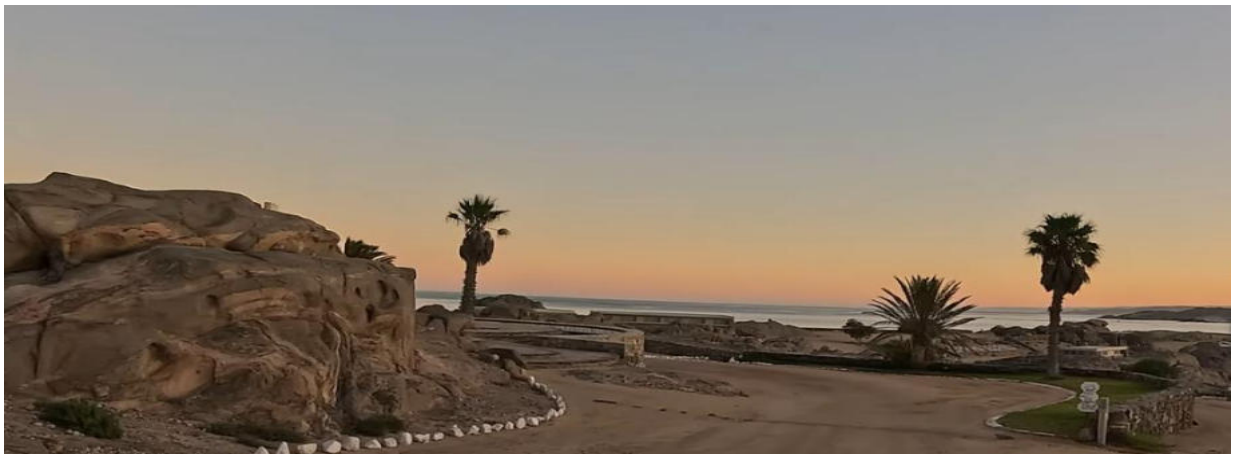
ENVIRONMENTAL MANAGEMENT PLAN



Subdivision of a Portion of Rem Portion B of the Farm Lüderitz Town and Townlands No. 11 into three (3) Portions A, B and C.

Portions A and C measure Approximately 50 000 m^2 each while Portion B measures Approximately 10 000 m^2
Rezoning of Portion A and C from 'Undetermined' to 'Heavy Industrial' and Portion B from 'Undetermined' to 'Street Road'

Installation of Bulk Services

Luderitz Town Council

//Karas Region

December 2025

PP- 006758

Ekwao Consulting

INFORMATION SHEET		
PROJECT NAME	:	**<u>Land Use and Development Activities:</u>** **Subdivision of a Portion of the Rem of Portion B of Farm Lüderitz Town and Townlands No. 11 into three Portions (A, B & C) and Rezoning of Portions A and C from 'Undetermined' to 'Heavy Industrial' and Portion B from 'Undetermined' to 'Street Road' and the Installation of Bulk Services**
TYPE OF PROJECT	:	**ENVIRONMENTAL MANAGEMENT PLAN**
PROJECT LOCATION	:	**Luderitz Town Council** **Luderits Road** **LUDERITZ** **//Karas Region**
COMPETENT AUTHORITY	:	**Luderitz Town Council**
ECC APPLICATION NO.	:	**APP-006758**
REPORT DATE	:	**December 2025**
PROJECT PROMOTOR	:	**Beginkuumba Port Services** **C/O Rikumbi Kandanga & 3RD Street** **WALVIS BAY** Ulianom@Beginkuumba-ps.com
TOWN PLANNER	:	**URBAN DYNAMICS TOWN PLANNERS (PTY) LTD** **48 Nelson Mandela Avenue** **Klein Windhoek** **WINDHOEK**
EIA CONSULTANT	:	**Ekwao Consulting** **BOX 25021** **WINDHOEK** **Cell: 081 127 3027** **Email: ekwao@iway.na**

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS

ABBREVIATION	EXPANSION
BAT	Best Available Technology
BID	Background Information Document
EC	Environmental Clearance Certificate
EIA	Environmental Impact assessment
EIAR	Environmental Impact Assessment Regulations
EMA	Environmental Management Act
EMP	Environmental Management Plan
ERC	Erongo Regional Council
IAPs	Interested and Affected Parties
KRC	//Karas Regional Council
LTC	Lüderitz Town Council
MEFT	Ministry of Environment, Forestry and Tourism
MURD	Ministry of Urban and Rural Development
NamRA	Namibia Revenue Authority
NHC	National Heritage Council
NSA	Namibia Statistical Agency
NSI	Namibia Standard Institute
PPE	Personal Protective Equipment
SHE	Safety, Health and Environment
URPB	Urban and Regional Planning Board

DEFINITIONS

TERM	EXPANSION
Assessment	The process of collecting, organising, analysing, interpreting and communicating information relevant for decision making.
Competent Authority	Means a body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.
Construction	Means the building, erection or modification of a facility, structure or infrastructure that is necessary for the undertaking of an activity, including the modification, alteration, upgrading or decommissioning of such facility, structure or infrastructure.
Cumulative Impacts	With respect to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Disposal	Means the discharge, depositing, dumping, spilling, leaking, placing of waste on or at any premises or place set aside by the local authority for such purposes, and "dispose" shall, in the context of this report, have a similar meaning.
Downstream	In the oil and gas industry, the downstream refers to the refining of crude oil and purifying of raw natural gas as well as the marketing and distribution of products derived from crude oil and natural gas. The downstream sector reaches the consumers through products such as unleaded petrol, automobile diesel oil, jet fuel, lubricants, asphalt and liquefied petroleum gas (LPG).
Environment	As defined in EMA it means - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems and the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values".
Environmental Clearance Certificate	A certificate and associated conditions issued in terms of EMA, authorizing a listed activity to be undertaken.
Environmental Impact	A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined timeline and space.
Environmental Management Plan	A working document which contains site project-specific plans developed to ensure that environmental management practices to eliminate and control environmental impacts are followed during the developmental phase of that specific project and would normally consist of construction, operational and decommissioning phases.
Erf	An erf (plural: erven) is a legal term for a piece of land, lot, plot, or stand that is formally surveyed and registered in the deed registry as such and includes every defined portion, not intended to be a public place, or a piece of land laid out as a township, whether or not it has been formally recognized, approved or proclaimed.
Erf Zoning	The use of an erf is strictly governed by the local authority town planning scheme and zoning regulations (e.g. residential, business, industrial or specific institutional purposes like church)
Evaluation	Means the process of ascertaining the relative importance or significance of information, the light of people's values, preference and judgements in order to make a decision.
Hazard	Anything that has the potential to cause damage to life, property and/or the environment. The hazard of a particular material or installation is constant; that is, it would present the same hazard wherever it was present.
Interested and Affected Party (IAP)	Any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.
Non-compliance	Issues that are in direct non-compliance with the requirements, commitments and/or management measures as approved in the EMP.

Proponent or Promotor	Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Forestry, Environment & Tourism.
Public	Means citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved
Storage	Means the temporary storage or containment of any waste for a period of less than 90 days after its generation and prior to its collection for recovery, reuse, recycling, treatment or disposal.
Upstream	In the oil and gas industry, the upstream refers to and includes the searching for (exploration) potential underground or underwater crude oil and natural gas fields, drilling exploratory wells, and subsequently operating the wells that recover and bring the crude oil or raw natural gas to the surface for refining.
Waste	Means any substance or matter whether solid, liquid or any combination thereof, irrespective of whether it or any constituents thereof may have value or other use, and includes – a) any undesirable, rejected, abandoned or superfluous matter, material, residue of any process or activity, product, by-product; b) any matter which is deemed useless and unwanted; c) any matter which has been discarded, abandoned, accumulated or stored for the purposes of discarding, abandoning, processing, recovery, reuse, recycling or extracting a usable product from such matter; or d) products that may contain or generate a gaseous component
Waste Management Plan	Means a structured document that sets out to record /eliminate/ reuse /recycle the amounts and the types of all waste that is generated in an area or facility.

1. THE PROJECT OVERVIEW

1.1 INTRODUCTION

This is an Environmental Management Plan (EMP) prepared to serve as a standalone plan to mitigate potential impacts associated with undertaking a listed activity in terms of the Environmental Management Act.

The EMP should be read in conjunction with the Environmental Scoping Report conducted for the aforesaid listed activity. The EMP is intended to support an application for an Environmental Clearance Certificate (ECC) submitted to the Office of the Environmental Commissioner (OEC).

In the EMP, mitigation measures have been proposed to help manage those impacts predicted to arise during the implementation of the project.

1.2 THE PROMOTOR

The promotor (applicant of the ECC) is an entity operating in the local warehousing and logistics space with its existing operations based in Walvis Bay. It is the plan of the premotor to extend its unique specialized services to Namibia's upstream oil and gas by developing warehousing facilities in the coastal town of Lüderitz. To meet this goal, the applicant has been allocated a piece of land by the Lüderitz Town Council (LTC). However, the land allocated is vacant, remote and without any services, i.e. there are no basic services and infrastructure such as water, electricity, sewerage, etc. The applicant is required by LTC to provide such services at its cost.

The particulars of the promotor (applicant) are provided in **Table 1.**

Table 1: Particulars of the Promoter

The Applicant	Bigenkuumba Port Services (Pty) Ltd
Registration Number	2022/1453
Applicant Representative	Uliano Marthinussen (Mr)
Designation of Representative	Project Director
Applicant's Contact Details	Mobile: 081 279 3261 Email: Ulianom@Bigenkuumba-ps.com Office Number: 083 345 7930
Physical Address	C/O No. 1 Rikumbi Kandanga and 3rd Street Walvis Bay Namibia
Postal Address	Box 90106 Windhoek Namibia

1.3 THE LISTED ACTIVITY

The project entails subdivision and rezoning of urban land – both statutory procedures regulated under the Urban and Regional Planning Act. Rezoning is a coordinated and legal process of land delivery aimed at determining 'land use and development' hence promoting and ensuring a safe, healthy and efficient living environment for the people.

In terms of the Environmental Management Act (No. 7 of 2007) and EIA Regulations, land use and land development are listed activities for which an ECC is required.

The statutory process involved is presented in Figure 1 below:

1. **Subdivision of a Portion of Remainder of Portion B of Farm Lüderitz Town and Townlands No. 11 into three (3) Portions (A, B & C)**
2. **Portion A and C measures approximately 50 000 square meters each**
3. **Portion B measures approximately 10 000 square meters**
4. **Rezoning of Portions A and C from 'Undetermined' to 'Heavy Industrial' and Portion from 'Undetermined' to 'Street Road'**
5. **Installation of bulk services – water, electricity, sewerage, etc.**

Figure 1: The Town Planning Process

1.4 LOCATION OF THE LAND

The land is located to the south of the town, along the Lüderitz Road – the gravel road leading Dias Point Lighthouse and Tsau Khaeb National Park. It is essentially a standalone site bordering to no other property in the area. A Google earth map depicting the land is presented in Figure 2.

Figure 2: Project Site Location

1.5 TRIGGERED ACTIVITIES

In terms of EMA and EIA Regulations (EIAR), the proposed project has triggered listed activities as tabulated in **Table 4,** below.

Table 2: Triggered Activities

Listed Category	Specific Activities	Applicability to the Project
Energy, Generation, Transmission and Storage Activities	1(b) The construction of facilities for the transmission and supply of electricity	Electricity has to be supplied to the rezoned land portions
Waste Management, Treatment and Handling	2.2 Any activity entailing a scheduled process referred in the atmospheric Pollution Prevention Ordinance, 1976. 2.3 The import, processing, use and recycling, temporary storage, transit or export of waste	The project will generate various waste types to be temporarily stored and handled before disposal by the LTC

Land Use and Development Activities	5.1 The rezoning of land from - (a) 'undetermined' to 'heavy industrial use'	
Hazardous Substances Treatment, Handling and Storage	9.1 The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974. 9.3. 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 m^3 at any one location.	The project will generate hazardous substances.
Infrastructure	10.1 The construction of infrastructure: (a) oil, water, gas and other petrochemical and other bulk supply pipelines	The project will require the installation of potable water pipelines

1.6 OBJECTIVES OF THE EMP

Listed below, are some the objectives that the EMP intends to meet:

- Identify mitigation measures and environmental specifications required to be implemented for the two phases of the project – planning and construction (installation of bulk services), so as to manage and minimise adverse impacts associated with the project.
- Ensure that all the phases of the proposed project do not result in undue or reasonably avoidable adverse environmental impacts, to ensure that any potential environmental benefits are enhanced to benefit the broader community members.
- Identify entities responsible for the implementation of the measures and outline functions and responsibilities.
- Create management structures that address the concerns and complaint of interested and affected parties (IAPs) with regards to the proposed project.
- Propose mechanism and frequency for monitoring compliance, and preventing long-term or permanent environmental degradation'
- Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment.
- Train onsite personnel with regard to their environmental obligations and
- Facilitate appropriate and proactive responses to unforeseen events or changes in project implementation that were not considered in EIA assessment process.

1.7 ENVIRONMENTAL OBJECTIVES

To facilitate compliance to the EMP, the promotor is expected to comply with all relevant legislations and standards, as well as to make all personnel aware of the requirements of the EMP, and the prescribed penalties should non-conformance be identified during the implementation of two phases of the proposed project.

It is recommended that environmental objectives (as outlined above in this document) be emphasized as minimum requirements. The objectives include:

- To encourage good management practices through planning and commitment to environmental issues, and provide rational and practical environmental guidelines with respect to:
  - minimise disturbance on the natural environment;

- minimise fugitive emissions;
- minimise impact of added traffic into the area;
- ensure surface and groundwater resource protection;
- prevent or minimise all forms of pollution;
- protect indigenous flora and fauna;
- prevent soil erosion;
- promote sustainable use of resources;
- adopt the best practical means available to prevent or minimise adverse impacts on environment;
- develop waste management practices based on prevention, minimisation, recycling, treatment, or disposal of waste impacts, and
- comply with all applicable laws, regulations, standards and guidelines for the protection of the environment.

- To describe all monitoring procedures required to identify impacts on the environment.
- To define how the management of the environment is reported and performance evaluated.
- To train onsite personnel regarding their environmental obligations.

1.8 LEGAL OBLIGATION

The acceptance of this EMP report by the EC and the subsequent granting of an ECC will confer legal obligations to the promoter to comply with the recommendations contained in the EMP. Should the ECC holder fail to comply with such requirements, it is deemed a contravention of EMA, and as such is criminally prosecutable.

The legislation framework covering the proposed activity has been presented in the scoping section of the report and is not repeated here.

2. PRESENTATION OF THE ENVIRONMENTAL MANAGEMENT PLAN

2.1 INTRODUCTION

Presented in this section is the EMP – a document in which the measures proposed to avoid or to reduce the development's adverse impacts on to the receiving environment are presented. Specific actions for mitigation, monitoring and management during all phases of the proposed project are detailed from planning through to construction (installation of bulk services) and rehabilitation post construction.

2.2 COMPONENTS OF THE EMP

The key components of the EMP are presented in Table 3 below:

Table 3: Components of the EMP

Component	Expansion
Mitigation	Specifies the actions to avoid, reduce, or eliminate potential negative impacts on the environment and social structures.
Monitoring	Describes how the project's environmental performance will be tracked and measured to ensure mitigation measures are working.
Management actions/control	Includes a framework for managing environmental performance, such as the roles and responsibilities of staff, incident reporting, and the use of personal protective equipment.
Contingency Planning	Addresses potential unforeseen impacts and outlines the response measures needed.
Compliance	The project is required to adhere to all applicable environmental laws, permits, and stakeholder requirement

Typically, an EMP is created during the planning and approval stages of a project to demonstrate to the OEC (the regulator) that the proponent has a plan to manage environmental risks associated with the envisaged development.

It serves as a practical, guidance document for the project team and civil contractors to follow. As such the EMP is a legally binding document that requires compliance. It is a "living document" that has to be updated as and when the project progresses, or if new information becomes available.

2.3 FUNCTIONS AND RESPONSIBILITIES

Formal responsibilities are necessary to ensure that key management measures/procedures are executed. The promotor will be responsible for the overall control of the project site. Presented in **Table 5** are some of the functions and responsibilities related to the proposed development.

Table 4: Roles and Responsibilities

The Party	Functions and Responsibilities
The Environmental Commissioner (EC)	The OEC is responsible for ensuring and enforcing compliance with the relevant environmental legislations and regulations of EMA. Amongst the roles and functions of the OEC are to : • grant the ECC and renewals thereof; • ensure overall compliance with the provisions of the EMP; • review this document and any revisions thereof; • undertake site inspections/audits at their discretion;

The Party	Functions and Responsibilities
	• review any environmental audit reports submitted to MEFT; • review any major environmental related incidents/accidents, and • enforce the legal mechanisms for contraventions of the EMP.
Lüderitz Local Council (LTC)	The project site is within the jurisdiction of Luderitz Town Council. In this regard LTC has various roles and functions to play with respect to the development. Some of these are to: • ensure compliance with council bylaws at all times; • issue fitness certificates to businesses where applicable; • supply adequate clean potable water; • remove waste from the business premises; • conduct site inspections/visits at their discretion; • review and approve all building plans submitted for the development; • keep the streets well lit at night, street roads clean and tidy; • ensure that high standards of safety and health are upheld and maintained throughout the lifespan of the development, and • enforce legal mechanism for any contraventions of council bylaws.
Beginkuumba Port Services (Pty) Ltd (Promotor)	The promotor (Beginkuumba Port Services) has to ensure that: • an ECC and any other applicable permits are obtained and kept on file; • the layout and designs are prepared by experienced and qualified professionals and that approvals from LTC is obtained; • a reputable and experienced construction company is appointed to carry out any construction activities (installation of bulk services including blasting of hard rocks) that may be required; • adequate training on the EMP is provided to all prospective employees as well as to any third parties who may be hired for any civil engineering work; • ongoing compliance is maintained with all applicable legislations, regulations and policies pertaining to the development; • a competent and experienced Environmental Control Officer (ECO) is appointed to take charge of all safety, health and environmental aspects of the development especially during the construction phase; • A waste management plan to deal with waste, both hazardous and non-hazardous is developed and implemented, and • An emergency response plan for the project is developed and implemented.
Environmental Control Officer (ECO)	Amongst the roles and functions of the ECO are to: • manage and facilitate communication between the parties, i.e. the promotor, the appointed civil contraction company and IAPs with regard to matters related to construction activities; • ensure overall compliance of the provisions of this EMP; • undertake site inspections of the construction site including installation of all infrastructure; • assist the appointed civil construction company in finding solutions pertaining to matters arising during construction activities of the project; • advise the civil contraction company on the removal of any person and /or equipment not complying with the provisions of the EMP; • make recommendations to the promotor with respect to issuing of fine(s) for any infringement of the terms of the EMP; • assess, review and approve any training materials (in written content, manuals, workbooks, visual and in digital formats) to be offered to all personnel working on the project; and

The Party	Functions and Responsibilities
	• undertake a review of the EMP and recommend any additions or amendments as dedicated by the situation/circumstances on the construction site.
Site Manager (SM) /Contractor	The civil construction company appointed to execute the installation of bulk services is expected to appoint a Site Manager (SM) who will have these minimum obligations: • responsible for the implementation of the EMP during the construction phase; • ensure that all tasks undertaken under the scope of the work, are performed in a safe and hazardous free and secure environment; • ensure that all employees hired to work on the project: o are hired in compliance with the Labour Act, o are given an induction on the EMP; o are provided with suitable PPEs; o are working in a safe and accident-free environment, and o are provided with regular training, and made aware of their environmental obligations, etc. • manage all the day-to-day construction activities including the resource allocated to the project; • hold daily meetings (tool box talks) with the various teams to discuss the current operational activities associated with such activities, and • receive visitors to the construction site including officials from LTC and government.

2.4 ENVIRONMENTAL AWARENESS PLAN

Legislation requires of the promotor to develop an environmental awareness plan that describes the manner in which the employees are informed of any environmental risks that may arise during the implementation of the development in this case, the upgrading of infrastructure to cater for the general business rezoned land. This also includes the manner in which risks are mitigated to avoid pollution or the degradation of the environment. In recognition of the need to protect our environment, environmental management should not only be seen as a legal obligation, but also, as a moral obligation.

It is important to ensure that all relevant personnel have the appropriate level of environmental awareness, and competence to ensure continued environmental due diligence and ongoing minimisation of environmental degradation and harm.

To achieve effective environmental management, it is important that employees are made aware of their responsibilities in terms of the relevant environmental legislation, the contents of this EMP as well as to the conditions attached to the ECC once granted.

2.5 MANAGEMENT ACTIONS/MITIGATION MEASURES

The EMP has been presented in three tables arranged under these headings:

- EMP for the Planning Phase (**Table 6**)
- EMP for Construction (Installation of Services /Infrastructure) Phase (**Table 7**)
- EMP for Rehabilitation Post Construction (**Table 8**)

2.5.1 EMP FOR THE PLANNING PHASE

During the 'Planning Phase" the promotor is expected to have drawn up a detailed blueprint for the project which includes defining project objectives, scope, timelines and allocated resources. It is during this stage that specific steps are taken to ensure that the project is executed successfully.

The aspects proposed from an environmental perspective under this phase, are related to compliance, decarbonisation initiatives, appointments, communication and reporting. The promotor is the party responsible for all aspects related to this phase.

2.5.2 EMP FOR CONSTRUCTION PHASE

There are services and support infrastructure available on the two erven to be rezoned, i.e. water, electricity, sewerage, street roads (paved and tarred), waste removal services, etc. which would obviate the need for construction activities. However, it has been assumed that the existing infrastructure is inadequate to support the business activities to be conducted on the rezoned. Therefore some constructions activities will be required to upgrade the existing infrastructure. The management actions provided in this EMP is therefore to mitigate potential impacts that are likely to arise from construction activities that may be required.

The components presented in the EMP for the construction period are listed below:

- Environmental Aspects;
- Potential Impacts;
- Recommended Management Actions;
- Timing when the intervention should be made, and
- The Party Responsible for ensuring compliance.

2.5.3 EMP FOR REHABILITATION POST CONSTRUCTION

In the context of this project, closure and decommissioning is intended to deal with those environmental impacts related to the decommissioning or demobilisation of the constructor's construction camp from the project site on completion of construction activities. The end results for the project is installation of services (water, street roads, electricity, sewerage, etc.) on the rezone erven.

As regards project decommissioning, once an erven has been rezoned for a specific use, the process can only be reversed by another 'rezoning process' – therefore decommissioning does not apply for this specific project.

3. RECOMMENDATION

While every attempt has been made to address all possible potential environmental impacts in this document, the EMP should be considered as a day-to-day management tool, which sets out the minimum environmental and social standards that are required, in order to minimise the negative impacts, and maximize the positive benefits associated with the proposed development.

Rezoning is essentially a once-off administrative process, and if the proposed activity is performed during the validity period of the ECC, there will not be any need to update and review this EMP. Based on the observations made during the site inspections, it is incumbent upon the proponent, to ensure that the civil contractor who may be hired to install the required services and infrastructure, is provided with a copy of this EMP.

Furthermore, the contractor is expected to make a careful assessment of the work to be performed, and if needs be, to propose if any modifications to the mitigation measures as contained in this EMP may be required, in order to improve the overall efficiency and applicability of the EMP to the prevailing circumstances.

Ekwao Consulting is confident that the management measures as outlined in the EMP to mitigate the environmental impacts are adequate, and if implemented correctly will result in minimal impacts to the receiving environment.

It is recommended that the application for an ECC submitted by Beginkuumba Port Services (Pty) Ltd be approved subject to the applicant committing to comply with the conditions contained in this EMP or to any other conditions which the OEC may wish to impose.

Table 5: EMP for the Planning Phase

Aspects	Potential Impacts	Environmental Objective(s)	Management Actions/Mitigation Measures	Monitoring Frequency	Party Responsible
Compliance	Minimal – phase does not involve physical activities	Compliance with applicable regulations, policies and local council bylaws is vital.	• Any infrastructure that may be required should comply with local standards and specifications where those exists (i.e. NSI, etc.) or SABS where local standards and specifications are not developed. • Any permits or licenses that may be required, i.e. ECC should be in place and valid prior to starting with any physical activities on the ground. • All consumables that may be required for the development, i.e. water and electricity must be procured in a lawful manner with connections made by qualified service providers. • Comply with reporting requirements for all permits/licenses including the ECC.	Ongoing throughout construction phase	Promotor
Appointments	None – no physical activities involved	Offer work opportunities/ employment on merit without any prejudices	• Ensure that all applicable service infrastructure is designed by qualified and experienced professionals preferably with knowledge of the local conditions. • Appoint a civil construction company who is reputable, experienced and with a track record and preferably with the local knowledge. • Appoint an ECO (Environmental Control Officer) who is qualified and experienced to oversee the construction phase of the project. • Appointments for construction company and or staff personnel should be made on merit and in a manner that is both fair and transparent. (Justification for hiring non-locals should be provided to the line ministry).	Prior to starting with construction Ongoing throughout the construction phase	Promotor / Site Manager
Decarbonisation	None, but positive impacts are derived in the long term if implemented.	Strive to minimise the carbon footprint of the development.	• Embrace decarbonisation initiatives in the design phase, i.e. provide for the use of alternative energy sources. This will require orientation of building structures to facilitate easier installation of solar panels with maximum exposure to sunshine. • Adopt green technology when selecting equipment for the development with emphasis given on the use of hybrid systems; i.e. systems that can be powered by a combination of wind, solar and grid power. • Allow the design for the development to facilitate easier water recycling including procurement of solar geysers instead of conversional electricity powered geysers. • Design the development in a manner that provides adequate day natural light and makes use of energy saving bulbs.	Design phase, prior to starting with construction	Promotor /Designer
Communication	None	Provide regular communication to stakeholders & IAPs	Contact numbers of these service providers must be clearly displayed on a notice board: • Local police, • Ambulance, • Fire Brigade	Throughout all project phases	Promotor / Site Manager
Complaints	None	Develop a fair and transparent complainant procedure	• Any complaint lodged regarding any aspect of the development must be recorded, promptly investigated and corrective action taken. • Allow opportunities for IAPs to continue raising concerns (complainants) about any aspect of the project that may be affecting them.	Ongoing throughout the construction phases	Promotor / Site Manager

Table 6: EMP for the Construction Phase

Environmental Aspects	Potential Impacts	Management Actions / Measures	Monitoring Frequency	Responsible Party
Socio-economic Aspects	Economic opportunities	• Source and procure goods required for the project (pipes for water, sewerage, building & construction materials) from local suppliers. • Make use of local small-scale contractors for activities such as site clearing, site security policing and cleaning.	When procuring Duration of construction	Promotor & Site Manager
	Employment opportunities	• Ensure that employment is offered in compliance with applicable labour laws and regulations. • Hire and recruit without discrimination on the basis of gender, race, language, background, religion or political affiliations. • Conditions of employment must be in writing with a copy kept on file and one copy given to the employee. The contract must state job specifications, working hours, remuneration, etc. • Keep proper records on the number of employees, fulltime/part-time, contractors hired, payments made to contractors, salaries/wages, etc.	During hiring personnel for construction activities	Site Manager Promotor
	Training, skills and technology transfer	• Give all employees an induction on the EMP, housekeeping rules including safety, grievances procedures and company policies and rules. • Provide on-the-job training opportunities to help employees improve their skills level which ultimately leads to high productivity, reduced wastage, motivation, high morale and efficiencies. • Train and raise awareness to sensitize employees about contentious issues like working in urban spaces and control of pollutants (noise, dust, gaseous emissions. etc). • ECO to review and upgrade training materials /training manuals.	Beginning of employment Review quarterly	Site Manager ECO
	Social ills	• Ensure that jobseekers do not flock to the construction site in search of jobs and camping or erecting shacks /structures in the vicinity. • Develop a policy on social ills to deal with aspects related to drug and alcohol abuse, etc. • Provide educational topics to employees on issues related to social behaviour HIV/AIDS and general upliftment of employees' social status.	Ongoing throughout construction	Site Manager Promotor
	Safety & Security	• Access to the project site must be controlled and security manned on 24/7 basis. • Provide a safe and hazardous-free working environment and ensure that appropriate supervision of all activities is provided. • Record and report all accidents and incidents to the relevant stakeholders, LTC or line ministry.	Daily Throughout	Site Manager or as otherwise delegated

Environmental Aspects	Potential Impacts	Management Actions / Measures	Monitoring Frequency	Responsible Party
		• Put preventative measures in place when servicing and conducting maintenance works including repairs to construction vehicles, i.e. oil drip trays, non-porous surfaces, funnels, non-damaged containers. • Refueling to be performed in areas with adequate preventative measures in place. • Provide adequate and good quality break areas where employees can take their lunch breaks, etc. • Provide suitable PPEs. • All visitors must report to the security and sign a visitor's registry and be given a brief induction on the EMP.		
Impacts on Existing Services and Infrastructure	• Damage • Theft • Vandalism	• All existing infrastructure in the vicinity of the project site (overhead powerlines, roads, etc.) should be identified and where any servitudes exist, such should be clearly demarcated prior to starting with land serving. • All construction activities must be well planned with all areas to be excavated clearly demarcated and preferably marked on the drawings. • The appointed contractor must be provided with a map/diagram showing all existing infrastructure/services on site.	Daily Weekly Throughout the construction phase	Site Manager ECO
Traffic Impacts	• Accidents • Incidents • Injuries • Loss of assets (even life)	• Access from the project site is strictly limited to Luderitz Road and no other access will be permitted. • A minimum speed limit of 30 km per hour to be imposed on all internal routes. • Clear and appropriate vehicle movement signage on intersections leading to the construction site are to be set up in conjunction with LTC traffic officials. • No construction vehicle should be allowed to park off site, except in dedicated parking spaces as may be agreed between the promotor and LTC traffic department.	Daily Weekly Report Monthly	Site Manager ECO

Environmental Aspects	Potential Impacts	Management Actions / Measures	Monitoring Frequency	Responsible Party
Impacts on Fauna and Flora	Loss or change of faunal habitats	• Limit habitat destruction by confining excavation /trenching activities to clearly demarcated sections of the project footprint. • All sites that are to be cleared must be preceded by careful planning including demarcations of such sites. The site that leads to the least destruction of habitats must be selected. • The line or route of activity should be determined beforehand and activities restricted to such demarcated areas. • The project site should be kept tidy, clean and free of rubbish and food items that could potentially attract animals and pests (flies, insects, bugs, etc.). • Where feasible site construction activities away from any known sensitive areas (breeding areas, etc.). • Poaching or catching of wildlife (Oryx, seals, birds, etc.) that often roam around on the property is strictly forbidden. • Waste food items must be kept in bins with lockable lids to prevent scavenging by wildlife. • Big hard rocks that need blasting should be carefully studies to observe if there are any signs of habitats. Where such habitat exists, LTC should be consulted to advise on possible relocation. • Lighting at the construction site must be directed downwards and not upwards to avoid blinding nocturnal birds that fly around the project site.	Daily Monthly Report quarterly	Site Manager ECO
	Loss or change floral diversity	• Areas to be cleared of vegetation must be preceded by careful planning including clear demarcations of such areas sites. The site that results in the least removal of vegetation must be selected. • Efforts should be made not to destroy any flora species with a protection status that may be encountered during construction activities. Such species must be protected and preserved. • All construction activities required for the installation of services must be well planned and carefully executed to ensure minimal removal of vegetation. • An overall commitment to the environment should be demonstrated by adopting a minimalistic damage approach throughout the construction phase. • Areas disturbed by construction activities to install services and infrastructure that are not required for the development should be promptly rehabilitated and not left exposed and unrehabilitated for longer periods. • Introduction of potentially invasive alien ornamental plant species should be avoided at all costs. • For landscaping, it is recommended to plant local indigenous species of flora.	Daily Monthly Report quarterly	Site Manager ECO

Environmental Aspects	Potential Impacts	Management Actions / Measures	Monitoring Frequency	Responsible Party
Site Security, Safety and Public Health	Potential injuries/accidents to personnel,	• Maintain strict security that prevents unauthorized entry to the construction site. • Develop an Emergency Response Plan (ERP) as well as an Accident Response Plan (ARP) for the site to deal with i.e. fire outbreak, accidents, etc. • Provide adequate sanitation facilities that must be well maintained and kept tidy and clean at all times. • Provide employees with suitable PPEs. • No alcohol, drugs, firearms, dangerous knives, etc. must be brought to work or kept on the construction site. • Waste, both non-hazardous and hazardous on the premises must be handled in the line with the EMP. • When conducting blasting of hard rock areas, adequate warning must be given well in advance to all relevant stakeholder. • A stocked First Aid Kit must be available on site.	Access to be manned 24/7 Daily Duration of construction phase	Promotor Site Manager ECO
Impacts from hard rock blasting	• Smoke & fumes • Fly rocks • Vibrations • Noises	• Blasting activities within an urban environment must be done by a properly licensed company. • Conduct pre-blast planning surveys to ascertain any nearby infrastructure and or public services. • Give adequate warning to all stakeholders – LTC, police, navy, aviation authority, any neighbouring residents, etc. • Reduce the risk of flying rocks by making use of blast mats or any suitable devices to cover the blast area. • Minimise noise and vibrations by using smaller, localised charges and proper stemming of blast holes. • Isolate the blast area with barricades and ensure no unauthorized personnel are present. • Place guards at all entry points and stop traffic on all nearby roads during the blast. • Avoid blasting during adverse weather conditions, such as high winds, which can increase risks. • Conduct post blast inspection for any misfires or unexploded materials before declaring the area safe and secure. • Provide suitable PPEs to personnel, i.e. hard hats, safety glasses, hearing protection devices (earplugs or earmuffs) and safety boots. • Blasting must be confined to working hours of 07h00 and 17h00. No blasting must be conducted on Saturdays or Sundays or public holidays.	Each time when blasting	Site Manager

Environmental Aspects	Potential Impacts	Management Actions / Measures	Monitoring Frequency	Responsible Party
Impact on Surface and Groundwater Sources	• Potential Contamination • Potential Pollution	• The designed and infrastructure layout should provide for an engineering solution catering for any possible storm water management system as well as to mitigate against potential contamination and pollution of surface water and groundwater sources. • A preventative maintenance plan for the construction machinery and equipment service infrastructure must be developed and implemented. • A waste management plan (both for hazardous and non-hazardous) should be developed and implemented. No waste products of any kind may be dumped in close proximity of any water sources. • No wastewater of any sort may be discharged directly onto the natural environment. • Hazardous products are to be stored in secured and bunded areas to prevent such waste escaping into the natural environment. • Under no circumstances should hazardous waste from construction activities be discharged on the construction premises. Hazardous waste products are to be temporarily stored in leak-proof containers and disposed of at an approved offsite hazardous waste facility. Keep records of all hazardous waste disposed on file. • Any surface water accumulation from the construction site should be channeled and captured through a proper storm water channel and not discharged into the municipality drainage system. • Any fuel spill /leak in excess of 200 liters is reportable incident.	Prior to starting with construction, Daily, Ongoing throughout construction	Site Manager ECO
Construction Induced Impacts (Site clearing, trenching, etc.)	• Potential pollution/emissions to the natural environment, • Dust nuisance to the surroundings,	• Any excavation or trenching that may be required should be clearly demarcated and work confined to such demarcated areas. • Personnel should be trained and inducted on the requirements of this EMP and sensitized on contentious issues of working in an urban environment. • Promote and cultivate a culture of toolbox talks at the beginning of each work session/shift highlighting issues such as safety, littering and protecting of the environment. • Develop and implement work procedures and train personnel on such procedures including enforcing compliance. • Continuous supervision of all activities is to be maintained throughout the construction phase. • Accidents and incidents are to be reported to the Site Manager and ECO. • The access point to the construction site must be manned by security personnel at all times and no unauthorized personnel is allowed.	Daily, Ongoing throughout the construction duration	Site Manager ECO
	Gaseous emissions	• Manage activities that generate fumes/smoke such as blasting of hard rock. • Manage activities that generate excessive gaseous emissions around the construction site.	Daily Weekly	Site Manager ECO

Environmental Aspects	Potential Impacts	Management Actions / Measures	Monitoring Frequency	Responsible Party
		• All construction vehicles, machinery and equipment in use at the construction site are to be regularly serviced and maintained. • All construction vehicles/equipment and machinery when not in use are to be switched off or throttled back between those periods when not in use. • Enforce a speed limit on all internal routes on the project site.		
	Noise Pollutions	• Limit working hours to daylight hours, i.e. from 07h00 to 17h00. • Manage activities that generate excessive noise pollution. • Provide suitable PPEs to personnel working in noisy areas. • Vehicle horns are only to be used in safety situations and not for any other purpose during working hours. • Avoid long idling of construction machines and equipment. • Construction machinery should not be overloaded causing engine to work hard generating excessive noise levels. • No loud music is allowed to be played on site and no noise amplification equipment may be kept. • Whenever a complaint has been received regarding noise pollution, investigate and take correction action.	Daily Dispose Weekly	Site Manager ECO
	Dust Pollution	• Make use of one access route only with appropriate turning circles and delivery zones. • Provide suitable PPEs to employees working in areas where excessive dust is generated. • Make use of dust suppressive measures where feasible as a proactive measure to avoid dust generation. • Ensure that handling of construction materials does not result in fugitive dust escaping into the atmosphere becoming a health nuisance to the workers at the site and the neighbouring communities. • Handling of construction materials including transport of such materials should be suspended or avoided during times of high wind conditions or when a visible dust plume is present. • Locate construction materials in sheltered areas where it is not exposed to erosive effects of the wind. • Enforce a speed limit on all internal routes to reduce dust generation on the project site. • Employ good housekeeping both inside and outside the construction site. • Investigate all complainants received with respect to dust pollution and take corrective action.	Daily Whenever a complainant has been received	Site Manager ECO

Environmental Aspects	Potential Impacts	Management Actions / Measures	Monitoring Frequency	Responsible Party
	Lighting (Visual nuisance /annoyance	• Lighting requirements should be carefully planned to ensure that its meets the needs of the project in terms of keeping the construction site secure and safe, without resulting in excessive illumination. • Zones of high and low lighting requirements should be identified with the focus on only illuminating areas to the minimum extent possible, to allow safe operations at night and security surveillance. • Up-lighting of structures should be avoided. Light should be directed downwards and focused on the object requiring illumination without obstructions and blinding nocturnal birds in the area. • Avoid directing the light towards the areas from where it would become offensive to external receptors including those using the adjacent roads. • Waste around the facility such as windblown papers and plastics should be regularly picked up to avoid visual annoyance	Ongoing throughout the Construction Phase. Whenever a complaint has been received	Site Manager
	Soil quality loss due to excavations, mixing, trampling, compaction and pollution.	• Put preventative measures in place when land/terrain activities take place. • Do not prepare concrete (mixing of sand, cement, aggregates) on open soil. • Avoid conducting activities that are prone to wind erosion during those conditions of heavy wind blowing. • All construction equipment laydown areas should be loosen after the construction period and should not be allowed to remain compacted. • Where possible establish wind erosion barriers to curb possible erosion during high wind periods. • Equipment and vehicles must be in a good condition to ensure that accidental oil spills do not occur and contaminate the soil. • In case of any spills or leaks the entire fuel-soaked soils must be collected and temporarily stored in a leak-proof containers for disposal to an approved offsite landfill area.	Throughout the Construction Phase	Site Manager
	Fire Risks and Potential for Fire Outbreaks	• Train all employees on firefighting methods and how to comply with the fire management plan. • Provide adequate fire extinguishers and keep such devices at strategic locations. Fire extinguishers and all firefighting equipment must be easily accessible, well maintained and kept in functioning states. • All personnel and contractors on the site should comply with the fire management and emergency preparedness and occupational health and safety plans. • Fire toolkit talks should be encouraged and regularly conducted on site and attendance and performance recorded. • Conduct regular fire drills mimicking real life fire situations outbreak. Attendance and performance should be recorded.	Weekly	Site Manager

Environmental Aspects	Potential Impacts	Management Actions / Measures	Monitoring Frequency	Responsible Party
	Spills and or Leaks of Hazardous Products	• If a spill does occur, efforts must be made to contain the spill at the source as soon as possible using suitable equipment. • Make use of a combination of absorbent materials, earthen bunds or other containment methods to contain the spill materials to the smallest area possible. • Recovered spill materials should be temporarily stored in leak-proof containers and disposed of at an approved offsite landfill. • A detailed written report for any major spill that might occur must be prepared and reported to statutory stakeholders. A copy of the report should be kept on file. • It is advisable to keep a spill kit which is adequately stocked on the construction site. • When repairs or maintenance activities are being undertaken, exercise precautions to avoid spills. • Train employees on spill management, spill response and on any refueling activities onsite.	Daily, Ongoing throughout the construction phase	Site Manager ECO
	Waste Handling & Disposal	• Excavations and removal of overburden and topsoil must be minimised and confined to demarcated areas. • Use topsoil and overburden material removed during the pre-construction for backfilling. • Prevent and minimise business/industrial waste generation as far as possible. • Provide suitable containers and temporary storage areas as close to the point of generation as practically possible. • Re-use waste during construction where possible. • Dispose waste at an approved landfill facility and keep records.	Daily, Ongoing throughout	Site Manager ECO
	Cultural and Heritage Resource	• Any items of historical or archeological value unearthed during the construction period should be reported to NHC. • Work should be stopped immediately where any archeological items has been unearthed and should only be resumed on the instruction of the officials from NHC. • Any items of archaeological value unearthed during the construction may not be disturbed or moved unless permission has been granted by the NHC. These guidelines are provided: **'Chance Find Procedure'**	Discuss during toolbox talks Whenever an a 'find' has been discovered	Site Manager

Environmental Aspects	Potential Impacts	Management Actions / Measures	Monitoring Frequency	Responsible Party
		• If operating a machine, stop work immediately. • Operator must immediately inform the Supervisor. • The site must be demarcated with plastic warning tape. • All work in the immediate vicinity must cease. • Determine GPS position of the place if possible; • No item(s) must be removed from the site. • Supervisor must inform the office of National heritage Council (NHC) and request written permission to remove findings from work area. • Recover, pack and label findings for transfer to the National Museum as guided by NHC. **Human Remains:** Should human remains be found, these guidelines should be followed: • Apply the chance find procedure as described above; • Notify the nearest Namibia Police Charge Office • Schedule a field inspection with an archaeologist or qualified person to confirm that remains are human; • Advise and liaise with the NHC and the Namibian Police. • Remains to be retrieved and transported by NamPol. • Work must only resume on the same site, once the remains have been successfully retrieved by NamPol.		

Table 7: EMP for Rehabilitation Post Construction

Activities/ Aspects	Potential Impacts	Management Actions	Timing	Responsible Party
Rehabilitation of the Contractor's Construction Camp	• Dust • Noise • Injuries • Accidents, etc.	• Clear and completely remove from the site all construction plant, equipment and any storage containers, etc. • Dismantle and remove all erected structures, fencing, barriers, temporarily services and fixtures; • Check areas for any spills of substances, i.e. oil, paint and fuel which should be cleaned up. • All hardened surfaces within the construction site should be ripped, all imported materials removed and the area top-soiled and levelled.	Daily during the rehabilitation phase	Site Manager /ECO
Land Rehabilitation	• Waste pollution • Soil contamination • Soil erosion, etc.	• All surfaces hardened due to construction activities are to be ripped up and imported materials thereon removed. • Any access roads utilised during the construction phase that are not required for the operational phase are to be rehabilitated to pre-construction conditions. • Landscape the site as directed by the ECO or Site Manager.	Daily during the rehabilitation period	Site Manager / ECO
Removal of Construction Materials	• Dust • Noise	• All erected structures at the construction site are to be removed. The construction campsite area must be checked for any spills of substances such as oil, paint and fuel and cleaned up. • Waste material of any description, including receptacles, scrap, rubble and tires, must be removed and disposed of, at the landfill facility of LTC. • No waste must be buried or burned on the site. • Any barriers and demarcations associated with the construction phase are to be removed from the site unless agreed otherwise with the developer. • All leftover building materials (sand, aggregate, bricks, paving, steel, corrugated iron sheet, cement, etc.) must be removed from the site. • All surfaces hardened due to construction activities are to be ripped up and imported materials thereon removed. The area must be top-soiled and paved using heavy duty interlocks. • All building rubble is to be removed from the site and transported for disposal to an approved landfill site. • Burying of any rubble on site or anywhere outside the premises is prohibited.	Daily throughout the rehabilitation	Site Manager /ECO