Environmental Management Plan (EMP) for the proposed subdivision of Erf 1444 & 1445 and Rezoning of resulting Portions from General Residential to Single Residential and the Remainder to "Street" Matutura Ext 7

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DOCUMENT INFORMATION

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Client: Municipality of Swakopmund

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LIST OF ABBREVIATIONS AND ACRONYMS

BID: Background Information Document

DEA: Directorate of Environmental Affairs

EA: Environmental Assessment

EAP: Environmental Assessment Practitioner

ECC Environmental Clearance Certificate

ECO: Environmental Compliance Officer

EIA: Environmental Impact Assessment

EMA: Environmental Management Act

EMP: Environmental Management Plan

ESR: Environmental Scoping Report

GG: Government Gazette

GIS: Geographic Information Systems

GN: Government Notice

HIV: Human Immunodeficiency Virus

I&APs: Interested and Affected Parties

MEFT: Ministry of Environment, Forestry, and Tourism

PPE: Personal Protective Equipment

PR Proponent Representative

1. INTRODUCTION

Due to the growing demand for serviced land for social and economic development in Swakopmund, Council conducted an on two Erven (Erf 1444 and 1445) located in Matutura Extension 7 are zoned "General Residential" with density 1/250. The Municipality of Swakopmund intends to carry out the following activities.

In terms of the Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (GN No 30 of 2012), the creation of a public road (street) cannot be carried out without an Environmental Impact Assessment (EIA) being conducted and an Environmental Clearance being obtained.

Green Gain Consultants cc has been appointed to attend to and complete an Environmental Scoping Assessment and an Environmental Management Plan (EMP) to obtain an Environmental Clearance Certificate (ECC) on behalf of the proponent. This document details the Environmental Management Plan (EMP) as informed by the Environmental Impact Assessment (EIA) conducted for the townships to be established as outlined in the Scoping Report.

This EMP synthesizes the proposed mitigation and monitoring measures, laid out according to the various stages of the project life cycle, with clearly defined follow-up actions and responsibilities assigned to specific actors. It provides a link between the impacts identified in the EIA process and the required environmental management on the ground during the project implementation and operation. It is important to note that an EMP is a legally binding document and has been drafted by the Environmental Management Act (No. 7 of 2007) and its Environmental Impact Assessment Regulations (2012).

This plan describes the mitigation and monitoring measures to be implemented during the following phases of these developments:

- Planning and Design the period, before the drafting of construction tender documents, during which preliminary legislative and administrative arrangements, necessary before any erven are sold, are made and detailed engineering designs/drawings are carried out.
- **Construction** the period during which Swakopmund Municipality, having secured the necessary legislative and administrative arrangements, prepares construction tender documents for the development of services infrastructure to service the various erven as well as any other construction process(s) within the development areas. It

- also includes the period during which the services infrastructure will be constructed to service the various erven within the townships; and
- Operation and Maintenance the period during which the services infrastructure will be fully functional and maintained by the Municipality as deemed necessary.

Due to the nature of this development, it is anticipated that all the infrastructure would be permanent, hence decommissioning and rehabilitation are not envisaged for these developments.

The commitment described here form part of the Environmental Clearance Certificate (ECC) between Swakopmund Municipality and the state, as represented by the Ministry of Environment and Tourism (MET). Non-compliance is considered illegal and may have legal consequences.

The amendment, transfer, or renewal of the ECC should be communicated to the Environmental Commissioner as stipulated in the (EMA) of 2007 (S 39-42) and its EIA Regulations (S 19-20). Any changes to this EMP will require an amendment to the ECC for these developments. When approved by DEA, this draft EMP will be considered the final. It should be read in conjunction with the EIA report and contract documentation to ensure the contractor works in an environmentally sensitive manner, thus ensuring that the impacts on the environment and neighboring community are kept to a minimum. Should there be any conflict between the EMP and project specifications, then the terms herein shall be secondary.

2. PURPOSE OF THE EMP

The purpose of this document is to guide environmental management throughout the lifecycle stages of the proposed development, namely: planning and design, construction, and operation & maintenance. Furthermore, it is to ensure that impacts on the environment due to the proposed development are limited. The EMP has the following objectives:

- Assess the suitability of the proposed developments on the proposed development site
- To identify possible impacts of the proposed activity on the environment and mitigation thereof.
- To provide information on construction activities associated with the identified environmental issues.
- To provide guidelines for the management of the identified environmental issues; and
- To provide guidelines to the responsible person to follow appropriate contingency plans in the case of possible impacts.

3. RESPONSIBILITIES

Swakopmund Municipality (the Proponent/Developer) is ultimately responsible for the implementation of the EMP. The Proponent may delegate this responsibility at any time, as they deem necessary, from construction and operation & maintenance. The implementation of this EMP requires the involvement of several key individuals, each fulfilling a different but vital role to ensure sound environmental management during each phase of these developments. The following positions and their respective responsibilities are outlined below:

3.1 The Developer (Swakopmund Municipality)

<u>Responsibility:</u> To implement the final EMP document approved by the DEA before the commencement of the planning phase and to ensure that the proposed development complies with the EMA requirements and the Environmental Authorization.

3.2 The Proponent's Representative

If the Proponent does not manage all aspects of the planning & design, construction, and operation & maintenance phase activities, referred to in this EMP, they should assign this responsibility to a suitably qualified individual referred in this plan as the Proponent's Representative (PR). The Proponent may decide to assign the role of a PR to one person for both phrases. Alternatively, the Proponent may decide to assign a separate PR for each developmental phase (planning & design, construction and operation & maintenance).

During the Planning & Design and Construction (tender preparation) Phase, the PR will have the following responsibilities regarding the implementation of this EMP:

- Ensuring that the necessary legal authorizations have been obtained.
- Developing, managing implementation of, and maintaining all Development Guidelines.
- To ensure the contractor signs the EMP before the commencement of the development.
- Ensure that the management requirements inform the planning and design of the relevant infrastructure developments (i.e., that these requirements are considered during the Planning and Design Phase, not as an afterthought); and
- Ensure that the management requirements inform the preparation of tender documents for the construction of the relevant infrastructure developments.

During the Construction and Operation & Maintenance Phases the PR shall assist the ECO where necessary and will have the following responsibilities regarding the implementation of this EMP:

- Ensuring that the necessary legal authorizations and permits have been obtained by the Contractor.
- Assisting the Contractor in finding environmentally responsible solutions to problems with input from the ECO where necessary.
- Management and monitoring of individuals and/or equipment on-site in terms of compliance with the EMP.
- Issuing fines for the transgression of site rules and penalties for contravention of the EMP; and
- Providing input into the ECO's ongoing internal review of the EMP. This review report should be submitted every month to the Proponent.

3.3 Environmental Control Officer

The Environmental Control Officer (ECO) should be a competent person appointed by the Proponent. The ECO is the Developer's on-site representative primarily responsible for the monitoring and review of on-site environmental management and implementation of the EMP by the Contractor. Failure to appoint an ECO, the duties fall upon the proponent.

Responsibility:

- Assisting the PR in ensuring that the necessary legal authorizations have been obtained.
- Management and facilitation of communication between the PR, Proponent, the Contractor, and I&APs about this EMP and matters incidental thereto.
- Conduct monthly site inspections of all construction and/or infrastructure maintenance areas about compliance with this EMP.
- Monitor and verify adherence to the EMP (audit the implementation of the EMP) and verify that environmental impacts are kept to a minimum.
- Taking appropriate action if the specifications of the EMP are not adhered to.
- Assisting the Contractor in finding environmentally responsible solutions to problems.
- Advising on the removal of person(s) and/or equipment not complying with the provisions of the EMP in consultation with the PR.
- Recommending the issuing of fines for transgressions of site rules and penalties for contraventions of the EMP; and
- Undertaking an annual review of the EMP and recommending additions and/or changes to the document.

3.4 The Contractor & Sub-contractor (s)

It is envisaged that various contractors might be appointed at various times for various tasks throughout the life cycle (construction through to operation & maintenance phase) of this project. To ensure sound environmental management, the relevant sections of this EMP

should be included in all contracts of work outsourced thus legally binding all appointed contractors and sub-contractors.

Responsibility:

- To comply with the Environmental Authorization and undertake construction activities in an environmentally sensitive manner and rehabilitation of the site.
- To undertake good housekeeping practices during the duration of the project.
- To ensure that adequate environmental awareness training takes place in the employees' language of choice.

3.5 The Environmental Assessment Practitioner (EAP)

The EAP is responsible to conduct the required EA which includes compiling an EMP for the proposed development. The EMP is to be submitted with the scoping EA report as supporting documents to the application for an ECC to the Environmental Commissioner at MEFT: DEA. This EMP will be used by Contractors and Engineers as well as the Proponent in guiding them during the construction and operation of the townships to ensure that the impacts on the environment are limited or avoided altogether. Lastly, the EAP should be available to make amendments or additions to this EMP by the recommendations of the EIA study.

4. LEGAL REQUIREMENTS

The contents of the EMP must meet the requirements S8 (j) of the EIA Regulations. The EMP must address the potential environmental impacts of the proposed activity on the environment throughout the project life cycle. The Swakopmund Municipality is advised to make use of each applicable legislation listed in the table below in addressing different aspects of the planned development.

Table 1: Applicable and relevant legislation at various phases throughout the project lifecycle

LEGISLATION	PROVISION	PROJECT IMPLICATIONS
Water resources management act 2004	This act provides provision for the control, conservation, and use of water for domestic, agricultural, urban and industrial purposes. In addition, the Act gives provisions that pertain to license or permit that required abstracting and using water as well as for discharge of effluent. The effluent of human waste under this framework is the focus; hence mobile toilets are earmarked to be used to avoid any seepage into an existing watercourse, infiltration into the soil, etc.	To be complied with
Draft Urban and Regional Planning Bill and Regulations	It is envisaged that the current system of land use planning and development control in Namibia will be comprehensively reformed by the enactment of the draft Urban and Regional Planning Bill and regulation. The Bill provides for the establishment of national, regional, and urban structure plans, and the development of zoning schemes. It also deals with a variety of related land use control issues such as the subdivision and consolidation of land and the establishment and extension of urban areas.	To be complied with
Pollution Control and Waste Management Bill	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as provide for general waste management. This Bill licenses discharge into watercourses and emissions into the air.	To be complied with
National Heritage Act 27 of 2004	Heritage resources to be conserved in development. (National Heritage of Namibia)	To be complied with
Labour Act (No 11 of 2007)	135 (f): "the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery in connection with the structure of such buildings of otherwise to prevent or extinguish fires, and to ensure the safety in the event of a fire, of persons in such	To be complied with

	building;" (Ministry of Labour and Employment Creation)	
Sewerage and Drainage Regulations (amendments) Local authorities Regulations	Affords the prevention of pollution and environmental damage caused by the improper construction of sewerage and water pipelines in drainage lines.	To be complied with
Noise Control Regulations	It is essential to ensure that before any development project is approved and undertaken, an assessment or evaluation of the expected noise level is done.	To be complied with
Soil Conservation Act No. 76 of 1969	The Act makes provision for the prevention and control of soil erosion and the protection, improvement, and conservation of soil, vegetation, and water supply sources and resources, through directives declared by the Minister.	Duty of care must be applied to soil conservation and management measures must be included in the EMP.
Town Planning Ordinance No. 18 of 1954	Subdivision of land situated in any area to which an approved Town Planning Scheme applies must be consistent with that scheme (S31).	The proposed land use of the project site must be consistent with the Swakopmund Town Planning Scheme.
Townships and Division of Land Ordinance No. 11 of 1963	Details the functions of the Township Board including what they consider when receiving an application for Township Establishment (S3).	The proposed layout and land use should be informed by environmental factors such as water supply, soil, etc. as laid out in Section 3.

5. MANAGEMENT REQUIREMENTS

5.1 Method Statement

A method statement outlines construction activities to be undertaken with mitigation measures, which should be prepared by all contractors. The contractor must give a written statement to the resident engineer at least two weeks before the activity so that any irregularities can be handled before construction commences and communicated to the employees. The format of the method statement should indicate the following:

- Construction and Operational Procedures
- Materials and Equipment used
- How and where materials will be stored
- When actions will be undertaken

Based on the EMP specifications, the following method statements are required as a minimum:

- Site clearing
- Site layout and establishment
- Storage of hazardous substances and accidental spillages of hazardous substances
- Cement mixing
- Waste management procedures
- Wastewater management procedures
- Traffic accommodation
- Erosion remediation
- Fire control and emergency procedures

5.2 Environmental Awareness Training

All contractors should ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers and new employees receive an induction presentation on the importance and implications of the EMP before the work commencing. The presentation should be conducted by the ECO, in the employees' language of choice.

5.3 Record Keeping

The Contractor should keep records of all environmental training sessions, including names, dates and the information presented. Records of environmental incidents report training records, audit reports, and public complaints register should be kept at the site office during the period of the project. It is advised that photographs of the site should be taken before, during, and after construction as visual references. These records should be kept for a minimum of two (2) years after completion of the project.

5.4 Non-compliance and Penalties

In case of transgressions and non-compliance to the EMP by the contractor, there should be a penalty fine. Transgressions should be recorded in a register and be kept at the site office for the duration of the project. The resident engineer will issue the penalties in terms of the severity of the environment.

Adherence to this EMP during construction will ensure that the environmental impacts associated with the proposed development will be mitigated to a greater extent thus promoting sustainable development. The commitment and co-operation of the identified responsible person(s) will ensure effective implementation of the EMP pre-construction and post-construction.

6. IDENTIFIED IMPACTS AND MITIGATIONS

The following management tasks as detailed in the tables below need to be carried out during the planning & design and before the preparation of tender documents for the construction of services infrastructure. These management requirements are also applicable for the period during which detailed engineering designs/drawings are carried out.

Table 2: Planning, Design and Construction Management actions

ASPECTS	ISSUES	MANAGEMENT PLAN	RESPONSIBILITY	MONITORING
EMP Implementation	Adherence to the EMP	 The Municipality needs to appoint a Proponent's Representative (PR) to act as the Employer's on-site implementing agent. This person should be responsible to ensure that the Town Council and Contractor's responsibilities are executed in compliance with relevant legislation and the township's EMP. The EMP should also form part of the tender documentation. 	ECO	Municipality
Construction Schedule	Poor planning might be detrimental	A convenient construction schedule should be prepared and distributed with adjacent neighbours and posted on the site notice boards. This will ensure that the community is aware of when to expect the construction team on site.	ECO	Municipality
Water Supply	Excess to potable water	 Potable water must be available at the camp depot, site office, and construction site. Equipment considered during the design of new infrastructure (e.g., water meters) must be readily available. 	ECO	Municipality
Access Routes	Erosion and dilapidation of the access route	 Upgrade the access road used during construction to an acceptable condition. Proper maintenance should be done to ensure the quality of the access road. 	ECO	Municipality

Power Supply	Safety impacts	 The access onto the trunk road will need to be designed and constructed to the standards and specifications of the Roads Authority, at no cost to the Roads Authority, and detailed drawings will first need to be submitted to the Roads Authority for approval before construction work begins. Limit the power supply cables & ensure the safety of the workers and neighbouring residents. 	ECO	Municipality
		All health and safety laws and regulations should be adhered to.		
Waste Management	Cleanliness and mismanagement of waste	 The site should be always kept tidy by providing waste collection bins and skip containers. Separate waste containers/bins for hazardous and domestic/general waste must be provided onsite. The waste containers should be emptied after construction and removed from the site to the waste disposal site. No waste may be buried or burned on-site or anywhere else. All domestic and general construction waste produced daily should be cleaned and contained daily. 	ECO	Municipality
Reticulation	Overflowing sewage or poorly planned systems might pose risks to the surrounding	 A complete fresh water and sewer reticulation for all areas needs to be done and should comply with this Townships EMP. Sufficient potable water reserves should be always available to workers. Sewer pipes should avoid crossing any river/basins or major drainage lines. Where this is not possible the design should comply with the International Standards (ISO) 1200 m for sewer pipe designs. 	ECO	Municipality

		 The planning of the New Wastewate Treatment Facility and sewer system (if any should undergo an EIA as required by the EIA Regulations and obtain an Environmenta Clearance Certificate. 	
Run-off	Poor planning might be detrimental	A Stormwater Management Plan should be developed by the Municipal Council for all areas and should address the following:	Municipality
Burrow Pits	Using unregulated burrow pits is illegal	 Ensure that all borrow pits utilized, commercial or private, have ECCs and EMPs in place and are being implemented. Avoid sensitive areas (e.g., areas with high biodiversity, protected archaeological sites rivers, or drainage lines). When excavating, topsoil should be stockpilled in a demarcated area. Stockpilled topsoil should be used to rehabilitate the nearest borrow area (existing borrow pits) if such an area is located less than 20 km from the stockpille. Upon completion of the construction phase consultations should be held with the local community/adjacent neighbours regarding the post-construction use of exhausted borrow pits. Borrow pits are to be fenced-off with steel wire fencing. 	Municipality
EMP Training	Lack of EMP awareness and the implications thereof	Employees appointed for construction work or respective infrastructure must ensure that all	Municipality

		personnel are aware of the necessary health, safety, and environmental considerations applicable to their respective work. • Comprehensive induction forms a critical component during the construction and operational period. This includes the following: o Ensuring that all employees are aware of their impact on the environment. o Ensuring that preventative measures and procedures are undertaken to reduce the risk of a potential impact		
Health and Safety	Safeguard the health and safety of laborers and the public.	 The following requirements should form part of the Tender document: The site should be locked to limit unauthorized public access to the site. The contractor should ensure that all personnel is provided with personal protective (PPE), such as gloves, safety boots, to protect them from hazards being presented, and that will allow them to work without risking their health. Safety signs complying with relevant construction standards should be placed onsite in a manner visible to the public. Construction methods should adhere to the Occupational Health and Safety clause of the National Labour Act. Construction workers should be trained on how to handle materials and equipment on-site (if they do not already know how to) to avoid injuries. 	ECO	Municipality

		 A safety officer should be appointed before the commencement of construction. No workers should be allowed onsite if under the influence of alcohol. All building materials and equipment are to be stored only within set out and demarcated work areas. Separate toilets should be available for men and women and should be indicated as such. Portable toilets (i.e., easily transportable) should be available at every construction site: 		
Monitoring	EMP non-compliance	 The ECO/Proponent/Contractor should monitor the implementation of this EMP. The ECO should inspect the site throughout construction at least weekly. 	ECO	Proponent's Representative
Residents	Dust and Noise disturbance	 A watering truck should be used on gravel roads with the heaviest vehicle movement, especially during dry and windy conditions. However, due consideration should be given to water restrictions during times of drought. Work hours should be restricted between 08h00 and 17h00 where construction involving the use of heavy equipment, power tools, and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents within the 500 m radius should be given 1 week's written notice. 	ECO	Municipality
Pollution	Increase in noise and vehicle traffic	 Construction work that could cause noise should be restricted to normal working hours unless special permission is granted by the authority and neighbouring residents. 	ECO	Municipality

The following mitigation measures should be complied with and carried out during any maintenance works associated with the services infrastructure within the planned development areas.

Table 3: Operation and Maintenance Management action

ASPECTS	POSSIBLE IMPACTS	MANAGEMENT PLAN	RESPONSIBILITY
			IMPLEMENTATION
EMP implementation	Non-compliance during maintenance	 If any construction is to be conducted as part of the maintenance works for the services infrastructure within the area, please refer to the construction mitigation measures in this EMP 	Municipality
Power supply	Service delivery and safety impacts	 The existing electrical network should be extended to the proposed development. Energy efficiency measures should be adopted to reduce the consumption of electricity. The electrical work should comply with Occupational Health and Safety procedures of the National Labour Act. A registered electrician acknowledged by the Municipality should undertake all the electrical work. 	Municipality / Erongo Red
Water Supply	Water supply interruptions may negatively affect residents	The Municipality must ensure sufficient water supply to residents	Municipality
Soil Erosion	Management of erosion	 Ensure correct drainage within the areas. The layout of the area should be optimized to limit the erosion potential. Erosion control measures should be implemented to stop further erosion and to reduce the safety hazards created by the dangerous slopes. 	Municipality
Waste management	Littering from new settlements and the possibility of illegal dumping	 All domestic waste should be removed from the site to the Municipal solid waste dumpsite. Illegal dumping should be prohibited. 	Developers

Sewage	Pollution due to overflowing of the existing oxidation ponds due to inability to accommodate the extra effluent from development	 Municipality should educate residents on waste management The bulk services plan should make a proper recommendation on sewage system for the new extensions Regular monitoring and maintenance of the sewer network should be in place 	Municipality
The aesthetic view of the area		 Should be in place. The site must be clear of litter and all waste must be removed and disposed of at the landfill site. All stockpiles must be removed to spoil or handled as directed by the engineers. Spoil heaps should be flattened to the similar adjacent ground, to prevent soil erosion, thus encouraging natural vegetation. All excavations should be backfilled, levelled, and compacted. All surfaces hardened due to construction must be ripped and material imported thereon to be removed. 	Developers
		 The original site topography should be restored where as much as possible. All disturbed areas should be vegetated with indigenous grass to ensure progressive plant succession. Topsoil should be applied at the cleared area and where the material was stockpiled for this purpose. A final audit must be completed before the contractor may leave the site to ensure that all requirements were adhered to. The contractor should rehabilitate the site when construction is completed, thus a detailed rehabilitation plan should be drawn up by the contractor. 	

7. CONCLUSION

Based on the findings of this EIA study and proposed mitigation measures outlined in this EMP, Green Gain Consultants cc is confident that it will not result in appreciable environmental impacts, provided that this EMP is implemented and that all the legal requirements pertaining to this development are compiled with.

Upon approval by the authorities, this EMP shall be considered legally bidding and any deviation or transgression is punishable by law as per the Environmental Management Act, No. 07 of 2007. A copy of this EMP shall be always kept by the proponent or responsible person/department.

It is recommended that an Environmental and Social Management Plan (ESMP) for the existing Swakopmund airport be prepared to avoid, lessen or mitigate potential negative impacts associated with the existing and the proposed development.

Although the implementation of this EMP requires a multitude of administration, the project proponent should play a pivotal role in its implementation. The Municipality of Swakopmund should therefore ensure proper coordination with other stakeholders and may provide training to all parties involved when necessary. The proponent should also ensure to avail necessary resources (i.e., human, financial, etc.) and synergies the implementation of this EMP.

Lastly, this EMP is valid until the project has been successfully implemented and thus the competent authority is mandated to conduct regular monitoring and inspections at different project phases.