Environmental Management Plan (EMP)

Environmental Impact Assessment

Proposed Rezoning of Erf 3522, Walvis Bay

From Single Residential (1 unit per 300 m²) to Local Business (Bulk Factor 2)

Walvis Bay, Erongo Region

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DOCUMENT INFORMATION	
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PROJECT TITLE	Environmental Impact Assessment for the Rezoning of Erf 3522, Walvis Bay from Single Residential (1 unit per 300 m²) to Local Business (Bulk Factor 2). Walvis Bay, Erongo Region
CLIENT	Mr Zhou Jiansheng
LOCATION	Erf 3522, Corner of Hage Geingob Avenue & Sixteenth Road, Walvis Bay Proper. Walvis Bay, Erongo Region
EAP/Consultant	RJ Dynamics Investment CC (Lead Practitioner: Ms. Rauna Nghifikwa)
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TABLE OF CONTENTS

1 INTRODUCTION AND BACKGROUND

The proposed rezoning development refers to the official conversion of land use in the existing urban setting in Walvis Bay. The proponent is proposing to rezone Erf 3522, Walvis Bay, which is found at the intersection of Hage Geingob Avenue and Sixteen Road, from “Single Residential” (1 unit per 300 m²) to “Local Business” with bulk factor 2 in order to allow for a denser residential mixed-use development consisting of 39 residential units, garages, and parking facilities.

Erf 3522 is located in the already existing suburb of Walvis Bay Proper and occupies an area of roughly 1 763 m². At present, Erf 3522 W, currently has a residential building that will be demolished in order to pave way for the proposed development. The area is predominantly developed for residential, commercial, and municipal uses, and has urban facilities.

This proposed development for rezoning of the erf arises from the ever-increasing demands for housing in towns/cities coupled with the need to encourage sustainable urban densification in Walvis Bay. According to the zoning regulation, only one dwelling unit can be established on the erf which is viewed as inefficiency in the use of land. The development project thus aims to maximize land usage and facilitate sustainable integrated urban development in contributing to the provision of housing within the city, as well as supporting the objectives of the Municipality of Walvis Bay.

As part of the proposed development project, the following activities will take place: demolition of the existing residential structure, construction of 39 residential units, installation of garages and parking bays, and the provision of necessary infrastructure such as water, sewer, electricity, and storm water drainage. Sustainable development approaches and methods of waste disposal will also be implemented as part of the development project.

Rezoning and its related activities come within the ambit of listed activities as per Section 24(1)(g) and (i) of the Environmental Management Act (Act No. 7 of 2007) and Section 4(2)(g) of the Environmental Impact Assessment Regulations of 2012, which relates to urban land use change and infrastructural development respectively. Therefore, in compliance with legislation, the need arises for an EIA process and Environmental Management Plan (EMP) to be conducted in order to apply for an Environmental Clearance Certificate (ECC) at MEFT. Furthermore, the rezoning process must also be consistent with the regulations contained in the Urban and Regional Planning Act (Act No. 5 of 2018) and the municipal planning and development process of Walvis Bay Municipality.

RJ Dynamics Investment CC is the Environmental Assessment Practitioner (EAP) contracted to conduct the EIA process and prepare the EMP regarding the proposed rezoning and development of Erf 3522, Walvis Bay. Through the EIA process, environmental and socio-economic impacts of the proposed development were assessed to ensure that mitigating measures have been put in place to facilitate environmentally sustainable and socially responsible development in the urban setting of Walvis Bay.

The objective of the EMP is to identify and mitigate all environmental and social impacts that might arise from rezoning of Erf 3522 W, and subsequent development of this property in Walvis Bay. The EMP provides an effective management framework, which should serve to identify, assess and manage all environmental impacts before they happen, with an objective of developing this area sustainably through environmentally sound practices. Implementation of mitigation and monitoring measures shall serve to protect the surrounding environment, adjacent property owners, local government agencies, and the general public living within and around this area from any adverse impacts.

2 PROJECT DESCRIPTION

Rezoning of Erf 3522, Walvis Bay is from “Single Residential” (1 unit per 300m²) to “Local Business” at a bulk factor of 2 for the purpose of facilitating a high-density urban residential development in the urbanized environment of Walvis Bay. Rezoning is meant to be one of the strategies of urban development and land optimization to meet the growing need for residential facilities in the town.

Demolition of the existing building that houses the single residence on the erf will be followed by development of 39 units comprising residences, garages, parking bays, among others, along with internal infrastructure services. Land optimization in the most strategically located urban environment of Walvis Bay will form the key purpose of the proposed development initiative.

This proposed activity is located in the junction between Hage Geingob Avenue and Sixteenth Road in Walvis Bay Proper, covering an erf area of about 1,763 m². The immediate environment is comprised of existing residential, commercial and municipal developments with road infrastructure as well as municipal utilities existing in the area. The proposed development is thus regarded as being consistent with the nature of existing development in the municipality of Walvis Bay.

Figure 1: Location of the site of the proposed development

In addition, there will be provision of required municipal infrastructure such as water distribution system, sewer reticulation system, electricity connections, and solid waste management facilities. However, bulk infrastructure is not expected in the area due to the availability of municipal infrastructure connections by the Municipality of Walvis Bay. The site accessibility will be achieved directly through use of the current adjacent municipal roads system, thus reducing the need for further infrastructure development on a broader scale. The proposed rezoning and development will assist towards achieving positive urban densification, efficient land use, and sustainable urban development in Walvis Bay.

Operational phase activities include regular maintenance of the residential complex and infrastructure, waste management, noise pollution control, stormwater drainage systems, and meeting the criteria of the municipal environmental health and waste management regulations. All waste created during construction and operational phases will be sent to the appropriate municipal waste disposal sites as per the required legislation and regulations. The current sewer network that serves the land has already been connected to the municipal sewer network and

wastewater treatment facilities of the Municipality of Walvis Bay. Hence, any wastewaters generated due to this proposed development will be treated via this same municipal network, thereby minimizing chances of environmental contamination.

Since the land falls within an environment that has already been transformed and is fully developed, it can be expected that there will be no significant impact on the natural environment owing to this proposed rezoning for residential purposes. However, there might be some impacts arising out of the construction process, including the production of dust, noise pollution, traffic, and waste appropriately managed through the implementation of mitigation measures outlined in this Environmental Management Plan (EMP).

3 SCOPE OF THE ENVIRONMENTAL MANAGEMENT PLAN

This Environmental Management Plan (EMP) has been developed within the context of the Environmental Impact Assessment (EIA) process required by law prior to the rezoning of Erf 3522 in Walvis Bay from Single Residential (1 unit per 300m²) to Local Business (Bulk Factor 2). The EMP will assist in systematically dealing with potential environmental and socio-economic impacts which may arise from the proposed rezoning and subsequent development of the property.

In terms of the scope of this Environmental Management Plan (EMP), the focus will be on activities which include demolition, site preparation, building construction, construction of the proposed 39 units, parking, and servicing facilities associated with the development. The EMP thus functions as a comprehensive management tool to enable the proposed development project to be executed in an environmentally friendly and sustainable manner. The EMP is formulated in accordance with Namibia's Environmental Management Act (Act No. 7 of 2007) and Environmental Impact Assessment Regulations (2012).

In light of the fact that the suggested development will be situated within an existing, fully serviced, urban area of Walvis Bay Proper, special attention will be paid by the EMP to construction related disturbance management as well as compatibility with the current land use of the area. This means that the EMP will have to deal with environmental considerations related to the demolition process, construction, rehabilitation, operation, and integration into municipal services.

Specifically, the EMP should seek to:

- Mitigate or prevent any negative environmental and social consequences of the development;
- Comply with all applicable environmental laws, as well as with municipal and planning regulations;
- Support sustainable urban development and construction projects;
- Develop mitigation, monitoring, and reporting strategies for all phases of the project;
- Raise environmental consciousness among the contractors and their employees.

Activities involved in the development and operation that will be linked to the proposed rezoning will involve the following, among others:

- Destruction of the existing house at Erf 3522 W;
- Development of 39 residential units, parking spaces, garages, and other infrastructure;
- Connection of services provided by the municipality, such as provision of water, sewerage, electricity, and stormwater drainage systems;
- Production and disposal of waste during destruction and construction processes;
- Movement of traffic as a result of construction works and occupancy of the residences; and
- Maintenance and servicing of municipal services, in collaboration with the Municipality of Walvis Bay.

The Environmental Impact Assessment process carried out in regard to the proposal of rezoning entailed the following key elements:

- Conducting detailed site investigations and environmental assessments in regard to the receiving environment;
- Assessment of environmental and socio-economic impacts that may result from the proposed rezoning and development;
- Engaging interested and affected parties, neighbouring landowners, authorities, and other concerned parties;
- Developing mitigation strategies for addressing any identified impacts;
- Evaluation of the existing national legislation and environmental policy in regards to the proposed project;
- Coordinating with the proponent and authorities concerning environmental and urban planning laws in Namibia; and
- Formulation of an environmental monitoring and management framework.

Furthermore, the EMP follows an environmentally proactive management strategy with the objective of preventing environmental damage from occurring. In addition, the implementation of the proposed measures for mitigating impacts and their continuous monitoring will also serve as a step forward to reducing the effects of dust production, noise pollution, waste production, disruption of traffic, pressures on municipal facilities and others related urban environmental problems arising from this development project. The EMP intends to facilitate the proposed rezoning and development of Erf 3522 W, in a manner consistent with sustainable urban intensification, responsible planning for land use, better housing supply and environmental sustainability in Walvis Bay.

4 STATUTORY AND REGULATORY REQUIREMENT

There are multiple legal requirements and instruments that regulate and have a bearing on good environmental management in Namibia. Table 2 below provides a summary of the legal instruments considered to be relevant to this development and the environmental assessment process.

Table 1: Policies and other relevant legislations

LEGISLATION/POLICY	RELEVANT APPLICATION	AUTHORITY
Namibia Constitution First Amendment Act of 1998	Article 91 (c) provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia." Article 95(l) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources.	National Government
Walvis Bay Zoning Scheme as underwritten by the Urban and Regional Planning Act, 2018 (Act	The proposed rezoning will require the approval from the concerned statutory bodies, such as the Local Authority and the Urban and Regional Planning Board	Local Authority and URP Board

No.5 of 2018).	(URP Board). The Local Authority will be in charge of evaluating the proposed rezoning of the site according to the local guidelines, infrastructure provision, and possible effects on the environment of the site. This will be followed by the URP Board to ensure consistency with the objectives of urban planning and sustainable development.	
Environmental Management Act, 2007 (Act No.7 of 2007) and EIA Regulations.	The rezoning of land from residential to commercial is a listed activity which requires an Environmental Clearance Certificate to be undertaken. The Ministry of Environment, Forestry and Tourism (MEFT) is the custodian of this Act with certain powers delegated to the Local Authority (LA).	Ministry of Environment, Forestry and Tourism
EIA Regulations GN 28, 29, and 30 of EMA (2012)	GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate. GN 30 provides the regulations governing the environmental assessment (EA) process.	Ministry of Environment, Forestry and Tourism
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	Ministry of Environment, Forestry and Tourism
Labour Act, 2007 (Act No.11 of 2007), as amended.	All provisions to the Act should be followed by the proponent and contractors through all the stages of the rezoning. The Act sets out the rules of the game as far as employment is	The Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)

	concerned, and it ensures that there will be no exploitation of the workforce and that workers are treated equally and fairly. The Act also ensures that employers must promote equality among employees through the prohibition of discrimination on grounds such as gender, colour, ability, religion or any other reason. Adherence to these conditions is important in protecting the rights of workers as well as promoting good labour practice.	
Atmospheric Pollution Prevention Ordinance, 1976 (APPO:1976).	Give general information on pollution control measures that should be adopted, particularly dust emission reduction measures. In relation to the proposed rezoning, as well as the development thereafter, it is necessary to adopt the best practical means of reducing any dust emissions resulting from the proposed development. The adoption of these pollution control measures is crucial in preventing possible health hazards for people living around the affected areas as well as minimizing possible nuisances caused by the development.	Ministry of Environment, Forestry, and Tourism
Public and Environmental Health Act, 2015 (Act No.1 of 2015).	The Act provides an elaborate framework within which issues regarding public and environmental health are regulated and	Local Authority

	managed through a systematic and uniform framework. Some of the issues dealt with by the Act include the notification, prevention, and control of infectious diseases and sexually transmitted infections; maternal, antenatal, and neonatal care; water supply and food sanitation; nutrition of infants; waste disposal methods; environmental health nuisances; and public and environmental health planning. The Act also replaces the Public Health Act 36 of 1919 (SA GG 979). Land rezoning to be put into another use may lead to changes in population density and even lead to waste production, traffic, noise pollution, and other related factors. Thus, the possibility of such an activity resulting in nuisances and hazards to the environment should be taken into account when planning for it.	
National Heritage Act No. 27 of 2004	The Act is aimed at protecting, conserving and registering places and objects of heritage significance.	National Heritage Council
Urban and Regional Planning Act No 5 of 2018	To consolidate the laws relating to urban and regional planning; to provide for a legal framework for spatial planning in Namibia; to provide for principles and standards of spatial planning; to establish the urban	Local Authority

	and regional planning board; to decentralise certain matters relating to spatial planning; to provide for the preparation, approval and review of the national spatial development framework, regional structure plans and urban structure plans; to provide for the preparation, approval, review and amendment of zoning schemes; to provide for the establishment of townships; to provide for the alteration of boundaries of approved townships, to provide for the disestablishment of approved townships; to provide for the change of name of approved townships; to provide for the subdivision and consolidation of land; to provide for the alteration, suspension and deletion of conditions relating to land; and to provide for incidental matters.	
Hazardous Substance Ordinance 14 of 1974	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or	

	dumping of such substances; and to provide for matters connected therewith.	
Water Act No. 54 of 1956	Section 23(1) deals with the prohibition of pollution of underground and surface water bodies. The pollution of water resources should be avoided during construction and operation of the development.	Ministry of Agriculture, Fisheries, Water and Land Reform
Water Resources Management Act No. 11 of 2013	The pollution of water resources should be avoided during construction and operation of the development. Should water need to be abstracted, a water abstraction permit will be required from the Ministry of Water, Agriculture and Forestry. Part 12 deals with the control and protection of groundwater Part 13 deals with water pollution control	Ministry of Agriculture, Fisheries, Water and Land Reform

5 MANAGEMENT PRINCIPLES

The following Environmental Management Principles form the core guidelines for the implementation of environmental controls for the proposed rezoning and development of Erf 3522 in Walvis Bay. The principles are expected to serve as a guide in ensuring that the activities of the project take place within the bounds of environmentally-friendly procedures, legal compliance, and sustainable urban development principles stipulated in Namibia's Environmental Management Act (Act No. 7 of 2007).

It is hereby stated that these principles will act as mandatory principles throughout the course of this project, and may be modified and updated as per the need during the project's implementation period. Modifications to the principles will only be made at the discretion of the responsible person (environmental assessment practitioner or site manager) assigned by the project owners and provided that such modifications stay within the parameters of the law and are duly informed to relevant stakeholders, such as the Walvis Bay Municipality, Environmental Assessment

Practitioner (RJ Dynamics Investment CC), appointed service providers, as well as I&APs registered to receive information on the project. The Environmental Management Strategy for this rezoning and subsequent development is proposed along the lines of the critical project phases which are:

- Operational Phase (Post-rezoning land use and occupation)
- Decommissioning Phase (if relevant)

5.1 Environmental Issues to be managed

a) Operational Phase

In the operational phase, it is the duty of the Walvis Bay Municipality (as the competent local authority) as well as the property developer, to see that the entire process of environmental management is adequately implemented. In other words, this involves establishing clear lines of responsibility among all the project players, as far as implementation of the EMP as well as municipal laws and national legislation is concerned.

In this phase, the aim of environmental management will be to see that the activities generated by land use changes following the rezoning process (Local Business Zoning with intensive residential development) do not cause any adverse environmental impacts.

5.2 Engagement with Interested and Affected Parties (I&APs)

In the planning phase, there should always be an effective and accessible communication system in place between the Walvis Bay Municipality, the developer, and all interested and affected parties who have been duly registered. This will ensure that the project remains open and responsive to queries and concerns throughout its existence.

There should be an open communication platform which can allow the raising, recording, and resolution of all questions and concerns by affected stakeholders. These concerns will be resolved according to the Environmental Management Plan of the development, together with complaint-resolution systems. This process of engagement is essential in order to have socially responsible urban densification.

6 ROLES AND RESPONSIBILITIES

The role of the stakeholders responsible for the formulation, implementation, monitoring, and evaluation of the Environmental Management Plan (EMP) for the rezoning and development of Erf 3522, Walvis Bay, are discussed here. Allocation of the roles to stakeholders will be vital for ensuring compliance with the provisions stipulated under the Environmental Management Act (No. 7 of 2007), EIA regulations (2012), and planning mechanisms of municipal governments related to urban rezoning and development.

6.1 Competent Authority

The Ministry of Environment, Forestry and Tourism (MEFT) via its Environmental Commissioner's Office is the Competent Authority tasked with the mandate of considering and determining the adequacy of the EIA documentation, EMP, and other relevant supporting documents. The Competent Authority shall be responsible for reviewing the adequacy of the proposed mitigation measures and ensuring compliance with all applicable national environmental legislation and regulations in order to determine if an ECC can be issued for the project.

6.2 Proponent (Applicant) - Mr. Zhou Jiansheng

The Proponent, which shall be represented in this application by Mr. Zhou Jiansheng in collaboration with the appointed consultant (RJ Dynamics Investment CC) shall bear full responsibility for ensuring the implementation of all environmental and planning conditions in relation to the proposal.

The Proponent shall be responsible for the following:

- Responsible for appointing appropriately skilled environmental and technical experts for the supervision of the EMP and its environmental requirements.
- Fully responsible for understanding, embracing, and implementing all the findings, conditions, and mitigation measures as stipulated in the EIA and EMP documents.
- Duty bound to ensure compliance monitoring is conducted throughout all the development’s phases, which include pre-construction, construction, and operation phases.
- Duty bound to review the implementation of the EMP reports and take appropriate corrective measures where there is failure to comply.

- Accountable for the protection, preservation, and restoration of environmental resources from degradation as specified in the EMP.
- Responsible for ensuring that all project activities are within the scope of approved rezoning and ECC requirements.

6.3 Project Manager/Contractor (Designated Representative of the Proponent)

The Project Manager designated by the Proponent is the site level coordinator responsible for ensuring that all development operations are conducted in accordance with the EMP, ECC conditions, and local government requirements.

The Project Manager should be:

- Direct liaison between the Proponent and MEFT, Walvis Bay Municipality, and any other concerned bodies regarding the implementation of EMP and compliance with the conditions thereof.
- Overall person accountable for the implementation of all the environmental management requirements at the site level.
- Authorized to approve and enforce all environmental protocols, construction and site operations procedures in accordance with approved documentation.
- Authorized to stop any form of construction if such activities violate the conditions of the EMP, ECC conditions, and environmental laws.
- Working together with the ECO, take corrective actions and disciplinary measures against environmental breaches if necessary.
- Responsible for maintaining communications between the Proponent, contractors, local government authorities, and Interested and Affected Parties (I&APs) regarding all environmental aspects of the project.

6.4 Environmental Control Officer (ECO)

The Environmental Control Officer (ECO), to be nominated by the Proponent, is an independent or appropriately qualified environmental professional tasked with monitoring the implementation of the EMP and ensuring environmental compliance throughout all stages of the project. The ECO would be the environmental custodian on-site and will possess the powers to monitor, assess, and report on the environmental performance aspects of the development.

The roles of the ECO include:

- Carrying out regular environmental monitoring and inspection based on the EMP, ECC provisions, and implemented mitigation strategies.
- Providing for the continuous implementation, revision, and improvement of the EMP based on the conditions on-site and any potential environmental risks arising from the activities.
- Being the point person between the Proponent, contractors, regulators, and other interested parties regarding the issues of environmental compliance.
- Ensuring that all updates and revisions concerning the EMP are effectively communicated to all concerned parties.
- Undertaking regular (at least monthly) environmental audits to assess compliance performance and any non-conformances.
- Preparation of compliance reports together with recommendations for corrective action, if necessary.
- Building the capacities of contractors and site personnel with respect to environmental compliance and awareness issues.

7 THE RECEIVING ENVIRONMENT

7.1 Climate

Walvis Bay lies on the coastline of central Namibia and has a hyper-arid climate dominated by the presence of the cold Benguela Current. It receives low rainfall of less than 20 mm per year, with rain events being unpredictable and irregular. The arid conditions are, however, associated with the frequent occurrence of coastal fog which forms an essential moisture source for the region.

The weather in Walvis Bay is fairly moderate due to its proximity to the sea, with average daily temperatures fluctuating between 15°C and 25°C. High temperatures are rare compared to the inland regions of Namibia. South-westerly winds dominate in summer and may cause dust formation in open sites due to the blowing of sand.

The weather conditions in Walvis Bay are suitable for urban development, but due to frequent wind storms in the area, there is a need for proper dust control measures to be taken when undertaking the construction work in the proposed development. Water conservation should also be considered in light of the water shortage and lack of rain in the area.

7.2 Geology

Erf 3522 is situated within the urban area of Walvis Bay, which is found on the extensive coastal plain of the Namib Desert region. The geology of the area is characterized by unconsolidated Quaternary sediments made up mostly of deposits from the marine, aeolian (wind-borne), and alluvial environments that have existed for tens of thousands of years. These sediments include primarily sandy, silty, gravelly, and calcareous deposits characteristic of the coastal desert environment.

The location of the site lies within an entirely developed urban area where development works, along with installation of municipal infrastructure, have taken place. There are no special geological formations or mineral deposits of concern within the site. There should therefore be no negative effects on geological resources arising from the rezoning and development process.

7.3 Soils

The soils in the Walvis Bay area generally consist of sandy and poorly developed desert soils with low organic matter content and limited agricultural potential. Within the project site, natural soil characteristics have largely been modified through historical urban development and infrastructure installation. The existing property is already serviced and occupied by a residential structure, indicating that the site has previously been disturbed.

Due to the sandy nature of the soils, excavation and construction activities may generate dust if exposed surfaces are not properly managed. Appropriate mitigation measures, including regular wetting of exposed areas and proper stockpile management, will therefore be implemented during construction.

7.4 Hydrology

Walvis Bay exists in a desert region with very few sources of fresh water. The groundwater found in this region is related to coastal aquifers and alluviums; however, the water used by the town comes from the national water authority through water schemes in the region.

Rezoning of Erf 3522 for housing will occur in a serviced area that is connected to the municipal water system and sewage systems. Groundwater abstraction is not planned as part of the development. It can be assumed that the impact on groundwater resources due to this development will be minimal since the project is relatively small and no new groundwater abstraction is planned. However, in order to prevent contamination of the soil and groundwater resources, housekeeping, spill prevention, and proper waste management will be practiced.

8 IMPACT ASSESSMENT

Below is a detailed Environmental Impact Assessment (EIA) Impact Assessment Table (Table 3) for the rezoning and development of Erf 3522, Walvis Bay. Rezoning and Development of Erf 3522 Walvis Bay from demolition phase onwards, as per client request. Significance ratings have been done using standard EIA criteria applicable in Namibia.

Table 2: Significance Rating Key

Significance	Description
Low (L)	Impact is localized, temporary, and easily mitigated
Medium (M)	Impact may affect surrounding environment but can be reduced through mitigation
High (H)	Impact may cause substantial environmental or social effects if not mitigated

Table 3: Environmental Management Plan for the rezoning of Erf 3522 W

Potential impact	Description of impact	Extent	Duration	Magnitude	Significance	Mitigation measures	Responsible person
A. DEMOLITION PHASE							
Dust generation	Dust generated during demolition of the existing residential structure may affect neighboring properties and road users.	Local	Short-term	Medium	Medium	• Wet demolition areas regularly. • Cover trucks transporting rubble. • Restrict vehicle speeds on-site.	Contractor/ Site Supervisor

						• Suspend activities during excessive wind conditions where necessary.	
Noise pollution	Noise from demolition equipment and vehicles may disturb neighboring residents and businesses.	Local	Short-term	Medium	Medium	• Restrict demolition activities to municipal-approved working hours. • Maintain equipment properly. • Inform neighboring property owners of demolition schedules.	Contractor/ Site Supervisor
Demolition waste	Generation of rubble, concrete, metal, timber and other waste materials.	Local	Short-term	Medium	Medium	• Separate recyclable materials. • Dispose of waste at approved municipal disposal facilities. • Prohibit illegal dumping. • Maintain waste disposal records.	Contractor
Air quality impacts	Emissions from demolition machinery and trucks.	Local	Short-term	Medium	Medium	• Ensure machinery is regularly serviced. • Avoid unnecessary idling of vehicles. • Use well-maintained equipment.	Contractor
Soil contamination	Fuel, oil, and hydraulic fluid leaks contaminating soil	Site-specific	Short-term	Medium	Medium	Inspect machinery regularly; store fuels in bunded areas;	Contractor / Environmental

						maintain spill kits on site; train workers in spill response	Control Officer (ECO)
Occupational Health and Safety Risks	Workers may be exposed to injury from falling debris, machinery and demolition activities.	Site-specific	Short-term	High	High	• Provide appropriate PPE. • Conduct safety inductions. • Implement site safety procedures. • Restrict access to demolition areas.	Contractor / Health & Safety Officer
Traffic disruptions	Increased movement of trucks removing demolition waste may affect local traffic flow.	Local	Short-term	Medium	Medium	• Schedule waste removal during off-peak periods. • Use designated access routes. • Ensure vehicles comply with traffic regulations.	Contractor
Heritage impacts	Unexpected discovery of archaeological or heritage resources during demolition.	Site-specific	Permanent if damaged	Low	Medium	• Stop work immediately if heritage materials are discovered. • Notify the relevant authority. • Implement Chance Find Procedure.	Contractor / Environmental Control Officer (ECO)
B. CONSTRUCTION PHASE							
Dust emissions	Dust from excavation, earthworks and construction activities.	Local	Medium-term	Medium	Medium	• Water exposed surfaces regularly. • Cover stockpiles where necessary. • Limit vehicle speeds. • Minimize exposed soil areas.	

						Contractor / Site Supervisor	
Noise and vibrations	Construction machinery and equipment may generate noise affecting neighboring properties.	Local	Medium-term	Medium	Medium	• Restrict work to approved hours. • Maintain equipment. • Notify neighbors of particularly noisy activities.	Contractor
Soil and water pollution	Accidental spills of fuel, oils, paint, cement and chemicals may contaminate soil.	Site-specific	Medium-term	Medium	Medium	• Store hazardous substances in bunded areas. • Maintain spill kits on-site. • Train workers in spill response. • Clean spills immediately.	Contractor / ECO
Construction waste generation	Waste generated from building materials, packaging and offcuts.	Local	Medium-term	Medium	Medium	• Implement waste segregation. • Recycle materials where possible. • Dispose of waste at approved facilities.	Contractor
Increased traffic	Delivery vehicles and construction traffic may create congestion and safety hazards.	Local	Medium-term	Medium	Medium	• Develop a Traffic Management Plan. • Schedule deliveries outside peak traffic periods. • Use designated loading and unloading areas.	Contractor
Visual impacts	Construction activities may temporarily affect	Local	Medium-term	Medium	Medium	• Maintain a tidy site. • Store materials neatly.	Contractor

	the visual character of the area.					• Remove waste regularly.	
Occupational health and safety	Risks associated with construction activities, working at heights and machinery operation.	Site-specific	Medium-term	High	High	• Provide PPE. • Conduct toolbox talks. • Ensure compliance with Labor Act requirements. • Maintain first-aid facilities on-site.	Contractor / Health & Safety Officer
Social disturbance	Noise, dust and construction activities may inconvenience neighboring residents.	Site-specific	Medium-term	Low	Low	• Maintain communication with neighbors. • Display contact details for complaints. • Address grievances promptly.	Contractor / Developer
Resource consumption	Construction activities will require water and electricity.	Local	Short-term	Medium	Medium	• Use water efficiently. • Repair leaks immediately. • Switch off equipment when not in use.	Contractor
C. OPERATIONAL PHASE							
Increased demand on municipal services	Additional pressure on water, sewer and electricity infrastructure due to 39 residential units.	Local	Long-term	Medium	Medium	• Ensure municipal services are adequately sized and approved before occupation. • Promote efficient resource use.	Property Owner / Body Corporate

Domestic waste generation	Residents will generate household waste.	Local	Long-term	Medium	Medium	• Provide adequate waste storage facilities. • Implement regular municipal waste collection. • Encourage recycling.	Property Owner / Body Corporate
Noise from residents and vehicles	Increased residential activity may generate noise.	Local	Long-term	Low	Low	• • Enforce body corporate rules. • Maintain designated parking areas. • Encourage considerate behavior among residents.	Body Corporate
Traffic increase	Additional residents may increase vehicle movements in the area.	Local	Long-term	Low	Low	• Provide adequate parking bays. • Maintain safe access points. • Ensure compliance with municipal traffic requirements.	Property Owner / Body Corporate
Water consumption	Increased water demand in a water-scarce environment.	Local	Long-term	Medium	Medium	• Install water-efficient fixtures. • Encourage water conservation practices. • Repair leaks promptly.	Property Owner / Residents
Energy consumption	Increased electricity demand from residential units.	Local	Long-term	Medium	Medium	Promote energy-efficient lighting and appliances. • Consider renewable energy technologies where feasible	Property Owner / Residents

Health and safety	Safety risks associated with communal living areas.	Local	Long-term	Medium	Medium	• Maintain lighting in common areas. • Conduct routine maintenance of facilities. • Ensure emergency access remains unobstructed.	

Table 4: Positive impacts

Positive impact	Extent	Duration	Magnitude	Significance
Provision of 39 residential units contributing to housing demand	Regional	Long-term	High	High positive
Employment opportunities during construction	Local	Medium-term	Medium	Medium positive
Increased business opportunities for local suppliers and contractors	Local	Medium-term	Medium	Medium positive
More efficient urban land utilization through densification	Local	Long-term	High	High positive
Increased municipal revenue through rates and service charges	Local	Long-term	Medium	Medium positive
Enhancement of property values and neighborhood investment	Local	Long-term	Medium	Medium positive

9 DECOMISSIONING AND REHABILITATION

The proposed rezoning will enable the development and occupation of a residential development, which consists of 39 residential units, garages, parking lots, and municipal service infrastructure, over the long term. This being the case, there are no expected decommissioning actions over the duration of the ECC, and consequently, this EMP concentrates on the phases of planning, construction, and operations for the development of the facility.

However, despite the above considerations, it is prudent to look at the possibility of decommissioning as a future operation that could take place in relation to the development. It could come about due to obsolescence, the need for significant redevelopment, or changes to the planning and use of the facility over time. It must be noted that partial decommissioning could occur over the lifetime of the facility.

In the event that decommissioning is required, such processes will be carried out in an organized and responsible way so as not to cause negative effects on the environment and society at large. The process of decommissioning might involve demolishing and removing residential houses, garages, parking lots, paved surfaces, storm drainage system, sewage system, electricity installation facilities, among others. Decommissioning processes shall be carried out in line with environmental, health, and safety legislation of Namibia, among other environmental management plans. Attention should be given to the prevention of any form of environmental pollution, protection of neighboring properties, and the safety of the workforce and the general community at large.

The potential impacts that may arise due to future demolition processes may include:

- High noise pollution due to the process of demolishing buildings and the use of heavy machinery;
- Creation of dust pollution through demolition, excavating, and transportation processes;
- Creation of construction waste from demolished buildings such as concrete debris, bricks, metals, timber, carton waste, and many others;
- Traffic pollution due to the transportation of construction waste and machinery used for demolition;
- Soil pollution due to leaking fuel from construction machinery.

In order to reduce these effects, demolition and rehabilitation processes will be done only during scheduled operating times. Dust suppression techniques like spraying water to stockpiles and

exposed areas will be employed if needed. Waste materials will be properly sorted; those that can still be recycled or reused will be so done, while all other waste products should be deposited in waste disposal sites. None will be burned or buried in any way.

Before decommissioning, an evaluation will be made as to how the land should be used in the future. This will enable the identification of environmental hazards that may need to be addressed before any action is taken. If such environmental liabilities exist, the rehabilitating process may include debris removal, surface restoration, contouring, and preparing the land for future construction.

As per the time of decommissioning, the EMP will be reviewed and amended to incorporate site-specific considerations, applicable laws, proposed methods for carrying out the demolition process, as well as any environmental sensitivity issues that may be determined at this point in time. In the amended EMP, appropriate mitigation, monitoring, and rehabilitation will be included to minimize and manage any potential environmental effects, leaving the site in a safe and environmentally satisfactory state for its intended reuse purposes.

10 ENVIRONMENTAL MONITORING PLAN

Environmental Monitoring Plan is an essential element of the Environmental Management Plan (EMP). It is a tool that is used to monitor the effectiveness of the recommended mitigation measures at various stages of the proposed rezoning and development of Erf 3522, Walvis Bay. Environmental monitoring will help ensure that all aspects of the project are carried out in accordance with the Environmental Management Act (Act No. 7 of 2007), Environmental Clearance Certificate (ECC), and the commitments made in the EMP.

Environmental monitoring will be carried out during the planning, demolition, construction, and operation phases of the project to detect any possible environmental risks, evaluate the effectiveness of mitigation measures, and take corrective actions where needed.

The Environmental Control Officer (ECO), designated Environmental Assessment Practitioner (EAP), Site Manager, Contractor, or any other person deemed appropriate by virtue of their qualifications and designation will be accountable for undertaking regular inspections, keeping records relating to the environment, recording any incidents and nonconformances and instituting corrective actions where necessary. The results of such monitoring will be documented and maintained for audit purposes, as well as being available for submission to the Environmental Commissioner where required.

The environmental monitoring program will comprise, but will not be limited to, the following items:

- Conformity to the rezoning conditions that have been accepted by the council.
- Dust pollution that could arise during demolition, excavation, construction, and traffic.
- Noise pollution as a result of demolitions, construction activity, and traffic.
- Construction and demolition debris management involving transport, recycling, and deposition.
- Prevention of pollution of the soil and water through leakage of fuel, oil, cement, chemicals, and other dangerous substances.
- Traffic and access management in order to reduce disruptions at neighboring sites or road users.
- Municipal infrastructure and services protection, such as water, sewage, power, and storm drains.
- Occupational health and safety management.
- Community complaints regarding noise, dust, and traffic.
- Site rehabilitation.

Environmental performance against the objectives set forth in the EMP must be assessed periodically through the monitoring records. If there are findings of non-compliance and adverse impacts on the environment, the appropriate actions must be taken immediately. The following table shows the environmental parameters that will be monitored, their frequencies, the person who is in charge of monitoring, and when reporting must be made.