contingency Plans	Pollution of the sea by diesel and heavy fuel	Medium	<ul style="list-style-type: none"> <li>❖ Obtain specific exemption from the Namibian Directorate of Maritime Affairs before refuelling within 200 nautical miles of the coast.</li> <li>❖ In the event of an oil spill: <ul style="list-style-type: none"> <li>▪ Follow the Shipboard Oil Spill Emergency Response Manual procedure. This Manual must be approved by the Namibian Directorate of Maritime Affairs.</li> <li>▪ In terms of the Emergency Plan the Superintendent will inform the following Namibian authorities (as deemed applicable): Marine Division of the Ministry of Works and Transport; MFMR; MME, MET and the Lüderitz and Walvis Bay Harbour Masters</li> </ul> </li> </ul>	Marine Manager	Prior to refuelling at sea	N/A; small boats for shallow water operations do not refuel at sea (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).
4	Release of ballast water	Marine pollution and introduction of alien species	Low	<ul style="list-style-type: none"> <li>❖ Ballast water may only be released when the vessel is more than 12 miles from land and in water depths greater than 25 m.</li> </ul>	Vessel Master	Ongoing	N/A

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
5	Acoustic positioning for seabed crawlers	Seabed hazards	Medium	<ul style="list-style-type: none"> <li>❖ Maintain the Hazards Database of the locations of concrete blocks used in the acoustic positioning systems for the crawlers.</li> <li>❖ If requested, report these data to the relevant authority</li> </ul>	Marine Manager	Ongoing	N/A
6	Incidental loss of equipment	Seabed hazards	Low	<ul style="list-style-type: none"> <li>❖ Maintain hazards database listing the type of gear left on the seabed and/or in the mine/prospecting area with the dates of loss and locations and where applicable, the dates of retrieval.</li> </ul>	Vessel Masters / Surveyor	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
7	Waste Management	Marine Pollution	Low	<ul style="list-style-type: none"> <li>❖ Ensure that waste management practices in place and enforced</li> </ul>	Vessel Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).

Table 7: Compliance with regards to waste management and pollution control (*after Risk-Based Solutions, 2019a*).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
<b>Management Objectives:</b> ❖ Pollution of terrestrial, marine and fresh water habitats and resources is prevented ❖ Waste streams are effectively managed to minimise pollution using a cradle-to-grave philosophy ❖ Reuse / recycling and being conservative in use of natural resources is promoted							
1	Waste generation – general	Pollution of terrestrial, aquatic and marine habitats	Low	❖ Comply with all legal requirements for waste management and pollution control, and employ “good housekeeping” and monitoring practices. ❖ Follow stringent ‘cradle to grave’ waste management practices. ❖ Conduct environmental awareness programmes for waste management. ❖ Ensure safe inshore waste disposal practices ❖ Maintain records on the types and amounts of waste disposed.	Environmental Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see Risk-Based Solutions (RBS), 2019b).

Table 8: Compliance with regards to ecosystem services / values, biological diversity conservation and resource use (*after Risk-Based Solutions, 2019a*).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
<b>Management Objectives:</b> ❖ Promote the integration of coastal and marine ecosystem function, services, value and non-use in the EMP and EMS ❖ Disturbance of wildlife is minimized ❖ Key habitats important for wildlife are protected, thereby conserving biological diversity ❖ Wastage is reduced and fuel use is minimised							
1	Ecosystem services / values	Impact on the coastal and marine ecosystem function, services, value and non-use	Medium	❖ Maintain the coastal and marine ecosystem function (What the Ecosystem Does): Wildlife habitat, carbon cycling or the trapping of nutrients and characterized by the physical, chemical, and biological processes or attributes that contribute to the self- maintenance of an ecosystem in this zone;	Environmental Manager	At all times	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see Risk-



No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				<ul style="list-style-type: none"> <li>❖ Maintain the coastal and marine ecosystem services: Food chain, harvesting of animals or plants, and the provision of clean water or scenic views;</li> <li>❖ Maintain the coastal and marine ecosystem services use values: Direct use for fishing and indirect include watching a television show about the area and its wildlife, food chain linkages that sustains the complex life within this zone and bequest value for future generations to enjoy;</li> <li>❖ Maintain the coastal and marine ecosystem non-use, or passive use: Preserve what exists (Existence Value) with no consideration for direct use / benefits.</li> </ul>		Ongoing	Based Solutions (RBS), 2019b).
2	Illegal hunting, fishing and plant collection	Destruction and loss of flora and fauna (note that mining is only limited to the marine and coastal environment)	Low	<ul style="list-style-type: none"> <li>❖ Namibia Diamond Company (Pty) Ltd personnel and contractors will not: <ul style="list-style-type: none"> <li>▪ Disturb, catch, remove, injure, kill or feed, any wild animal or bird which occurs in the area without a permit.</li> <li>▪ Intentionally remove, injure or kill any sea-life.</li> <li>▪ Pick, uproot, fell or damage any plant growing in the coastal area without a permit - other than according to the approved EMP which will provide necessary mitigation measures.</li> </ul> </li> <li>❖ Conduct environmental awareness program for wildlife ethics.</li> <li>❖ Disciplinary action will be undertaken, and strict penalties imposed in case of transgressions.</li> </ul>			No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
3	Freshwater Consumption	Sustainability of water supply and depletion of natural resources	Low	<ul style="list-style-type: none"> <li>❖ Ensure relevant water permits are in place.</li> <li>❖ Minimise the use and wastage of clean purified water.</li> <li>❖ Keep records of quantities of fresh water used.</li> </ul>	Environmental Manager	Ongoing  Monthly Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				❖ Conduct water conservation awareness programmes and water saving campaigns.			review, hence no monitoring activities / results (also see RBS, 2019b).
4	Recourses usage during Namibia Diamond Company (Pty) Ltd staff and contractors during periods of crew change	Use of natural resources	Low	❖ Keep records of fuel consumption, set targets and put action plans in place when targets are exceeded.	Environmental Manager	Monthly	N/A

Table 9: Compliance with regards to socio-economic issues (after Risk-Based Solutions, 2019a).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
<b>Management Objectives:</b> <ul style="list-style-type: none"> <li>❖ Economic benefits to people of Namibia optimised, where feasible</li> <li>❖ A balance between economic, social and environmental responsibilities is struck</li> <li>❖ Opportunities provided for local business, industrial relations promoted, and contribution to socio-economic stability</li> <li>❖ Training and development opportunities provided for all staff</li> <li>❖ Relevant stakeholders consulted on a regular basis</li> <li>❖ Good working and living conditions all employees promoted and maintained</li> </ul>							
1	Environmental Communication	Improved Environmental Awareness	High	<ul style="list-style-type: none"> <li>❖ During compilation of the EIA and EMP consult with the following to identify their rights and/or other legitimate interests: i) Government departments with jurisdiction over resources or activities in the Mining Licence Area and/or in adjoining areas (MET, MFMR and Lüderitz Town Council); ii) Representatives of any other interest group (e.g. fishing / Aquaculture industry).</li> </ul>	Environmental Manager(s) and Contracted Consultants	Done as part of Public Scoping	Not audited.
				<ul style="list-style-type: none"> <li>❖ Improve stakeholder relationships by maintaining open communication with relevant I&amp;APs on issues that may arise, and where relevant, address their needs.</li> <li>❖ Keep a record of all communications with I&amp;APs, the points raised, and how these points have been addressed.</li> </ul>	Environmental Manager(s)	Ongoing	Not audited.  No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
							place in 2018) under review, hence no monitoring activities / results (also see Risk-Based Solutions (RBS), 2019b).
				❖ Report to the relevant stakeholder on new activities with potential environmental impacts.	Environmental Manager(s)	Ongoing	Not audited.  No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
				❖ Publicise and make available information on environmental monitoring programmes and environmental performance.	Environmental Manager(s)	Ongoing	Not audited.  No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
2	Employment	Boosts Namibian economy and development of skills	High	<ul style="list-style-type: none"> <li>❖ Continue to increase number of Namibians employed and to provide them with training to develop skills.</li> <li>❖ Outsource services to Namibian where possible.</li> <li>❖ Include local Small and Micro enterprise service providers in the tendering process for supplies and services</li> </ul>	Human Resources Manager	Ongoing	Not audited.  No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
							place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
3	Local, regional and national and support / social responsible	Contribution to Lüderitz communities and //Karas region and overall Namibian citizen support	Medium to High	<ul style="list-style-type: none"> <li>❖ Minimise net loss of employment opportunities</li> <li>❖ Give hiring priority to suitably qualified or experienced local Namibian citizens</li> </ul>	Human Resources Manager	Ongoing	Not audited.  No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
				<ul style="list-style-type: none"> <li>❖ Within the resources available, support appropriate initiatives to improve community welfare, particularly in Lüderitz and //Karas Region.</li> <li>❖ Ensure that wellness programme covers all workers</li> <li>❖ Consider expanding some wellness programme interventions to sub-contractors.</li> </ul>	Financial Manager  Human Resources Manager	Ongoing	Not audited.  No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
4	Taxes / royalties	Contribution to national economy	High	<ul style="list-style-type: none"> <li>❖ Pay all applicable taxes and royalties to the government as required.</li> <li>❖ Pursue operational targets as set out in the Business Plan by maintaining and continual increasing of the current level of production.</li> <li>❖ Internally track the efficiency to ensure maintenance of profits.</li> </ul>	Financial Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities /

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
							results (also see RBS, 2019b).
5	Use of harbours	Financial contribution to harbours	Medium	<ul style="list-style-type: none"> <li>❖ Pay all applicable fees at harbours.</li> <li>❖ Use Lüderitz/Walvis Bay harbour infrastructure and services where possible.</li> </ul>	Materials Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
6	Training and Skills Transfer	Contribution to Namibian training, education and research	High	<ul style="list-style-type: none"> <li>❖ Continue to provide employees with training to develop skills by: <ul style="list-style-type: none"> <li>▪ Addressing training needs of the work force.</li> <li>▪ Continuously, conduct environmental awareness and health and safety awareness programmes.</li> </ul> </li> <li>❖ Incorporate environmental aspects and management interventions applicable to particular outsourced tasks into contracts and performance appraisals to improve environmental awareness and performance.</li> <li>❖ Emergency preparedness and response teams/contractors are to train employees and contractors on appropriate skills.</li> </ul>	Human Resources Manager  Environmental Manager	Ongoing	Not audited.  No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
7	Research and development	Technological advancements in mining systems	High	<ul style="list-style-type: none"> <li>❖ Continue conducting research and development in prospecting, mining and metallurgical technologies for marine diamond mining as well as management associated likely environmental impacts and monitoring</li> </ul>	Technical Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities /

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
							results (also see RBS, 2019b).
8	Sponsorships of research, education and community projects	Contribute to Namibia's knowledge-base in building a knowledge based economy	High	<ul style="list-style-type: none"> <li>❖ Where possible supply research/exploration data to the marine science and fisheries communities</li> <li>❖ Where possible, sponsor Namibian research and education to contribute to public understanding of relevant environmental issues and environmental management practices e.g. invite scientists to participate in environmental surveys and share knowledge on findings including contributions to biodiversity conservation and ecosystem value and functions.</li> <li>❖ Continue with identification of important social corporate responsibility initiatives / programme at local (Lüderitz), regional (//Karas Region) and national (Namibia) levels</li> <li>❖ Provide social contributions at local (Lüderitz), regional (//Karas Region) and national (Namibia) levels</li> </ul>	Environmental Scientist  Environmental Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).

Table 10: Compliance with regards to mine closure (after Risk-Based Solutions, 2019a).

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
<b>Management Objectives:</b>							
<ul style="list-style-type: none"> <li>❖ Address a range of issues from the very first stages of mine development.</li> <li>❖ Prioritise key financial, social, health, safety, as well as traditional environmental and economic considerations in the development and implementation of mine closure and reclamation plans.</li> <li>❖ Ensure that regulatory requirements in terms of financial provision for mine Closure, Rehabilitation and Aftercare are met</li> </ul>							
1	Closure Plan	Termination of all contributions to the economy including taxes, employment, support to secondary industries	High	<ul style="list-style-type: none"> <li>❖ As an interdisciplinary initiative for all involved undertake to develop Closure Plan, which gives attention to: <ul style="list-style-type: none"> <li>▪ approximate dates of progressive or partial closure applications,</li> <li>▪ objectives of closure planning,</li> <li>▪ relevant decommissioning and</li> </ul> </li> </ul>	Environmental Manager	Ongoing	Not currently applicable (N/A)



No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				<p>rehabilitation monitoring programmes,</p> <ul style="list-style-type: none"> <li>▪ financial provisioning for mine closure,</li> <li>▪ provisioning for the development of a social and labour plan for closure,</li> <li>▪ rehabilitation actions required to obtain closure,</li> <li>▪ human resources and community plan of action,</li> <li>▪ communication strategy, and</li> <li>▪ actions required for sustainability.</li> </ul>			
2	Closure Planning	Improved management of closure and rehabilitation	High	<ul style="list-style-type: none"> <li>❖ Ensure that closure planning continues throughout the life of the operation.</li> <li>❖ Gather relevant information throughout the life of mine to ensure that environmental risks are quantified and managed proactively.</li> <li>❖ Make provision as part of ongoing environmental management for post-mining surveys of selected areas to demonstrate recovery (3-5 year intervals).</li> <li>❖ Ensure that Safety and Health requirements are complied with.</li> </ul>	Environmental Manager	Ongoing	Not currently applicable (N/A)
3	Closure Certificate	Improved management of closure and rehabilitation	High	<ul style="list-style-type: none"> <li>❖ A final EMP performance assessment should be conducted to ensure that: <ul style="list-style-type: none"> <li>▪ the requirements of the relevant legislation have been complied with;</li> <li>▪ the research and monitoring that has been conducted (including the total area disturbed) is summarised;</li> <li>▪ the closure objectives as described in the Closure Plan have been met; and</li> <li>▪ all residual and latent environmental impacts and the risks thereof occurring have been identified, quantified and arrangements for the management thereof have been finalised.</li> </ul> </li> <li>❖ When applying for closure, submit the following documentation to both the Mining</li> </ul>	Environmental Manager	On Closure	Not currently applicable (N/A)

No.	Aspect	Impact Description	Risk / Gain ranking	Action Plans and Control Measures	Responsible Person(s)	Timing	Compliance / Comments
				<p>and Environmental Commissioners:</p> <ul style="list-style-type: none"> <li>▪ The Closure Plan</li> <li>▪ The Final Performance Assessment Report</li> </ul> <p>❖ An application form to transfer environmental responsibilities and liabilities beyond mine closure into the aftercare stage and for the as the Environmental Commissioner may prescribe</p>			
4	Financial Provisioning for Mine Closure, Rehabilitation and Aftercare	Improved management of Closure, Rehabilitation and Aftercare stages	High	<ul style="list-style-type: none"> <li>❖ Allocate operational costs to maintain to meet the EMP objectives, ensuring that potential environmental impacts are integrally managed or monitored in such a way as to prevent or minimise them.</li> <li>❖ Maintain adequate Protection and Indemnity (P&amp;I) Insurance Cover to allow for Closure, Rehabilitation and Aftercare liabilities.</li> <li>❖ Allocate operational costs to monitor and demonstrate natural recovery of the seabed through pre- and post-mining benthic faunal and seabed surveys.</li> <li>❖ Provide sufficient funds for a post-closure environmental survey (seabed and/or benthic faunal survey) in the event that on closure or premature closure, the benthic monitoring programme has not been completed or has not been able to demonstrate sufficiently that natural recovery processes are occurring.</li> </ul>	Financial Manager	Ongoing	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see Risk-Based Solutions (RBS), 2019b).

Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, notes the following: *This shallow water area poses a fine balancing act between having to spend capex for a boat, equipment and crew with capacity to work 24/7 for 80% of the year, but only having an estimated 16% operational weather window. It is a tough business to be able to recover enough diamonds to just cover costs. The boats are small and the small crew works very hard; there is no space for a dedicated environmental observer. Therefore, there is little to no weather window, or capital, to conduct environmental baseline sampling, sample analysis and reporting, or modelling.*

Table 11: Compliance with the summary of scheduling of proposed environmental monitoring and scheduling with respect to exploration and mining operations (after Risk-Based Solutions, 2019a).

Aspect	Variables	Timing and Frequency	Compliance / Comments
Impact on the coastal and marine ecosystem function, services, value and non-use	<ul style="list-style-type: none"> <li>❖ Establish the quality baseline for all the key components of the coastal and marine ecosystem function, services, value and non-use</li> <li>❖ Undertake modelling (currents, circulations etc)</li> </ul>	<p><b>Timing:</b> Prior to implementation of the exploration and / or mining operations;</p> <p><b>Frequency:</b> As per specific components and as provided in this EMP or recommended by the specialist consultant (monthly, biannual and annually).</p>	<p>It is uncertain as to whether this (baseline) was done (prior to exploration and/or mining operations).</p> <p>No modelling has been carried out.</p> <p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see Risk-Based Solutions (RBS), 2019b).</p>
Suspended sediment plumes during mining	<ul style="list-style-type: none"> <li>❖ <del>Water sampling of tailings plume.</del></li> <li>❖ Aerial photographs of plumes.</li> <li>❖ <del>Monitoring H<sub>2</sub>S, dissolved O<sub>2</sub> concentrations, organic content of sediments, turbidity and eurrents.</del></li> <li>❖ Record wind speed and direction in vessel's bridge log.</li> <li>❖ Conduct visual observations of the plumes.</li> </ul>	<p><b>Timing:</b> Prior to implementation of the exploration and / or mining operations;</p> <p><b>Frequency:</b> As per specific components and as provided in this EMP or recommended by the specialist consultant (continuous, monthly, biannual and annually).</p>	<p>It is uncertain as to whether this was done (prior to exploration and/or mining operations).</p> <p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p>
Release of contaminants from discharged sediments	<ul style="list-style-type: none"> <li>❖ <del>Water and sediment sampling</del></li> </ul>	<p><b>Timing:</b> <del>Before and after discharge;</del></p> <p><b>Frequency:</b> <del>Continuous, monthly, biannual and annually depending on the short or long term objectives of the intended outcomes / results</del></p>	<p>Not feasible (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).</p>
Release of hydrogen sulphide from mudbelt sediments	<ul style="list-style-type: none"> <li>❖ <del>On board air quality monitoring.</del></li> <li>❖ <del>Conduct a coring survey to determine the presence of H<sub>2</sub>S</del></li> </ul>	<p><b>Timing:</b> <del>Before mining is conducted in thick mud overburden areas.</del></p> <p><b>Frequency:</b> <del>Continuously during</del></p>	<p>N/A (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).</p>

Aspect	Variables	Timing and Frequency	Compliance / Comments
Smothering of seabed communities by depositing plume sediments	<p>pockets.</p> <ul style="list-style-type: none"> <li>❖ Pre-mining geophysical and video surveys (e.g. SSS and AUV).</li> <li>❖ Post-mining geophysical and video surveys (e.g. SSS and AUV).</li> </ul>	<p>operations.</p> <p><b>Timing:</b> Before commencement of operations and directly after mining has occurred ~2-3 years post-mining</p> <p><b>Frequency:</b> Once per event</p>	Not feasible (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).
Overburden stripping and dumping	<ul style="list-style-type: none"> <li>❖ Conduct a pre-dumping benthic macrofaunal survey of the dumpsite to record seabed topography and types of marine life present, using a suitable sampling device: <ul style="list-style-type: none"> <li>▪ Grab sampling surveys.</li> <li>▪ Video footage collected from a Remotely Operated Vehicle (ROV).</li> <li>▪ Geophysical (e.g. high resolution AUV and SSS) surveys.</li> </ul> </li> <li>❖ Monitor the affected area using geophysical and/or benthic sampling techniques to assess the ecological recovery rate and redistribution of sediments in, and around, the sacrificial dump sites.</li> </ul>	<p><b>Timing:</b> Before commencement of overburden dumping and commencing 2-3 years after disposal.</p> <p><b>Frequency:</b> Once per event</p>	Not feasible (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).
Rock lobsters and other marine life	<ul style="list-style-type: none"> <li>❖ Keep a record of the numbers of rock lobsters/fish appearing in the grabber during the exploration and on the screens during the mining operations.</li> </ul>	<p><b>Timing:</b> During the sampling and mining operations</p> <p><b>Frequency:</b> Continuously during the operations.</p>	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
Marine mammals and seabirds	<ul style="list-style-type: none"> <li>❖ Record the number of large mammals sighted, together with their proximity to the vessel and behaviour patterns.</li> <li>❖ Record the numbers and species of birds sighted during all activities associated with the operations.</li> </ul>	<p><b>Timing:</b> During the sampling and mining operations</p> <p><b>Frequency:</b> Daily during the operations.</p>	<p>Observations (marine fauna) were recorded in 2013 (Diamond Fields Namibia, 2013).</p> <p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no</p>

Aspect	Variables	Timing and Frequency	Compliance / Comments
			monitoring activities / results (also see RBS, 2019b).
Presence of other vessels / users in the area	❖ In the vessel logbook, record sightings of and interactions with other vessels / users to note potential conflicts over rites of passage and access to resources.	<b>Timing:</b> During the sampling and mining operations <b>Frequency:</b> When it occurs	No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
Noise	❖ Monitor noise levels.		No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
Water use	❖ Keep records of quantities of fresh water used, purposes of use, and sources of supply.		No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
FeSi	❖ <del>Monitor FeSi consumption, set targets and put action plans in place should targets be exceeded.</del>	<b>Timing:</b> During the sampling and mining operations	N/A (Mr Hans Hückstedt, Chief Geologist, Namibian Diamond Company (Pty) Ltd, pers. comm.).
Energy use	❖ Oil and fuel consumption. ❖ Emissions (CO <sub>2</sub> per ton) from oil and fuel consumption. ❖ Visual inspection for oil spills and leaks.	<b>Frequency:</b> Monthly during the operations. Monthly during operations.	Records (fuel consumption) from 2013 were found (see Diamond Fields Namibia, 2013).  No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).
Hazardous substances	❖ Keep records of quantities of hazardous substances used and disposed of.		No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see

Aspect	Variables	Timing and Frequency	Compliance / Comments
Wastes and scrap	<ul style="list-style-type: none"> <li>❖ Maintain an Official Garbage Record Book onboard vessels for all discharges of waste/incinerations.</li> <li>❖ Maintain records of the types and amounts of waste disposed of.</li> <li>❖ Keep records of any waste or scrap recycled.</li> </ul>		<p>RBS, 2019b).</p> <p>Records from 2013 were found (see Diamond Fields Namibia, 2013).</p> <p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p>
Incidental loss of equipment at sea	<ul style="list-style-type: none"> <li>❖ Maintain a hazards database listing the type of gear left on the seabed with the dates of loss and locations and, where applicable, the dates of retrieval.</li> </ul>	<p><b>Timing:</b> During the sampling and mining operations</p> <p><b>Frequency:</b> Continuously during the operations.</p>	<p>No exploration or mining activities undertaken for this (2019-2022) or the previous period (2016-2019) (geophysical surveys only took place in 2018) under review, hence no monitoring activities / results (also see RBS, 2019b).</p>
Employment and expenditure	<ul style="list-style-type: none"> <li>❖ Keep records of employees and sub-contractors involved in operations.</li> </ul>	<p><b>Timing:</b> During the sampling and mining operations</p> <p><b>Frequency:</b> Annually during the operations.</p>	
Economic benefits	<ul style="list-style-type: none"> <li>❖ Keep a record of total expenditure.</li> </ul>	<p><b>Timing:</b> During the sampling and mining operations</p> <p><b>Frequency:</b> Annually during the operations.</p>	

## 5 Conclusions and Recommendations

---

Namibian Diamond Company (Pty) Ltd has not undertaken any exploration (apart from geophysical surveys in 2018) or mining activities within Mining License 32 for the past six years.

The current Environmental Clearance Certificate expired on 14 May 2022. Application for a renewal was submitted to the Ministry of Environment, Forestry and Tourism on 14 July 2022. The Ministry's Online Portal collapsed shortly after, and Namibian Diamond Company (Pty) Ltd has been in discussion with Sperrgebiet Diamond Mining (Pty) Ltd since August 2022 (see below).

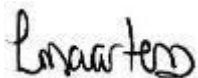
A shallow water (0 to 42 metres) mining campaign is currently planned. A boat-based contractor will be employed by Namibian Diamond Company (Pty) Ltd to carry out this campaign, using a boat, between 8 and 35 metres in length; the boat will be operated from Lüderitz. [*Note that Oranjemund will not be used as a logistics base, there will be no crew changes via helicopter to any offshore diamond mining vessels/crawlers, and no refuelling will take place at sea.*]

A second contractor will be employed which will be land-based. This land-based campaign would require the setting up of a campsite within Mining License 46 (most likely 12 kilometres north of Lüderitz in the Boulder Bay area). Namibian Diamond Company (Pty) Ltd is currently (since August 2022 and ongoing) in discussion with Sperrgebiet Diamond Mining (Pty) Ltd, who took over the Mining License from Namdeb Diamond Corporation (Pty) Ltd, and would need to give consent to Namibian Diamond Company (Pty) Ltd to access the area.

It is advised that Namibian Diamond Company (Pty) Ltd (and their employees and contractors) should implement and observe the Environmental Management Plan on an ongoing basis.

The Environmental Management Plan should be updated once the details re the boat-based shallow water mining campaign (and the land-based component) have been finalised.

Environmental performance should be regularly monitored (so that the lessons learnt can be incorporated into the improvement of the Environmental Management Plan over time) and corrective measures taken as or when required.



Dr Lima Maartens  
LM Environmental Consulting



## 6 References

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*Diamond Exploration and Mining in Mining License (ML) No. 32, Lüderitz Area Environment, //Karas Region, Southern Namibia.* Prepared for Namibia Diamond Company (Pty) Ltd. 61 pp.

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## **Annexure A**

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REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

Tel: (00 26461) 284 2111  
Fax: (00 26461) 232 057

Cnr Robert Mugabe &  
Dr Kenneth Kaunda Street  
Private Bag 13306  
Windhoek  
Namibia

**Enquiries:** Mr. Josafat K Hiwana  
E-mail: [josafat.hiwana@met.gov.na](mailto:josafat.hiwana@met.gov.na)

14 May 2019

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

The Managing Director  
Namibia Diamond Company (Pty) Ltd  
14 Strauss Street  
P.O. Box 2781  
Windhoek

Dear Sir/Madam

**SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE MARINE DIAMOND EXPLORATION AND MINING IN MINING LICENSE (ML) 32, OFFSHORE, LUDERITZ AREA, //KARAS REGION**

The Environmental Management Plan submitted is sufficient as it made provisions of the environmental management concerning the proposed activities. From this perspective, regular environmental monitoring and evaluations on environmental performance should be conducted. Targets for improvements should be established and monitored throughout this process.

This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project. All relevant permitting authority must be properly consulted and written consent obtained from them.

On the basis of the above, this letter serves as an environmental clearance certificate for the project to continue. However, this clearance letter does not in any way hold the Ministry of Environment and Tourism accountable for any misleading information, nor any adverse effects that may arise from this project's activities. Instead, full accountability rests with Namibia Diamond Company (Pty) Ltd.

This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office.

Yours sincerely,

Fredrick Mupoti Sikabongo  
DEPUTY ENVIRONMENTAL COMMISSIONER



**“Stop the poaching of our rhinos”**

All official correspondence must be addressed to the Permanent Secretary

APP-0010421

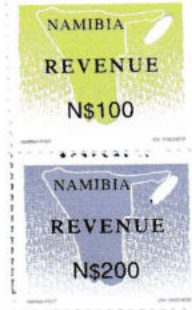
ANNEXURE 1  
FORMS

Form 1

REPUBLIC OF NAMIBIA ENVIRONMENTAL

MANAGEMENT ACT, 2007 (Section 32)

APPLICATION FOR **THE RENEWAL OF AN ENVIRONMENTAL  
CLEARANCE CERTIFICATE**



**PART A: DETAILS OF APPLICANT**

1. Name: (person or business):	Namibia Diamond Company (Pty) Ltd
2. Business Registration / <del>Identity</del> No.:	2011/0546
3. Correspondence Address:	P. O. Box 9600, Windhoek, Namibia
4. Name of Contact Person:	Mr Hans Hückstedt
5. Position of Contact Person:	Chief Geologist
6. Telephone No.:	+264 61 226672
7. Fax No.:	N/A
8. E-mail Address (if any):	hans@diamondfields.com



## PART B: SCOPE OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE

### 1. The environmental clearance certificate is for:

**Renewal** of the Environmental Clearance Certificate for Marine Diamond Exploration and Mining Operations in the Mining License (ML) No. 32, Lüderitz-area, //Karas Region, Namibia.

### 2. Details of the activity(s) covered by the environmental clearance certificate:

#### Title of Activity:

Marine Diamond Exploration and Mining Operations in ML32, Lüderitz-area, //Karas Region, Namibia.

#### Nature of Activity:

**MINING AND QUARRYING ACTIVITIES** 3.2 Other forms of mining or extraction of any natural resources whether regulated by law or not. 3.3 Resource extraction, manipulation, conservation and related activities.

**WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES** 2.3 The ~~import, processing~~, use and recycling, temporary storage, transit ~~or export~~ of waste.

**HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE** 9.1 The ~~manufacturing~~, storage, handling ~~or processing~~ of a hazardous substance defined in the Hazardous Substances Ordinance, 1974. 9.2 Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste. 9.4 The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.

#### Location of Activity:

Shallow marine environment off Lüderitz, //Karas Region.

Area of ~17,000 ha or 170000000 m<sup>2</sup>.

-26.38722166 and 15.04750000 (central to ML32).

#### Scale and Scope of Activity:

Marine Diamond Exploration and Mining in ML32.

## PART C: DECLARATION BY APPLICANT

I hereby certify that the particulars given above are correct and true to the best of my knowledge and belief. I understand the environmental clearance certificate may be suspended, amended or cancelled if any information given above is false, misleading, wrong or incomplete.



Signature of Applicant

Hans Hückstedt

Full Name in Block Letters

Chief Geologist

Position

on behalf of

Namibia Diamond Company (Pty) Ltd

14 July 2022

Date

**Contact Details of the Proponent**

Mr Hans Hückstedt  
Chief Geologist  
Namibia Diamond Company (Pty) Ltd  
P.O. Box 9600  
Windhoek  
Namibia

14 Strauss Street  
Windhoek  
Namibia

Tel: +264 61 226 672

E-mail: [hans@diamondfields.com](mailto:hans@diamondfields.com)

**Contact Details of the Environmental Assessment Practitioner**

Dr Lima Maartens  
LM Environmental Consulting  
P.O. Box 1284  
Windhoek  
Namibia

Tel: +264 61 255750  
Cell: +264 81 2458790  
Fax: 088 61 9004

E-mail: [lima@iway.na](mailto:lima@iway.na)  
E-mail: [limamaartens@gmail.com](mailto:limamaartens@gmail.com)





lima@iway.na  
limamaartens@gmail.com  
+264 61 255750  
+264 81 2458790  
Windhoek, Namibia

### Skills

Project Management  
Environmental Impact Assessments  
Environmental Management Plans  
Environmental Auditing  
Environmental and Social Due Diligence / Legal Compliance  
Research and Monitoring  
Reviewer / Technical Editing

### Education And Training 2000

**Ph.D.:** Fisheries Science  
**Rhodes University**  
Grahamstown, South Africa

1992

**B.Sc. Hons:** Animal Physiology  
**Stellenbosch University**  
Stellenbosch, South Africa

1991

**B.Sc.:** Zoology and Physiology  
**Stellenbosch University**  
Stellenbosch, South Africa

1987

**Senior Certificate**  
**Windhoek High School**  
Windhoek, Namibia

### Languages

**Afrikaans:** First Language  
**English:** Proficient

### Membership in Professional Bodies

Associate Membership and Associate Environmental Auditor - Institute of Environmental Management & Assessment (IEMA), United Kingdom  
Lead Practitioner, Practitioner, Reviewer - Environmental Assessment Professionals of Namibia (EAPAN)  
Full Member - Namibian Chamber of Environment (NCE)  
Member - Namibia Scientific Society

# Lima Maartens

### Summary

I have more than 29 years' experience in natural resource management, lecturing, environmental science and management, and consulting. Sectors that I worked in as an Environmental Assessment Practitioner include: exploration (including offshore oil and gas); mining and quarrying; renewable energy (solar and wind); tourism; manufacturing; agriculture; aqua- and mariculture; and township, property and waterfront developments.

### Employment Record

**LM Environmental Consulting – Environmental Assessment Practitioner**  
10/2009 – Current; Windhoek, Namibia  
**Valencia Uranium (Pty) Ltd – Environmental Manager**  
09/2006 – 09/2009; Windhoek, Namibia  
**De Beers Marine Namibia (Pty) Ltd – Senior Environmental Scientist**  
01/2004 – 08/2006, Windhoek, Namibia  
**Simonis Storm Securities – Analyst**  
09/2002 – 12/2003, Windhoek, Namibia  
**University of Namibia – Lecturer**  
10/2000 – 06/2002, Windhoek, Namibia  
**Ministry of Fisheries and Marine Resources – Fisheries Biologist**  
01/1993 – 09/2000, Swakopmund, Namibia

### Additional Skills


Oxford Climate Society, Oxford School of Climate Change: *Completion of the nine-week School of Climate Change 2022*  
University of Seychelles and Commonwealth of Learning: *The Blue Economy: Blue Space (2021), The Blue Economy: Blue Resources (2021), and The Blue Economy: Creating an Enabling Environment (2020)*  
SHEilds Ltd., United Kingdom: NEBOSH Certificate in Environmental Management (2018)  
NOSA, Windhoek, Namibia: Applying SHE (Safety, Health, Environment) Principles and Procedures (2012)  
Centre for Environmental Management, Potchefstroom, South Africa: Introduction to Integrated Waste Management for Environmental Managers (2009)  
The Chamber of Mines of Namibia, Uranium Stewardship Committee, Namibia: Radiation Course for Senior Supervisors (2009)  
Prospectors and Developers Association of Canada (PDAC): From theory to practice: Corporate social responsibility and sustainable development in mineral exploration (2007)  
Crystal Clear, South Africa: IEMA Approved Foundation Environmental Auditor (2006)  
University of Stellenbosch Executive Development: Project Management (2004)

### Publications


I have published five peer-reviewed scientific research articles (and three as co-author), six popular articles (and one as co-author), one book chapter (and one book chapter as co-author), 129 technical reports (LM Environmental Consulting), three technical reports (for De Beers Marine Namibia), and one conference paper.

Copy of Identification Document of the Environmental Assessment Practitioner

REPUBLIC OF NAMIBIA  
NATIONAL IDENTITY CARD



NO. 690715 0048 9



SURNAME  
**MAARTENS**  
FIRST NAME(S)  
**LIMA**

*Lima Maartens*

DATE OF BIRTH  
**1969-07-15**

PLACE / COUNTRY OF BIRTH  
**WINDHOEK**


GENDER      HEIGHT/m  
**FEMALE 1,68**

DATE OF ISSUE  
**1999-03-24**

APPL. NO.  
**K27075**

CITIZENSHIP  
**CITIZEN**

EYE COLOUR  
**BROWN**



69071500489

MINISTRY OF ENVIRONMENT,  
FORESTRY AND TOURISM

DIRECTORATE OF ENVIRONMENTAL AFFAIRS

15 JUL 2022

RECEIVED 1

Signature *[Handwritten Signature]*





REPUBLIC OF NAMIBIA

## MINISTRY OF ENVIRONMENT AND TOURISM

Tel: (00 26461) 284 2111  
Fax: (00 26461) 232 057

Cnr Robert Mugabe &  
Dr Kenneth Kaunda Street  
Private Bag 13306  
Windhoek  
Namibia

**Enquiries:** Mr. Josafat K Hiwana  
E-mail: [josafat.hiwana@met.gov.na](mailto:josafat.hiwana@met.gov.na)

14 May 2019

### OFFICE OF THE ENVIRONMENTAL COMMISSIONER

The Managing Director  
Namibia Diamond Company (Pty) Ltd  
14 Strauss Street  
P.O. Box 2781  
Windhoek

Dear Sir/Madam

**SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE MARINE DIAMOND EXPLORATION AND MINING IN MINING LICENSE (ML) 32, OFFSHORE, LUDERITZ AREA, //KARAS REGION**

The Environmental Management Plan submitted is sufficient as it made provisions of the environmental management concerning the proposed activities. From this perspective, regular environmental monitoring and evaluations on environmental performance should be conducted. Targets for improvements should be established and monitored throughout this process.

This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project. All relevant permitting authority must be properly consulted and written consent obtained from them.

On the basis of the above, this letter serves as an environmental clearance certificate for the project to continue. However, this clearance letter does not in any way hold the Ministry of Environment and Tourism accountable for any misleading information, nor any adverse effects that may arise from this project's activities. Instead, full accountability rests with Namibia Diamond Company (Pty) Ltd.

This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office.

Yours sincerely,

Fredrick Mupoti Sikabongo  
DEPUTY ENVIRONMENTAL COMMISSIONER



**“Stop the poaching of our rhinos”**

All official correspondence must be addressed to the Permanent Secretary

----- Forwarded message -----

From: **Ministry of Environment and Tourism** <[noreply@mef.gov.na](mailto:noreply@mef.gov.na)>

Date: Wed, 23 Nov 2022 at 18:10

Subject: Your application is verified

To: Hans Huckstedt <[llnp.hans@gmail.com](mailto:llnp.hans@gmail.com)>



**REPUBLIC OF NAMIBIA**

Ministry of Environment, Forestry & Tourism

---

2022-11-23

Dear Hans Huckstedt,

This email serves to inform you that your application **APP-00413** has been verified

Taking the following into considerations:

- Location of the project
- Pollution potential
- Scale of operation of the project

Please upload the following documents:

- Updated EMP to effect amendment

- Confirmation of screening notice received (through email) in terms of assessment procedures (Section 35 (1)(a)(b) of the Environmental Management Act, No 7 of 2007)
- Preliminary Site Map with coordinates (decimal degrees) and a Legend
- Copy of the previous Environmental Clearance Certificate issued in terms of Section 37(1)(a) of EMA
- CV of Environmental Assessment Practitioner (EAP)

Please login onto our portal to upload required documents, if any  
<https://eia.met.gov.na>

NB- for the purpose of Section 38 of the Environmental Management Act, 2007 read with Regulation 4(d), kindly forward copies of all relevant documents i.e (application forms, EIA, Scoping reports, EMP etc) to the office of the Environmental Commissioner

Thank you

---

Phillip Troskie Bulding  
P/Bag 13306, Windhoek | Tel: +264 61 284 2111 | DEA: +264 61 284 2701

Please do not reply directly to this email. It was sent from an unattended mailbox.  
Correspondences can be done on the portal or please use  
[eia@met.gov.na](mailto:eia@met.gov.na)

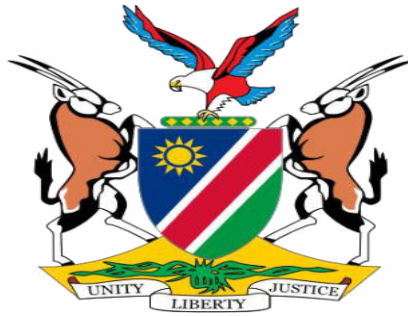
----- Forwarded message -----

From: **Ministry of Environment and Tourism** <[noreply@mef.gov.na](mailto:noreply@mef.gov.na)>

Date: Wed, 23 Nov 2022 at 17:15

Subject: New application for an Environmental Clearance Certificate

To: Hans Huckstedt <[llnp.hans@gmail.com](mailto:llnp.hans@gmail.com)>



**REPUBLIC OF NAMIBIA**  
Ministry of Environment, Forestry & Tourism

---

2022-11-23

Dear Hans Huckstedt,

Thank you for applying for an Environmental Clearance Certificate.

Your application has been registered with application number  
**221123000413**

Thank you

---

Phillip Troskie Bulding  
P/Bag 13306, Windhoek | Tel: +264 61 284 2111 | DEA: +264 61 284 2701

Please do not reply directly to this email. It was sent from an unattended mailbox.  
Correspondences can be done on the portal or please use  
[eia@met.gov.na](mailto:eia@met.gov.na)

----- Forwarded message -----

From: **Ministry of Environment and Tourism** <[eie@met.gov.na](mailto:eie@met.gov.na)>

Date: Sun, 17 Jul 2022 at 23:01

Subject: Your application is verified

To: Sybrand van der Spuy <[llnp.hans@gmail.com](mailto:llnp.hans@gmail.com)>



**REPUBLIC OF NAMIBIA**

Ministry of Environment, Forestry & Tourism

---

2022-07-17

Dear Sybrand van der Spuy,

This email serves to inform you that your application **APP-0010421** has been verified

Taking the following into considerations:

- Location of the project
- Pollution potential
- Scale of operation of the project

Please upload the following documents:

- Copy of Environmental Certificate (ECC) previously Issued
- Updated EMP to effect Renewal/ Amendment
- Project Site Area (map) with clear coordinates, e.g -22.664250° 14.551275°



- Curriculum Vitae of designated EAP to manage the assessment process as per Regulation 3 & 4
- Confirmation of screening notice received (through email) in terms of assessment procedures (Section 35 (1)(a)(b) of the Environmental Management Act, No 7 of 2007)

Please login onto our portal to upload required documents, if any  
<https://eia.met.gov.na>

Thank you

---

Phillip Troskie Bulding  
P/Bag 13306, Windhoek | Tel: +264 61 284 2111 | DEA: +264 61 284 2701

Please do not reply directly to this email. It was sent from an unattended mailbox.  
Correspondences can be done on the portal or please use  
[eia@met.gov.na](mailto:eia@met.gov.na)

----- Forwarded message -----

From: **Ministry of Environment and Tourism** <[eie@met.gov.na](mailto:eie@met.gov.na)>

Date: Thu, 14 Jul 2022 at 18:04

Subject: New application for an Environmental Clearance Certificate

To: Sybrand van der Spuy <[lnp.hans@gmail.com](mailto:lnp.hans@gmail.com)>



**REPUBLIC OF NAMIBIA**  
Ministry of Environment, Forestry & Tourism

---

2022-07-14

Dear Sybrand van der Spuy,

Thank you for applying for an Environmental Clearance Certificate.

Your application has been registered with application number **APP-0010421**

Thank you

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Phillip Troskie Bulding  
P/Bag 13306, Windhoek | Tel: +264 61 284 2111 | DEA: +264 61 284 2701

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[eia@met.gov.na](mailto:eia@met.gov.na)

19 April 2022

**The Executive Director's Office**  
**Ministry of Environment, Forestry and Tourism**  
Phillip Troskie Building  
Private Bag 13306  
Windhoek

Cc  
**The Mining Commissioner**  
Ministry of Mines and Energy  
6 Aviation Road  
Private Bag 13297  
Windhoek


**Re – Mining Licence ML32**  
**Operations during Environmental Clearance Certificate May 2019 to May 2022**

Dear,

This letter serves to inform that during the above-mentioned in-date Environmental Clearance Certificate no diamond exploration or mining related activities took place within licence area ML32.

Since our previous mine campaign which ended June 2013 we conducted a geophysical survey programme in 2018. Namibian Diamond Company is planning to again activate a shallow water mining campaign in the near future.

Sincerely Yours,



Sybrand van der Spuy  
CEO, Namibian Diamond Company (Pty) Ltd