Environmental Impact Assessment (EIA) 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

ENVIRONMENTAL SCOPING REPORT

PREPARED FOR:

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List of Abbreviations and Acronyms

BID:	Background Information Document
EAP:	Environmental Assessment Practitioner
EA:	Environmental Assessment
ECC	Environmental Clearance Certificate
EIA:	Environmental Impact Assessment
EMA:	Environmental Management Act
EMP:	Environmental Management Plan
NCAA	Namibia Civil Aviation Authority
GG:	Government Gazette
GN:	Government Notice
ESR:	Environmental Scoping Report
I&APs:	Interested and Affected Parties
MEFT:	Ministry of Environment, Forestry, and Tourism
PPE:	Personal Protective Equipment
SDF	Spatial Development Framework

1. INTRODUCTION AND BACKGROUND

1.1 Introduction

The Swakopmund Municipality conducted an assessment on two Erven (Erf 1444 and 1445) located in Matutura Extension 7 and currently zoned "General Residential" with density 1/250. The assessment revealed that given the existing services installed on the two erven, it would be more favourable to have Erven 1444 and 1445, subdivided and rezoned in line with the layout that was used to provide the said service provision existing on the erven. As a result, thereof, each erf would create 10 new erven and the remainders would be utilized as street portion. As such, the Municipality of Swakopmund decided to carry out the following activities.

- **Subdivision of Erf 1444 and 1445, Matutura Extension 7 into 10 Portions and Remainders on each Erf.**
- **Rezoning of resulting portions of Erf 1444 and 1445 from "General Residential" with Density of 1/250 to "Single Residential" with Density 1:300**
- **Rezoning of Remainders of 1444 (R/1444) and 1445 (R/1445), from "General Residential" with a Density of 1/250 to "Street"**

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 cannot not be carried out without an Environmental Impact Assessment (EIA) being conducted and an Environmental Clearance Certificate (ECC) being obtained. Green Gain Consultants cc has been appointed to conduct an EIA study, develop an Environmental Management Plan (EMP), and subsequently apply for an ECC for the proposed activities on behalf of the proponent.

1.2 Scope of the study

This scoping study was carried out in accordance with the Environmental Management Act No. 7 of 2007 and its EIA Regulations (GG No. 4878 GN No. 30). It indicates the description of the environment that may be affected by the activity and the way the activity may affect the environment. Information relating to the receiving environment and its social surroundings has been sourced through the following means:

- Site visits to collect primary data.
- Legal and policy review.
- Gathering existing information relating to similar developments and issues.
- Discussions, meetings, and site visits with various authorities.
- Opinions and concerns raised by I&APs and stakeholders; and
- Ecological/hydrological surveys and expert opinions.

1.3 Terms of Reference

The terms of reference for the proposed activities are based on the requirements set out by the Environmental Management Act (No. 7 of 2007) and its EIA Regulations (GN No 30 of 2012). The assessment process was undertaken using the following steps:

- Provision of a detailed description of the proposed activity.
- Identification of all policies, legislation, and guidelines that are relevant to the proposed development.
- Identification of existing environmental (both ecological and socio-economic) conditions of the receiving environment to identify potentially sensitive areas.
- Evaluation of the need and desirability of the proposed development.
- Notification and consultation of I&AP's regarding the proposed development and provide them with a reasonable opportunity to participate during the process.
- Identification of potential environmental impacts the proposed development will have on the natural & urban environment and assess their significance; and
- Outlining management and mitigation measures in an EMP to minimize and/or mitigate potential negative impacts, which cannot be avoided.

This scoping report will be submitted to the Environmental Commissioner, as required by Section 27(3) of the Environment Management Act No 7 of 2007.

The following is vital as part of the scope of work:

a) **Environmental impacts (biophysical)**

- Impact on flora and fauna
- Impact on surface water and groundwater
- Impact on land capability
- Solid waste disposal
- Impact of the proposed and required infrastructure and services

b) **Socio-economic impacts**

- Impact on traffic
- Impact on the local economy
- Impact on existing land uses

1.4 The Environmental Assessment Practitioner (EAP)

Green Gain Consultants cc was established in 2012 and is based in Walvis Bay with skilled and experienced EAP's. The EAP's involved in this Environmental Assessment are summarized in table 1.

Table 1: EAP members assigned to the project

Environmental Assessment Practitioner (EAP): Green Gain Consultants cc	
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Contact details	+264811422927 info@greengain.com.na
Lead EAP	Mr. Joseph Kondja Amushila

2. LEGAL FRAMEWORK

This section provides a review of applicable and relevant Namibian legislation, policies, and guidelines. This review serves to inform the Proponent and Developer of the requirements and expectations to be fulfilled before the proposed project commences. The findings of the abovementioned review in preparation of this scoping report for the proposed development are summarised below.

2.1 Environmental management requirements

The proposed subdivision and township establishment will trigger activities listed under the Environmental Management Act 7 of 2007 and the EIA Regulations (No. 03 of February 2012) as follows.

Project activities	Activities triggered	
	Category	**Specific activity**
• **Creation of streets and road networks on the newly extensions**	No. 9. Infrastructure	10.2 The route determination of roads and design of associated physical infrastructure where. (a) It is a public road; (b) The road reserve is wider than 30 meters, or (c) The road caters to more than one lane of traffic in both directions
• **Sewer network, pumpstations and pipeline system for the new extensions**	No. 8. Water Resource Developments	8.6 Construction of industrial and domestic wastewater treatment plants and related pipeline systems.

2.2 Applicable legislations

The pursuit of sustainability, concerning any development, is guided by a sound legislative and policy framework.

Table 2: Namibian Legislation relevant to the project

Legislation/ Policy/ Guideline	Relevant Provisions	Implications for this project
The Constitution of the Republic of Namibia (1990)	Article 95(i) recites: "The State shall actively promote… maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future" Article 91(c) recites: "The functions of the Ombudsman shall be defined and prescribed by an Act of Parliament and shall include the following... the duty to investigate complaints concerning the over-utilization of living natural resources, the irrational exploitation of non-renewable resources, the degradation, and destruction of ecosystems and failure to protect the beauty and character of Namibia".	Through the implementation of the EMP, the proponent shall be advocating for sound environmental management as set out in the Constitution.
Environmental Management Act (No. 7 of 2007)	• Requires that projects with significant environmental impact are subject to an environmental assessment process (Section 27). • Details principles that are to guide all EAs.	The EMA and its regulations should inform and guide this EA process.
Environmental Impact Assessment Regulations GN 28-30 (GG 4878)	• Details requirements for public consultation within a given environmental assessment process (GN 30 S21). • Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
The Regional Councils Act (No. 22 of 1992)	• This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 "to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanization patterns, natural resources, infrastructure, land	The relevant Regional Council is considered to be a stakeholder and was consulted during the EA process
Local Authorities Act (No. 23 of 1992)		The Swakopmund Municipality is the responsible Local Authority of the area in which the proposed development will be located.

	utilization pattern and sensitivity of the natural environment". • The main objective of this Act is to initiate, supervise, manage and evaluate development.	
Urban and Regional Planning Act No. 5 of 2018	• This Act aims 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 and regional planning board; to decentralize 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 a,nd deletion of conditions relating to land; and to provide for incidental matters.	The Swakopmund Municipality must adhere to all applicable provisions of the Act.
Labour Act No. 11 of 2007	• Details various requirements regarding health and safety of labourers • Details requirements regarding minimum wage and working conditions.	The Swakopmund Municipality should ensure that all contractors involved during the construction, operation, and maintenance of the proposed project comply with the provisions of these legal instruments.
Public Health Act No. 1 of 2015	Provide a framework for a structured uniform public and environmental health system in Namibia and provide for incidental matters. Part 9 prescribes procedures for Integrated Waste Management, while Part 10 calls for the prevention of creating Health Nuisances.	The Swakopmund Municipality should ensure compliance with the provisions of this legal instrument. A general obligation for the contractor not to pollute the environment
National Heritage Act No. 27 of 2004	Section 48(1) states that "A person may apply to the [National Heritage] Council [NHC] for a permit to carry out works or activities about a protected place or protected item".	Any heritage resources discovered during construction and operations require a permit from the NHC for relocation.
Water Act No. 54 of 1956	• This Act prohibits the pollution of water and implements the principle that a person disposing	The protection of groundwater resources should be a priority.

	of effluent or waste has a duty of care to prevent pollution (S3 (k)). • Provides for control and protection of groundwater (S66 (1), (d (ii)). • Liability of clean-up costs after closure/abandonment of an activity (S3 (l)).	Obligation not to pollute the environment and soil.
Water Resources Management Act (No. 24 of 2004)	• Provides provision for the control, conservation, and use of water for domestic, agricultural, urban and industrial purposes. • Deals with the provision of license/permit that are required for abstracting, using water, and discharge of effluent.	
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.
Road Ordinance 1972 (No. 17 0f 1972)	• Width of proclaimed roads and road reserve boundaries (S3.1) • Control of traffic on the urban trunk and main roads (S27.1) • Rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads (S36.1) • Infringements and obstructions on and interference with proclaimed roads. (S37.1) • Distance from proclaimed roads at which fences are erected (S38)	The limitations applicable on RA-proclaimed roads should inform the proposed layout and zonings where applicable.
Pollution Control and Waste Management Bill	• To prevent and regulate the discharge of pollutants to the air, water, and land. • To furthermore regulate noise, dust, and odor pollution; and to establish a system of waste planning and management	The Swakopmund Municipality should ensure compliance with the provisions of this legal instrument.

3. PROJECT DESCRIPTION

3.1 Locality

The proposed development sites (Erf 1444 and 1445) are in Matutura Extension 7, Swakopmund along the Isabela Bock Street.

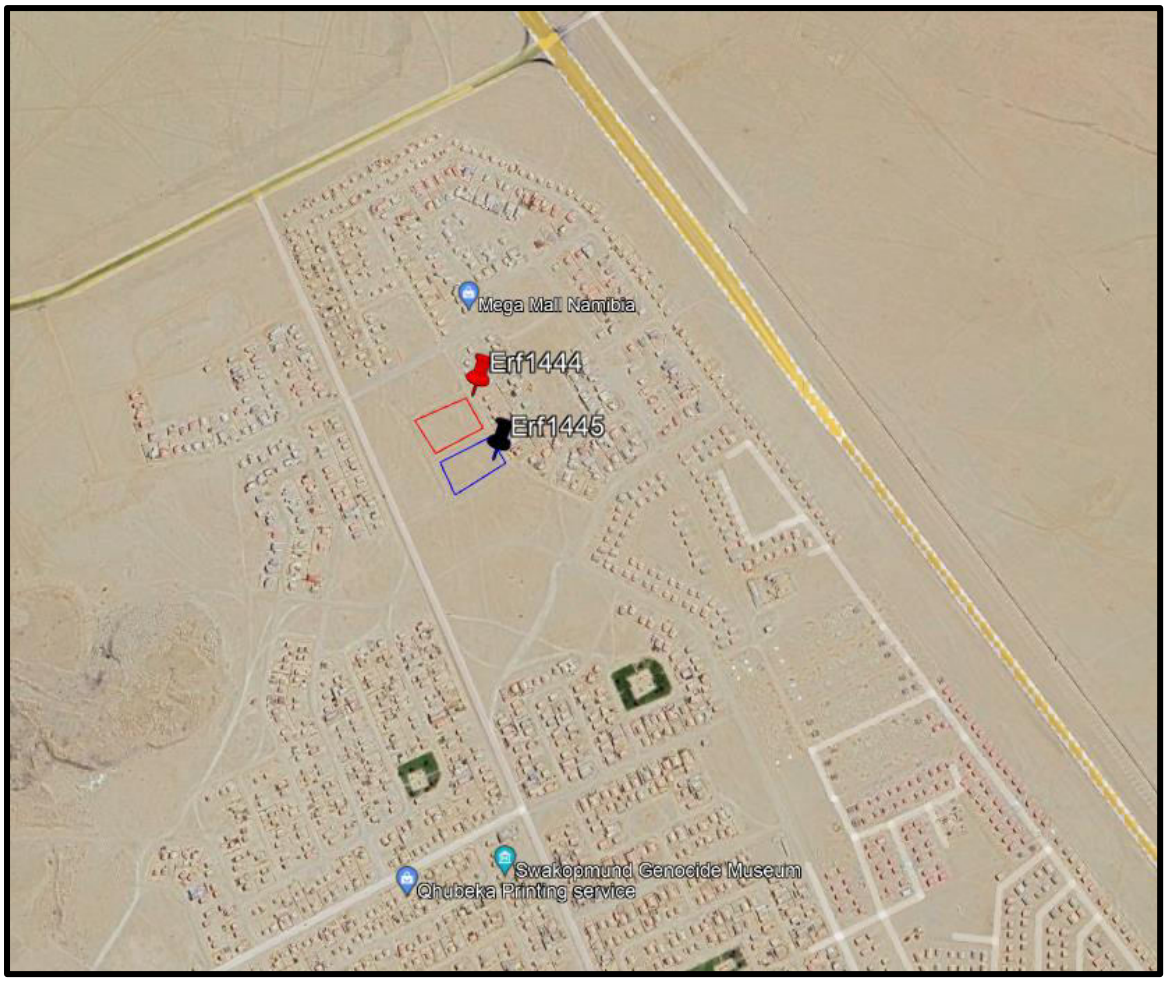

Figure 1: Locality of the proposed developments

3.2 Description of the Proposed Development sites

The Matutura Extension 7 is fully serviced and served with Municipal services such as water,, electricity, sewerage lines and access roads. Erf 1444 measures 5 659 m² and Erf 1445 measures 2537m^2 in extent. The two erven are both vacant and are located adjacent to each other. They are surrounded by currently vacant erven zoned for General residential as well as Local business.

Figure 2: Site overview of the site

Both sites have a flat elevation with no drainage line observed within it and contains no vegetation covers.

3.3 Proposed subdivision

The proposed subdivision for Erf 1444 and 1445, will result in each erf creating 10 new erven and the remainders (R/1444 and R/1445) would be utilised as street portion.

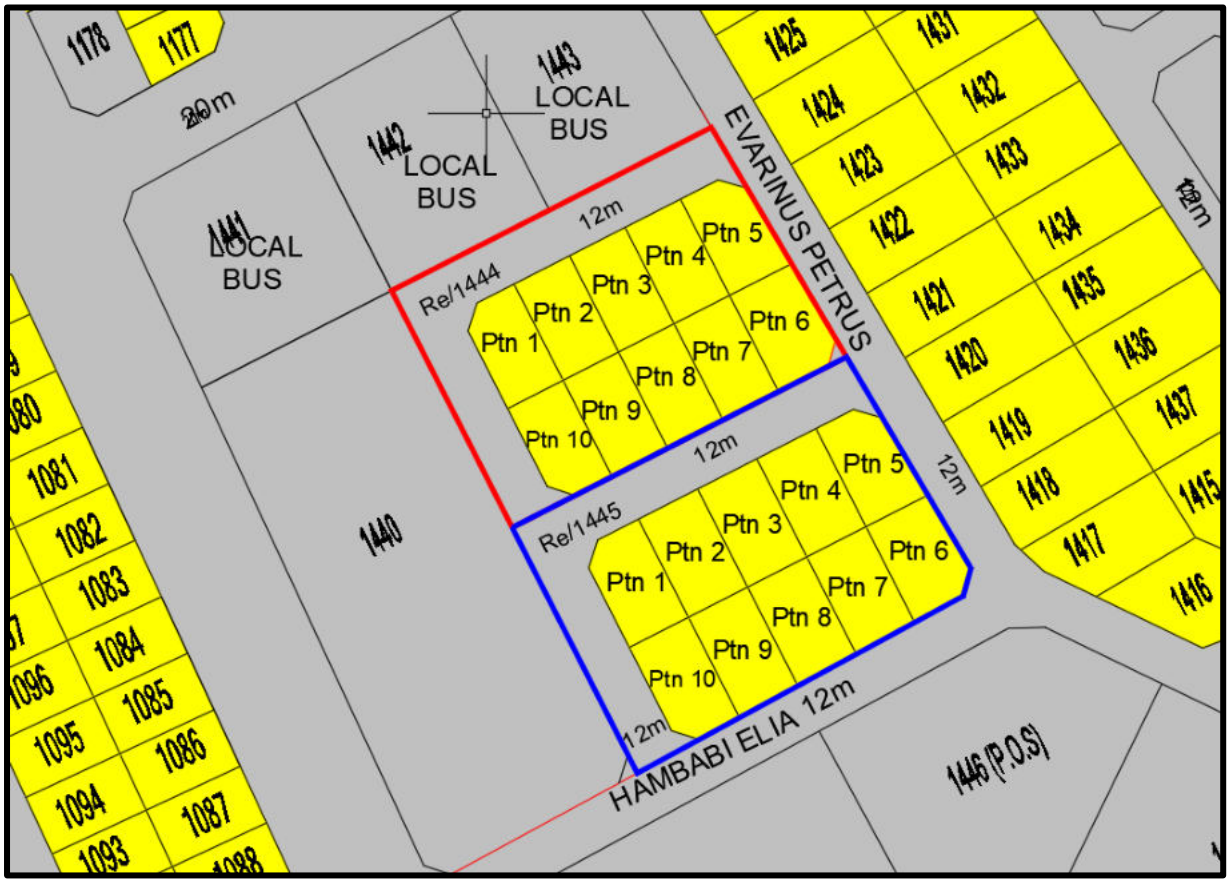

Table 3: Proposed subdivision layout

Resulting Portions and Sizes

Erf 1444		
Ptn numbers	**Proposed Sizes (m²)**	**Proposed Zoning**
Portion 1	378m²	Single Residential
Portion 2	390m²	Single Residential
Portion 3	390m²	Single Residential
Portion 4	390m²	Single Residential
Portion 5	403m²	Single Residential
Portion 6	445m²	Single Residential
Portion 7	390 m²	Single Residential
Portion 8	390 m²	Single Residential
Portion 9	390 m²	Single Residential
Portion 10	378 m²	Single Residential
Rem 1444	1 703m²	Street
Total	5 659m²	

Erf 1445		
Ptn numbers	**Proposed Sizes (m²)**	**Proposed Zoning**
Portion 1	412m²	Single Residential
Portion 2	424m²	Single Residential
Portion 3	424m²	Single Residential
Portion 4	424m²	Single Residential
Portion 5	410m²	Single Residential
Portion 6	436m²	Single Residential
Portion 7	417 m²	Single Residential
Total		

3.4 Need and Desirability

The need and desirability of the proposed development are based on the following aspects.

The **"need"** for the project:

- The provision of low-income housing has become a national concern. With the growing demand for serviced land due to rapid urbanization, it is of high priority that the Swakopmund Municipality subdivide available and developable land surrounding the town area to provide land, especially for housing purposes.
- The project is planned at a time and place in a developing sector of the town and can be a natural opportunity associated with the growth of the town.
- The activities will enable the Swakopmund Council to ensure timely and adequate municipal service to the local community.

The **"desirability"** of the project:

- The development site is compatible with the proposed activities; hence the approval of this application would not compromise the integrity of the proposed town urban Structure Plan and the integrity of the existing environmental management priorities for the area.
- The location factors favor this land use (associated with the activity applied for) as it is located within a developing orientated area with much growth potential.
- It is not anticipated that the activity will result in unacceptable opportunity costs as it will be integrated with the existing developments.
- The proposed development will ensure service delivery is provided while creating business opportunities for developers and creation of opportunities for local employment.

3.5 Project Alternatives

The EIA Regulations stipulate that the Scoping process should investigate alternative development options to any proposed developments/activities. The following alternatives were analyzed.

- **Land use alternatives:** The proposed development sites are within the townlands and thus are expected to be developed at any time to accommodate the growth of the town. Furthermore, the site is disturbed in some way due to its proximity to the existing development. If these sites are not developed, they will soon be occupied by illegal occupants. Hence, the site is considered suitable for the proposed development and no alternative site is required.

- **No Go Option** - The do-nothing ("no go") option would entail not using the site and maintaining the site as-is. From certain perspectives, this is not a viable option as the site is situated within a proclaimed area planned for urban use and surrounded by either upcoming or already existing residential communities. By not developing the site, the site will be anomalous in the context of the surrounding urban residential land-uses, and some of the direct and indirect socio-economic benefits (i.e., job creation, housing shortages, provision of further housing aimed at the mature living market, etc.) will not be realized.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter provides an overview of the baseline biophysical and social environmental conditions, with which the proposed project will interact. This information has been sourced from observations made and photographs taken during site visits, the team's experience, and existing literature from previous research conducted in the area. This chapter also identifies sensitivities about key environmental features as well as potential impacts resulting from the proposed project in relation to these sensitivities.

4.1 Biophysical Environment

4.1.1 Climate

The weather along the coast differs from that of the interior parts of the country. This area receives little rain with low average temperatures. The mean annual rainfall for Swakopmund averages between 2 -25 mm, about half of which is expected from February to March. Surrounded by the Namib Desert on three sides and the cold Atlantic waters to the west, Swakopmund enjoys a mild desert climate.

The average temperature ranges between 15 C to 25 C. Rainfall is less than 20 mm per year, making gutters and drainpipes on buildings a rarity. The cold Benguela current supplies moisture for the area in the form of fog that can reach as deep as 140 km inland. The fog that originates offshore from the collision of the cold Benguela Current and warm air from the Hadley Cell create a fog belt that frequently envelops parts of the Namib Desert. Coastal regions can experience more than 180 days of thick fog a year. While this has proved a major hazard to ships, it is a vital source of moisture for desert life. The fauna and flora of the area have adapted to this phenomenon and now rely upon the fog as a source of moisture. The wind is predominately from the southwest with easterly winds occurring infrequently during the winter months. The residential areas are located south of the sand mining site and will not be affected during operational conditions.

4.1.2 Landscape

The proposed development site falls within the Central–Western Plain Landscapes which stretched from the coast and extend inland for about 450 km. The plains were largely formed by erosion cutting back into higher ground and carving out the catchment areas of several major rivers. The Khan, Omaruru, Swakop, and Ugab rivers are the most prominent in this area. The geology mainly consists of the “Swakop Group” with Damara Granites intrusions. The proposed development sites are generally flat with an elevation range of 60-70 m.a.s.l.

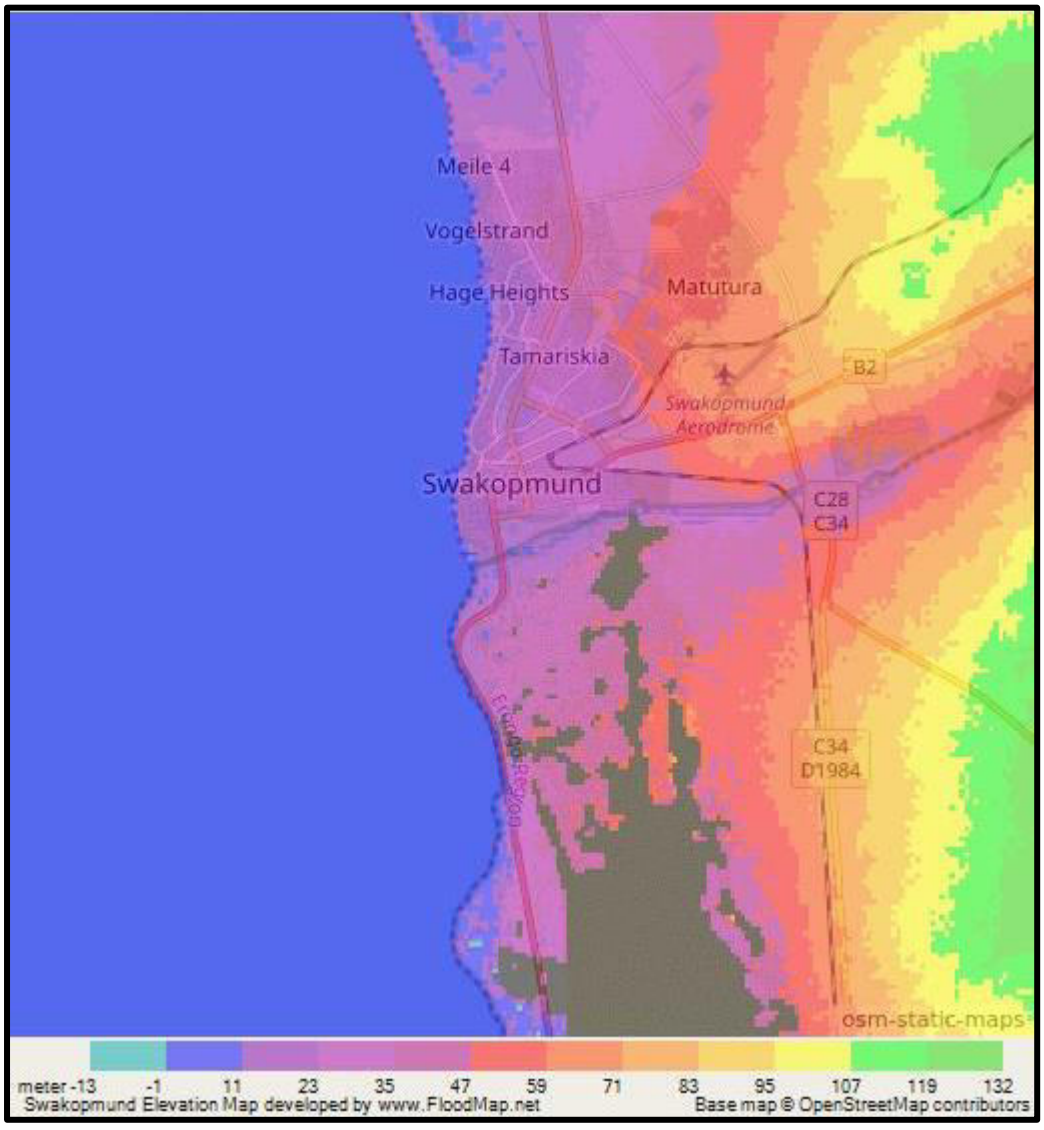

Figure 3: Elevation map for Swakopmund (NASA, 2021)

4.1.3 Soils and Geology

The soil type of the site is Petric Gypsisols, which is gypsum-rich with the surface being covered with small stones and grit to larger rocks and boulders. The soils range from soft and un-compacted in areas where seasonal tributaries flow to being very compacted but have sufficient structure that is easily penetrated by burrowing animals. Accumulations of calcium sulfate are characteristics of gypsisols, which are restricted to the very dry areas of central Namib. The calcium sulfate is dissolved out of the rock and soil and then carried by percolating water beneath the surface, where it remains in a variety of forms: powder, pebbles, stone, or gypsum crystals. The crystals may also form a compact layer or crust just below the surface. Gysisols generally have very low levels of fertility, so only the hardiest of plants will grow in them.

4.1.4 Flora and faunas

The vegetation type in the area falls within the Southern Desert of the Namib Desert Biome which is dominated by sparse dwarf shrubs. The observed shrub on site is commonly known as Pencil-bush (*Arthraerua Leibnitzian*), which is endemic to Namibia. The vegetation of the area is highly disturbed due to the frequent movement of people. The local occurring fauna is mainly ground-living insects, scorpions, snakes, desert mice, and lizards.

4.1.5 Groundwater

Groundwater reserves in Swakopmund are limited to the Kuiseb and Omaruru alluvial bed aquifers, which supply Henties Bay, Swakopmund, Walvis Bay, Arandis, Rössing and Langer Heinrich Mines. These aquifers are situated within the alluvial beds of the Kuiseb and Omaruru rivers. Previous groundwater studies in the area have detected no freshwater table while seawater penetrated inland to at least 500m from the high-water mark at a depth of 1.5m.

4.1.6 Archaeology and heritage resources

No information and palaeontological and historical sites in the study area could be obtained. Since the site is already disturbed no material of cultural or heritage importance is expected to occur at the site. However, should middens or other historical artifacts be discovered during construction, it should be reported to the National Heritage Council after which appropriate specialists will investigate and record those materials before construction activities commence.

4.2 Socio-economic Environment

4.2.1 Town overview

Swakopmund is a town on the coast of western Namibia, 352 km west of the Namibian capital Windhoek via the B2 main road. The town has 44,725 inhabitants and covers 196 square kilometers of land. The town is situated in the Namib Desert and is the fourth largest population center in Namibia. Swakopmund is an important holiday destination and an example of German colonial architecture.

It was founded in 1892 as the main harbor for German Southwest Africa, and a small part of its population is still German speaking. Buildings in the city include the Altes Gefängnis prison, designed by Heinrich Bause in 1909. The Woermannhaus, built-in 1906 with a prominent tower, is now a public library. The Erongo desalination plant has been the region's highest achievement thus far in terms of economic growth. The mining development in the region has also resulted in an increased in-migration to the coastal towns.

The town of Swakopmund is more of a tourist destination than a commercial town, with no fishing industry or local port. Many view the coastal towns such as Swakopmund and Henties Bay as holiday towns, which see an influx of tourists during the holidays. The National Marine Aquarium, Snake Park, the Rossmund Desert Golf Course, Swakopmund Museum, the crystal gallery, and the Jetty are some of the major tourist attraction sites in the town. As the tourism industry is expanding so are employment rates in the accommodation and catering industry.

4.2.2 Bulk service supply

Swakopmund is served with modern infrastructure and bulk services such as:

- **Water Supply**: Freshwater supply to the town is provided by NamWater.
- **Road network:** There is existing roadwork connecting to the proposed development areas. Most of the roads especially in the town's CBD are well-tarred except at some parts of suburbs like Mondesa and in the informal settlements of DRC.
- **Sewerage & Drainage**: The existing system serves most of the existing developed areas except for the DRC informal settlement. It is expected that the sewer reticulation network, pump stations will be provided and connected to the sewer treatment plant. The informal settlements are not connected to the sewer network; as such, some residents make use of septic tanks, pit latrines, etc.
- **Communication & Electricity**: Most of the town's electricity is served via Erongo RED, although some areas within the existing informal settlements are not connected. The town has access to various network coverage providers.

4.2.3 Socio-economic development

The town of Swakopmund is well developed and offers various services such as shopping centers, banking institutions, government offices, etc. It is served by the Swakopmund Airport and Railway Station. The main healthcare provider in the town is the Cottage Medi-Clinic, a hospital with 70 beds. There are about 66 schools in Swakopmund of which 49 are state-owned while 17 are privately owned. Institutions of high learning i.e., NUST and various training centers (CODEC) are readily available.

Figure 4: Swakopmund development overview

5. PUBLIC PARTICIPATION

Public consultation is an important component of an Environmental Assessment (EA) as it provides potential Interested and Affected Parties (I&APs) with a platform to raise any issues or concerns relevant to the proposed project. This assists the environmental consultant in considering the full spectrum of potential impacts and to what extent further investigations are required.

In addition, the public consultation process also grants I&AP's an opportunity to review and comment on all the documents produced throughout the EA process. This is done in accordance with the Environmental Management Act's EIA Regulations. Consultation with the relevant stakeholders and I&APs regarding the proposed development was facilitated as outlined below.

5.1 Notification of key Stakeholders and Interested & Affected Parties

Section 21 of the EIA Regulations details steps to be taken during the public consultation process and these steps have been used to guide this process. Consultation with I&APs regarding the proposed developments was facilitated through the following approaches:

- Public Notifications were placed in the local newspapers and public notices. The notices were advertised in The Namib Times and New Era newspapers for 29 September and 06 October 2023. The notice provided a brief description of the proposed development, its locality and it invites the public to register as I&APs. (**Appendix A**)
- Identified key stakeholders were served with invitation letters to attend the meeting and were encouraged to submit comments toward the envisaged project.
- A Background Information Document (BID) was compiled that contained essential information regarding the proposed development.
- The BID was sent to all registered I&APs and stakeholders.

6. IMPACT ASSESSMENT

6.1 Introduction

The EIA Regulations require *"a description of the significance of any significant effects, including cumulative effects, which may occur as a result of the undertaking of the activity"*.

The table below indicates a summary of identified environmental impacts. These impacts are categorized into the various relevant phases of the life cycle of the proposed development, namely: planning phase, construction phase, and operational phase. The environmental assessment section of the scoping report and the consequent EMP shall also be compartmentalized into these phases. Due to the nature of this development, it is anticipated that all the infrastructures will be permanent, hence decommissioning will not be required. Maintenance of the infrastructure will be addressed under the operational phase.

6.2 Method of Assessment

The potential environmental impacts associated with the proposed will be evaluated according to its nature, extent, duration, intensity, probability, and significance of the impacts as follows.

Table 4: Impact Assessment criteria

CRITERIA	DESCRIPTION			
EXTENT	**National (4)** The whole country	**Regional (3)** Erongo region and neighbouring regions	**Local (2)** Within a radius of 2 km of the proposed site	**Site (1)** Within the proposed site
DURATION	**Permanent (4)** Mitigation either by man or natural process will not occur in such a way or in a timeframe that the impact can be considered short-lived	**Long-term (3)** The impact will last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter.	**Medium-term (2)** The impact will last for the period of the construction phase, whereafter it will be entirely negated	**Short-term (1)** The impact will either disappear with mitigation or will be mitigated through a natural process in a span shorter than the construction phase
INTENSITY	**Very High (4)** Natural, cultural, and social functions and processes are altered to an extent that they permanently cease	**High (3)** Natural, cultural and social functions and processes are altered to an extent that they temporarily cease	**Moderate (2)** Affected environment is altered, but natural, cultural, and social functions and processes continue albeit in a modified way	**Low (1)** Impact affects the The environment in such a way that natural, cultural and social functions and processes are not affected
PROBABILITY	**Definite (4)** The impact will certainly occur	**Highly Probable** (3) Most likely that the impact will occur	**Possible (2)** The impact may occur	**Improbable (1)** The likelihood of the impact materialising is very low
SIGNIFICANCE	Significance is an indication of the importance of the impact in terms of both physical extent & time scale, and therefore indicates the level of mitigation required. Significance is			

	given before and after mitigation. The total number of points scored for each impact indicates the level of significance of the impact.
STATUS OF THE IMPACT	A statement of whether the impact is: • Positive (beneficial impact), • Negative (adverse impact), or • Neutral (impact is neither beneficial nor adverse). Indicate in each case who is likely to benefit and who is likely to bear the costs of each impact.

Table 5: Criteria for significance ratings and associated range of scores

Significance Rate	**Description**	**Score**
Low	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction, or operating procedure.	1 - 4
Moderate	An important impact that requires mitigation. Mitigation is possible with additional design and construction inputs.	5 - 8
High	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.	9 – 12
Very High	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a “very high impact” is likely to be a fatal flaw.	13 - 20

6.3 Assessment of Identified Impacts

All impacts included in the table below fall within the scope of this project and the responsibility of Swakopmund Municipality. Each of the potential impacts is screened and subjected to the criteria stipulated above in **Table 5**. The significance of each potential impact is determined based on the criteria in **Table 6**. It is expected that most of these impacts can be decreased by the proposed migratory measures.

Table 6: Potential Impacts during the development phase of the proposed development

ASPECT	POTENTIAL IMPACT	SIGNIFICANCE BEFORE MITIGATION					MITIGATION MEASURE
		Extent	Duration	Intensity	Probability	Significance	
BIOPHYSICAL IMPACTS	**Impact to vegetation** No impact as the site is vacant	1	1	1	1	Low	
	Impact to fauna No impact expected as there are no sensitive habitats	1	1	1	1		
	Visual intrusion	1	2	2	2	High	-Avoid stockpile waste at the site for long periods at a time -All construction materials must be stored away from the site
	Possible groundwater pollution	1	1	1	1	Low	-Groundwater availability in the area is limited and has no potential. -No pollutant must be discharged directly underground or in the open environment.
	Loss of topsoil during construction	1	2	2	2	Moderate	-Soil conservation measures should be used on-site to help reduce erosion. -Topsoil from excavated areas must be stockpiled and protected for later use.
	Land disturbances due to construction activities	1	1	1	2	Moderate	-Avoid soil compaction and limit excavation to the area to be developed.

							-All open trenches must be filled, and the area must be properly rehabilitated.
	Geotechnical disturbance during construction	**1**	**1**	**1**	**1**	**Low**	-Conduct the geotechnical investigation during the construction stage and follow the contour map correctly.
	Potential damage or destruction to undiscovered heritage or cultural sites in the area	**1**	**3**	**1**	**1**	**Low**	-There are no archaeological or paleontological grounds to suspend the proposed development. In case of any material of archaeological heritage importance observed during the construction/operation phase, it must be reported to the National Heritage Council.
	Spillage, stockpiles, and other construction-related activities	**1**	**1**	**2**	**2**	**Moderate**	-Concrete mixing should be done on a pre-designed SLA underlined by PVC lining or previously disturbed areas. -Any spillage (fuel, oil, chemical, etc. b) must be cleaned up immediately. -All construction material must be sourced off-site from commercial sources.
	Increase demand for water during land servicing and construction of infrastructures (roads, pump stations, water pipelines, etc.)	**3**	**2**	**2**	**2**	**High**	-Water usage must be metered. -Freshwater must be used sparingly.
	Impacts of temporary construction camps	**1**	**1**	**2**	**2**	**Moderate**	-Construction camps (if allowed) should be properly located away from watercourses. -Provide potable ablution facilities during construction. -The site used for construction camps should be rehabilitated after the construction phase.
SOCIO-ECONOMIC	An increase in traffic within the area is expected due to construction activities and the establishment of townships.	**2**	**1**	**1**	**2**	**Moderate**	-Identify new access roads to avoid traffic congestion. -Flagmen and traffic controls should be appointed to regulate the traffic flow of construction vehicles.

							-Appropriate road signs & markings, sidewalks for pedestrians, and taxi ranks should be provided throughout the layout.
	Generation of dust could cause air pollution	**1**	**1**	**1**	**2**	**Moderate**	-Use dust-suppressing agents -Limit Vehicle speed -Avoid dust-generating activities during strong wind. - The local community and surrounding businesses should be continuously consulted to ensure that the dust levels are acceptable. - Residents and businesses should be informed before construction commences so that they are aware of the planned construction. - Stockpiles and sand being transported should be covered with plastic to reduce windblown dust.
	Noise created by construction activities, which might be a nuisance to residents and employees.	**1**	**1**	**1**	**1**	**Low**	-Construction should be limited to normal working days and office hours (08h00-17h00). -All employees must have the correct PPE. -Watering of all construction haulage signage should be placed at the entrance of the construction areas. Technology such as silencers should be installed on construction machinery. -The use of horns as a general communication tool should not be allowed, they should only be used, when necessary, as a safety measure.
	Impact of Construction Camps i.e. noise, waste, pollution, etc.	**2**	**2**	**2**	**2**	**Moderate**	-Construction camps should be served with ablution facilities. -All waste generated must be collected and disposed of properly safely. -Avoid noise, vibration during odd hours. -Recruit residents to limit the number of people at construction camps.
	Installation of bulk infrastructure (water pipeline, pump stations, roads, etc)	**2**	**2**	**2**	**2**	**Moderate**	-Compliance with all relevant legislation during the installation of the bulk services (water, roads, sewer, and electricity).

	Lack of proper waste management could result in pollution and decrease the sense of place of the area	**2**	**2**	**2**	**2**	**Moderate**	-Provide litter bins at the site. -Building rubble must be collected and disposed of at the Municipal disposal site.
	Land servicing and road construction could result in uncontrolled mining of sand in the area and surrounding	**3**	**2**	**3**	**3**	**High**	-Sand to be used for all construction activities should be sourced from authorized burrow pits.
	The new development will attract criminal activities in the area.	**1**	**1**	**1**	**1**	**Low**	-All items should be stored away from the sites -Ensure that properties are secured
	Economic development (+ve)	**4**	**2**	**1**	**3**	**Very high**	-Contractors should source materials from local suppliers to enhance the local economy.
	Employment of the local community (+ve)	**4**	**4**	**2**	**3**	**Very high**	-Local laborers (especially the ones from the affected & neighboring residents) and local contractors (especially SMME's) should be utilized to a greater extent. This should also include the youth, women, and people living with disabilities.

Table 7: Potential Impacts during the operational phase of the proposed development

ASPECT	POTENTIAL IMPACT	SIGNIFICANCE BEFORE MITIGATION					MITIGATION MEASURE
		Extent	Duration	Intensity	Probability	Significance	
BIOPHYSICAL IMPACTS	Impact on biodiversity (flora and fauna)	1	1	2	2	Moderate	-Plant more trees to enhance biodiversity.
	Alteration of existing visual perspective	1	4	1	1	Moderate	-Plant more trees to enhance biodiversity.
	Soil, surface, and groundwater impacts	1	4	1	1	Moderate	-Ensure that surface water accumulating on-site are channelled and captured through a proper stormwater management system to be treated appropriately before disposal into the environment. -Disposal of waste from the various activities should be properly managed.
	Possible pollution to groundwater pollution from leaking sewage lines	1	1	1	1	Low	-Sewage lines must be maintained frequently to prevent leakages and increase their operational life.
SOCIO-ECONOMIC	Increase in traffic within the area	1	1	1	2	Moderate	Provide appropriate road signs & markings, sidewalks for pedestrians, and taxi ranks should be provided at relevant areas. -Provide for speed-reducing interventions such as speed bumps at relevant road sections.
	Increase demand for water and electricity	1	1	1	2	Moderate	-The proposed development is part of the approved town SDF and thus has been included in the demand management plan.
	The access road to the site	1	1	1	2	Moderate	-Swakopmund Municipality to approach RA to establish an access road from the C34 to the proposed sites as an alternative access road.
	Waste generation	1	2	2	3	High	-Municipal services on waste collection to be extended to the new townships.

							- Households are to adhere to the municipal regulations with regards to waste disposal.
	Provision of housing delivery (+ve)	**4**	**4**	**4**	**4**	**Very high**	-Residents must be given the priority
	Employment of the local community (+ve)	**4**	**4**	**2**	**3**	**Very High**	Local laborers (especially the ones from the affected & neighboring residents) and local contractors (especially SMME's) should be utilized to a greater extent. This should also include the youth, women, and people living with disabilities.

7. CONCLUSION AND RECOMMENDATIONS

The key potential impacts associated with the construction, operational, and maintenance phases of the proposed project have been identified and their significance assessed. All identified impacts can be mitigated to reduce the significance of these impacts to an acceptable level. Mitigation measures are described in greater detail in the EMP. Hence, the project can be implemented with no significant impacts if executed according to the EMP.

7.1 Conclusion

- The proposed site is suitable for residential and commercial development because it is compatible with the adjacent users. It is easily accessible and can easily be connected to existing bulk supply networks e.g., water, electricity, sewerage, roads, etc.
- The development will enable the Swakopmund Municipality to decrease its housing backlog and minimize the formation of illegal settlements on areas not considered for residential planning.
- Since no objection was received during the consultation period, the project is well received by both I&APs and stakeholders.
- It is also concluded that there are no sensitive cultural or heritage materials on the proposed sites and in case of such material found at the site during the phases of the project, this should be handled as per the National Heritage Act.
- The scope of work is limited to assessing the potential impacts associated with the proposed development; therefore, the effect on the surrounding environment is based on the current land use.

7.2 Recommendations

It is recommended that

- Appoint an Environmental Compliance Officer (ECO) or a representative for monthly environmental compliance monitoring during the construction phase. The monthly reports are to be compiled into annual reports and are to be submitted to the Ministry of Environment, Forestry, and Tourism.
- Apply various mitigation measures outlined in Tables 7 and 8 of this report and as per the appended EMP.

To this end, it is therefore recommended that an Environmental Clearance Certificate be granted 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.

8. REFERENCES

- Directorate of Environmental Affairs, 2008. Procedures and Guidelines for Environmental Impact Assessment (EIA) and Environmental Management Plans (EMP), Directorate of Environmental Affairs, Ministry of Environment and Tourism, Windhoek.

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9. APPENDICES

APPENDIX A: **Proof of Consultations**

- **List of IAPs**
- **Newspaper Advertisement**
- **Attendance registers for the Public Meeting**
- **Attendance Register for the Stakeholder meeting**
- **Minutes of the stakeholder meeting**

APPENDIX B: **EMP**