ENVIRONMENTAL MANAGEMENT PLAN (EMP)

FOR TOWNSHIP ESTABLISHMENT TO BE KNOWN AS REHOBOTH BLOCK D (EXTENSION 2), HARDAP REGION-NAMIBIA

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ENVIROPLAN CONSULTING CC

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PROJECT NAME	**ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED TOWNSHIP ESTABLISHMENT TO BE KNOWN AS REHOBOTH BLOCK D (EXTENSION 2), HARDAP REGION-NAMIBIA**
REPORT TITLE	**ENVIRONMENTAL MANAGEMENT PLAN (EMP)**
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Definitions

TERMS	DEFINITION
BID	Background Information Document
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ESA	Environmental Scoping Assessment
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
FLTS	Flexible Land Tenure System
I&APs	Interested and Affected Parties
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT: DEAF	Ministry of Environment, Forestry and Tourism's Department of Environmental Affairs and Forestry
NHC	National Heritage Council
N(EMA)	Namibia Environmental Management Act
PRO	Public Relation Officer

1. CHAPTER ONE: BACKGROUND

1.1. INTRODUCTION

Rehoboth Town Council referred to as the Proponent intends to commence development of housing units on a portion of land in Rehoboth and as such the subdivision of the Rehoboth Block D Extension 1-302, into smaller erven has to be undertaken. The project is initiated in a bid to contribute to effective and efficient use of land and to stimulate development of the area through intensification and other urban mechanisms.

In this respect, Rehoboth Town Council has appointed Enviroplan Consulting to undertake an Environmental Impact Assessment and development of an Environmental Management Plan for the proposed subdivision, land servicing and residential housing development initiative and also apply for an Environmental Clearance Certificate (ECC) to the Ministry of Environment and Tourism (MET): Directorate of Environmental Affairs (DEA).

In Namibia, town planning activities are one of the listed activities under the 2012 Environmental Impact Assessment (EIA) Regulations of the Environmental Management Act (EMA) No. 7 of 2007 that cannot be undertaken without an EIA or Environmental Scoping Assessment (ESA) study done and Environmental Clearance Certificate (ECC) issued by the Environmental Commissioner. The EIA Study is aimed at assessing the proposed project potential, socio-economic aspects, infrastructure, and services, environmental, and geohydrology (hydrogeology) aspects of the site.

The EIA and EMP is focused on No. 302, Rehoboth Extension 1 Block D which is to be subdivided into 66 portions and the remainder reserved as street. As such, this document forms part of the application to be made to the DEA's office for an Environmental Clearance certificate for the proposed subdivision according to the guidelines and statutes of the Environmental Management Act No.7 of 2007 and the environmental impacts regulations (Government Notice 30 in Government Gazette 4878 of 6 February 2012).

1.2. PROJECT LOCATION

The land is situated along the B1 road on the western side as you drive into Rehoboth from Windhoek. The area is located in Block D, Ext 1 just below the hill with the Rehoboth signage. Located in Rehoboth, Extension 3 in close proximity of the easter collector road intersecting with the erf is ±7 314m² in extent and zoned 'general residential'. Figure 1 shows the view of the site.

The descriptions of the site to be subdivided are based on the site visit conducted on the 24th of February 2023.

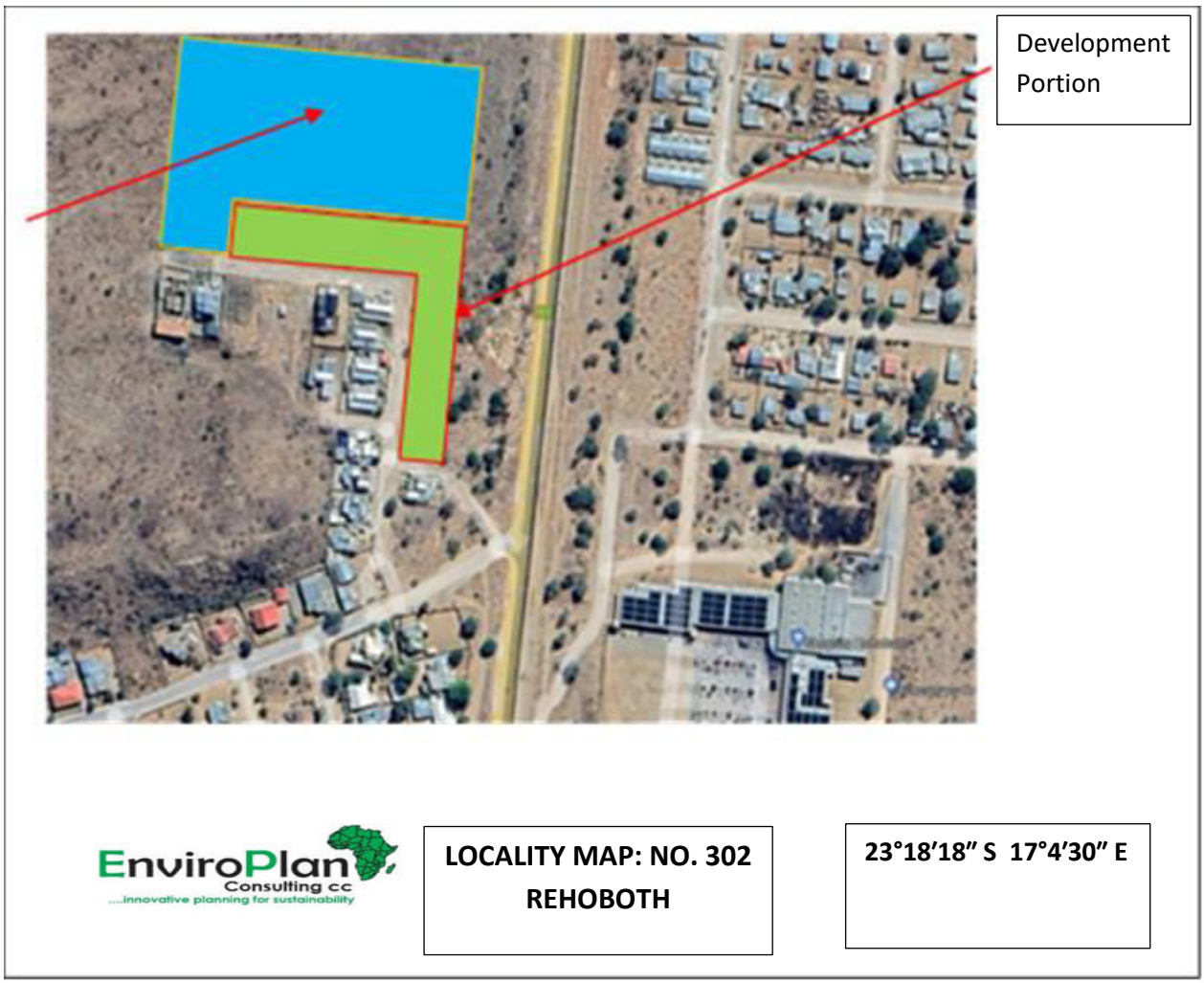

Figure 1: Project Locality in Rehoboth

1.3. PURPOSE OF THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)

This EMP has been developed for the proposed subdivision and development of Block D Rehoboth Extention 2, Namibia. It forms the operational framework within which the proposed projects are to operate within. All anticipated environmental and social impacts identified in the environmental scoping report are addressed, with a mitigation action, monitoring requirements, key indicator and responsibilities.

This EMP is incessant, and it requires compliance monitoring, updating and or amendment if the scope of operations change (if any). All personnel working on the project will be legally required to comply with the standards set out in this EMP.

This section describes the Environmental Management Plan (EMP) for impacts associated with the proposed development. The EMP stipulates the management of environmental programs in a systematic, planned and documented manner.

The EMP below includes the organizational structure, planning and monitoring for environmental protection at the proposed farm area development and other areas of its influence. The aim is to ensure that the Proponent maintains adequate control over the project operations to:

- To prevent negative impacts where possible,
- Reduce or minimise the extent of impact during project life cycle,
- Prevent long-term environmental degradation, and
- Ensure public safety and health is protected.

1.4. LEGAL AND OTHER REQUIREMENTS COMPLIANCE

This EMP has been developed in accordance with the requirements of the Environmental Management Act (EMA), No. 7 of 2007 and the EIA Regulations of 2012. As such, key requirements in accordance with this Act, classifies the proposed project as listed and invokes the need for an environmental management plan to sustainably implement the projects. However, legal compliance is not only limited to the EMA, but also applies to all applying legal requirements identified in the Environmental Scoping Report (ESR). When licenses are required such as wastewater discharge, the Proponent should ensure that all licenses and permits are obtained and fulfilled as per conditions.

1.5. THE EMP ADMINISTRATION

There is a strong need to clearly outline the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. There is also a need for the Proponent to appoint an overall responsible person (Site Manager) to ensure the successful implementation of the EMP.

It solely remains the responsibility of the proponent (Rehoboth Town Council) to ensure that:

- All members of the project team, including contractors, comply with the procedures set out in this EMP,
- All personnel are provided with sufficient training, supervision, and instruction to fulfil this requirement, and
- Any persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood.

2. CHAPTER TWO: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

2.1. INTRODUCTION

The proposed subdivision and development (project) implementation will have environmental impacts as indicated in the Environmental Scoping Report. This section is aimed at describing the Environmental Management Plan (EMP) for impacts associated with the proposed developments. The EMP stipulates the management of environmental programs in a systematic, planned and documented manner. The EMP below includes the organizational structure, planning and monitoring for environmental protection at the proposed development area and other areas of its influence. The aim is to ensure that the Proponent maintains adequate control over the project operations to:

- To prevent negative impacts where possible;
- Reduce or minimise the extent of impact during project life cycle;
- Prevent long term environmental degradation.

2.2. EMP ADMINISTRATION AND IMPLEMENTATION

There is a strong need to clearly outline the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. There is also a need for the Proponent to appoint an overall responsible person (Project Manager) to ensure the successful implementation of the EMP as highlighted in Table 1.

Table 1:Roles and Responsibilities in EMP Implementation

ROLE	ENVIRONMENTAL RESPONSIBILITIES
Rehoboth Town Council (The Proponent)	-Responsible to enforce EMP implementation to contractors
Environmental Control Officer	-Implement, review and update the EMP. -Ensure all reporting and monitoring required under EMP is undertaken, documented and distributed as needed -Conduct environmental site training (toolbox talks) and inductions with the support of an environmental consultant. -Conducts environmental audit at work site with the support of environmental consultant. -Close out all non-conformances. -Ensure materials being used on site are environmentally friendly and safe.
Public Relations Officer (PRO)	-Liaising between the affected property or landowners and the Proponent. -Ensure effective communication with stakeholders, media (if necessary) and the public. -Organising and overseeing public relations activities, Managing public relations issues. -Collaborating with personnel and maintaining project-related open communication among project personnel, Proponent and property owners.
The Department of Environmental Affairs and Forestry	-Approve the EMP and any amendments to the EMP. -Approve reports of environmental issues and non-conformances as issued. -Review and approve environmental reports submitted as part of EMP implementation
Site Engineers and Project Managers	-Control and monitor actions required by the EMP. -Report all environmental issues to the ECO. -Ensure documented procedures are followed and records kept on site.

ROLE	ENVIRONMENTAL RESPONSIBILITIES
	-Ensure any complaints are passed onto the management within 24 hours of receiving the complaint.
Sites Workers/Employees/Visitors	-Follow requirements as directed by site engineers. -Report any potential environmental issues to site engineer/project manager, indicating spilt oil, excess waste, excessive dust generation, dirty water running off the site and other possible non-conformances

The short description, effects, and class of potential impacts as well as timeframe, responsibility of implementation of management measures (actions) during the construction phase of the subdivision are presented in Table 2 below.

Table 2: Construction Phase and management actions (measures)

Impact	Description	Effects	Class	Time frame	Responsibility	Action
Servicing and Construction Phase-Negative Impacts						
Social Grievance over property relocation or re-alignment	-The re-alignment and relocation of existing properties into surveyed erven may lead to loss of properties and possible conflicts between the Proponent and the landowner(s).	-Unresolved tension, poor consultations, and misunderstandings between the current residents (staying on or neighbouring the Portions) and Town Council may lead to unpleasant conflicts, especially the issue of relocation and re-alignment of properties to be incorporated into the FLTS scheme.	Social	Prior to and during Construction Phase	-Proponent (Town Planning Department and Public Relations Officer)	-The Proponent should in time notify the potentially affected landowners (or neighbours) of the intention to establish and or upgrade the townships. -Thorough consultation and engagement with landowners should be conducted and amicable solutions found and agreed on. -Where compensation is the case, the Proponent should amicably compensate the affected landowner according to the National Compensation Policy.

Impact	Description	Effects	Class	Time frame	Responsibility	Action
Physical Disturbance of the site soils	-The stockpiling of topsoil and Proliferation of tracks -Excavation and associated works	-Compaction of soils by moving heavy vehicles and equipment and soil erosion	Environmental	Construction Phase	-Environmental Control Officer (ECO)	-Construction activities should be restricted on defined areas. -Proper management of stockpiles. Excavated material must be covered in stockpiles until reuse and backfilling. -Restrict movement of heavy vehicles and equipment to defined areas. Use existing roads until access require limited new roads. -Use surface anchored foundations with very limited rock breaking.
Noise pollution	Noise will be generated through: -Access roads upgrading -Construction of Streets -Construction of drainage services and water reticulation systems. -Construction of buildings -Moving vehicles.	-The health of working personnel could be disturbed. -Passers-by could be disturbed by the noise. -General annoyance -Driving away of local animals' species near the project site -Residents nearby will be affected	Environmental	Construction phase	-ECO -Site Manager	-A construction interval should be established, used and adhered to. -Workers will be issued ear plugs to protect them from excessive noise. -Public should be notified through printed timetable stating planned operational activities. -Construction activities should be conducted during daytime. -Site notices should be erected on and around the site notifying visitors and nearby residents of different hazards on site.
Dust Generation	If construction is done during dry seasons of the year, dust will accumulate because of the land preparation, onsite movements of vehicles and machines, wind blowing	-Can lead to respiratory illnesses especially to those working in the area. -General air pollution. -Nuisance to nearby residents	-Environmental -Social	Construction Phase	-ECO -Project Manager	-Dust suppression should be done through watering dust sources surfaces. -Watering down dusty surfaces,

Impact	Description	Effects	Class	Time frame	Responsibility	Action
	on loose material during construction and tipping.					-Ensure that protective equipment such as respirators are distributed to employees and ensure their use. -Site notices to be erected on and around the site to inform visitors and surrounding residents.
Loss of Biodiversity	-Vegetation on site will be removed to allow site development. -Habitat destruction for both ground dwelling species and tree dwelling species. -Soil disturbance on and around the site.	-The clearing of vegetation will result in the breaking of the ecosystem processes in the area. -Loss of aesthetic value of the project site areas. -The few small animals still habiting the place such as small rodents and birds will be forced away. -The ecosystem food chain on and around the area will be broken.	Environmental	Construction phase	-Environmental Control Officer -Site Manager	-The proposed project area had development before the area was proclaimed and there are massive urban area disturbances already, hence there is little vegetation to be affected by the development. -All the major trees and protected species such baobab trees (*Adansonia digitata)* should be preserved, and the layout plan should fit into the environment without affecting the trees. -Ground disturbance should only be limited to boundary area to avoid affecting a large area. -Upon completion of construction activities more trees and lawn should be planted on and around the site to restore the site into a status that is environmentally friendly.

Impact	Description	Effects	Class	Time frame	Responsibility	Action
	Disturbance, killing and snaring of domestic animals	The project site, especially Greenfield is currently a grazing area to some livestock during the rainy season. Therefore, the development of the land will push the animals away.	Environmental	Construction phase	-ECO	-The Proponent should inform the communities through the constituency office of the intention to close off the open land. -The livestock should not be killed but instead inform the locals / owner to look after the animals and keep them away from the town. -No beating or snaring of people's animals.
Greenhouse gas emissions	Green House Gasses (GHGs) emissions will be produced from the following activities: -Fuels combustion for transport (construction vehicles and equipment) -Ground excavation releases phosphorus found underground and releases particulate matter into the atmosphere.	-Global climate change -Air pollution	Environmental	Construction phase	-Environmental Control Officer -Project Manager -Department of Environmental Affairs and Forestry.	-Adopt the use of ethanol blended fuels wherever necessary. -Design an operation system that cuts on fuel consumption. -Use of solar energy system during construction for lighting and other minor energy needs.
Pollution from construction activities	Construction is associated with a lot of raw material and activities that results in pollution	-Chemical pollution from oil spills resulting from the handling of various machineries used during the construction phase -Construction rubble, empty packaging containers/bags and materials remnants. -Construction workers can also pollute the surrounding environs if they are not provided with adequate toilet facilities and a	Environmental	Construction phase	-Environmental Control Officer -Project Manager	-All waste from construction activities should be stored and contained in designated containers and transported to the Rehoboth waste disposal site. -Bulk waste such as building rubbles must be collected and disposed of at any of the various municipal satellite sites or for landfilling.

Impact	Description	Effects	Class	Time frame	Responsibility	Action
		waste management system for domestic waste.				-Adequate mobile toilets must be provided at the construction camp for the use of the workers. -A skip container should be put on site and regularly emptied to handle domestic waste.
Hydrocarbons release into the environment	There will be no storage of oils and fuel on site, however there is risk of spillage of hydrocarbons from vehicles and machinery operations, maintenance through leakages and spillages which may result in environmental contamination	-Washing away of contaminated soils by rains into nearby rivers -Pollution of soil and affecting small living organisms habituating the soil -Result in possible groundwater pollution. -Possible fire risk on and around the site	Environmental	Construction Phase	-Environmental Control Officer -Project Manager -Department of Environmental Affairs.	-Implement a maintenance programme to ensure all vehicles, machinery and equipment are maintained and remain in proper working order -Vehicle maintenance should be Conducted in designated areas only, preferably off-site. - Spillages are to be removed from site by a specialist waste removal contractor such a rent a drum. -Waste oil, fuels and other chemicals from drip trays on stationery vehicles and machinery should be disposed of as hazardous waste at a licensed facility by a specialist hazardous waste handler. -Oil residue should be treated with oil absorbent material such as Drizit or bioremediation and removed to an approved waste disposal site -Spill kits should be easily accessible, and workers should be trained in the use thereof.

Impact	Description	Effects	Class	Time frame	Responsibility	Action
						-Staff and contractors should be trained in the handling and storage of oils, fuels, chemicals, and other hazardous substances -No bins containing organic solvents such as paint and thinners shall be cleaned on site unless containers for liquid waste disposal are provided on site.
Safety and Health risks	Construction related Safety and Health hazards	-Injuries to workers such as Occupational dermatitis, slips and fall of humans and objects, musculoskeletal disorders, etc.	Health and safety	Construction phase	-Project Manager	-Equip workers with appropriate and adequate Personal Protective Equipment (PPE), provide trainings on how to effectively use the PPE. -Provide platforms for briefings and meetings about possible safety and health hazards in the workplace -Provide site signs warning and informing about different hazards on site.
Population Influx	The project will bring in skilled and unskilled workforce into Rehoboth area from other places increasing population density in the area.	-There is potential for cultural systems conflict between locals and new people in the area -Potential for rife prostitution and spread of HIV/AIDS and other STDs -Potential for scaring away of local wild animals, poaching and removal of protected indigenous vegetative species	Socio-economic	Construction phase	-ECO -Project Manager	-Train and brief employees to respect local cultures and leaders, -Engage on massive sexual health training and awareness and providing contraceptives such as condoms, as well as provide means counselling for those that are affected by HIV/AIDS and other STDs, -Provide environmental trainings and continue a regular basis briefing the employees about nature conservation

Impact	Description	Effects	Class	Time frame	Responsibility	Action
						(animal and plants) and discourage indiscriminate vegetation clearance.
Employment opportunities during the servicing and construction phases of the development / implementation	-The general servicing and all construction activities create job opportunities.	-The unfair practices of giving jobs to outsiders overlooking locals could create conflicts and tensions between the contractors, Proponent, and the discriminated locals.	Socio-economic	Construction Phase	-Project Manager -Proponent	-The Project Manager should make it mandatory to contractors that all unskilled and semi-skilled work should be given to the locals.
Extraction of consumption resources	-Construction raw materials such as sand and aggregate come from the extractive industry, and it might have detrimental impacts on the environment.	-Sand abstractors may result in degradation from the source areas. -Unsustainable construction practices can cause damage to the ecological and social environment through noise, driving away animals and destruction of forest resources.	-Ecological -Social	Construction Phase	-ECO -Site Engineer	-The Project Manager should make sure that suppliers of raw materials from the extractive industry have an Environmental Clearance Certificate for their activities.
Resources consumption	The construction industry can be resource intensive, i.e., electrical and water resources.	-The project can result in a strain on available water resources and electricity.	-Socio-economic	Construction phase.	-Environmental Control Officer -Project Manager	-Water saving measures should be encouraged and implemented by the site manager and contractors. This include water re-use, recycling, repairing leakages, opening taps only when water is required and recycling of water on site. -Electricity supply should be augmented by sustainable energy such as solar to power things such as boreholes and smaller appliances on site.

Impact	Description	Effects	Class	Time frame	Responsibility	Action
Change in topography / landscape character	-Use of caterpillars for servicing (roads construction and paving of the site)	The trenches and stockpiled materials would result in landscape change	Environmental	Construction Phase	-ECO -Site Manager / Project Manager	-All the excavated pits and trenches should be backfilled to ensure that there are no pits left open on site and creating a new paved landscape (use of cement interlocks).
Archaeological Landscape	-The Rehoboth Town is home to some of the cultural and heritage sites, therefore, this area should not be disturbed.	The excavation works may lead to inadvertent damaging or opening of buried heritage and archaeological resources such as old graves or wartime artefacts.	Social	Construction Phase	-ECO -Project / Site Manager	-The project contractors and workers should be familiarised with the ***Chance Find Procedure (CFP) – Appendix 1.*** -Demarcate, protect, and avoid development near heritage sites. -If removal is inevitable, a Consent Letter should be applied for from the Heritage Council via an Archaeologist. -All heritage and cultural resources should be avoided and not to be disturbed.
Construction Phase-Positive Impacts						
Employment creation	The construction exercise provides an opportunity of outsourcing work	-Improves disposable income to the unemployed and their immediate families.	Socio-economic	Project lifetime	-Project Manager	-Work hand in hand with the local leadership (constituency councillor) on acquiring non-skilled labour from the residents.
Business linkages	-Raw materials acquiring and contracting companies provide an opportunity for local businesses.	-Local suppliers will be presented with an opportunity to empower their businesses. -Construction workers can be provided with accommodation, food and services from the local community increasing business activities.	-Socio-economic	Construction phase	-Project Manager	-The Proponent should outsource most of its materials and services from Rehoboth.

Impact	Description	Effects	Class	Time frame	Responsibility	Action
Infrastructure development	The development presents a unique opportunity for infrastructure development in Rehoboth Town.	-Existing roads will be upgraded which will benefit the local community. -Development of the facilities will also pave way for future developers / investors to grow interests in the area and result in ripple effects and quick growing of the Town.	-Socio-economic	Construction phase	-Project manager	-Development such as road upgrading should not only be limited up until the project site, but it should be extended to service other residents as well.

2.3. OPERATIONAL PHASE

The operational phase is the most critical component of project implementation since it is more on a long term, however and it is normally associated with less impacts as compared to construction phase. This phase will comprise of the actual day to day running of the development (Subdivision and construction of No. 302 Rehoboth Block D Extention 2). This phase is expected to last permanently, but with upgrading activities occasionally. There will be several impacts that will occur daily or other sequential routine. The phase forms the basis of an EMP that is detailed in Chapter 2 and will be followed by the decommissioning phase. The major impacts identified by this study for the operational phase are as detailed in the previous chapter. The impacts and management actions for the operation phase is presented in Table 3.

Table 3: Impacts associated with the Operation Phase and management actions (measures)

Aspect	Description	Effects	Class	Time Frame	Responsibility	Action
Operation Phase-Negative Impacts						
Water usage	-Water is an important resource that will be used by the residents for domestic purposes, the proposed project will be serviced with water by responsible department in the Rehoboth Town council's water reticulation system.	-Straining local water supply from the council water reticulation system	Environmental	Permanent	Building/Site manager	-A supply and demand model should be applied and determined by seasonal variations in water availability. -Water saving connections should be put in place. -Regular maintenance of water pipes to avoid leakages and wasteful use of water resources.
Energy usage	-Human settlements consume a lot of electrical energy daily, such that energy requirements will need checking.	-Energy supply through the main grid will be strained	-Socio-economic	Permanent	-Building/Site manager	-The Proponent is recommended to use energy saving equipment and gadgets with green rating.
Solid Waste	-Domestic and industrial solid waste will be generated by the residents who will settle in this area. It is therefore very important to construct appropriate infrastructure to management thus waste types, etc.	- Eyesore to the environment -Unwanted nutrient disposal into the soils, - Detrimental to livestock health	Environmental Socio-economic	Permanent	-Site manager	-Visual inspections monitoring -All waste should be managed by the Rehoboth Town Council and ensure that domestic waste handling facilities such as dust bins and skip containers are available for all erven. -Waste separation should be provided for to allow for recycling of recyclable materials.

Aspect	Description	Effects	Class	Time Frame	Responsibility	Action
Sewerage and effluent waste	Domestic activities will result in ablution sewer water	-Health hazard	-Environmental -Health	Permanent	Site Manager	-All sewerage waste should be channelled into the Municipal sewer reticulation system.
Population increase	Influx of population into the area.	-Population increase may result in social evils such as prostitution and high crime rate. -Pressure on available social services. -Cultural integration may result in dilution of the local values and cultures. -Possibility for conflicts between new residents, visitors, and the residents.	-Socio-economic	Permanent	-Proponent -Police -Health services	-Ensuring that additional social amenities are put in place to serve the growing population.
Increased storm water flow	-The area is undeveloped hence most water quickly infiltrates as it reaches the ground, but due to the paving and hard surfaces storm water will increase	-Enhance the chances of flood occurrences -Chances of soil erosion and gully formation will be increased	Environmental	Permanent	-Site Engineer -Environmental Control Officer	-Standard storm water drainage will be part of the water reticulation designs indicating the storm water deposit areas.
Infrastructure hazards	-Infrastructure hazards are potential risks that building pose to its inhabitants, local environment, or surrounding residents.	-There is potential for building collapse. -Firebreaks potential	-Socio-economic -Environmental	Permanent	-Site Engineer -Contractor -Proponent -Buildings inspectorate -Ministry of Health & Social Services. -Ministry of Home Affairs, Immigration, Safety & security	-Sewerage infrastructure will be regularly monitored and inspected over time. -Standard buildings will be constructed and building inspection will be done by Town Council officers. -Fire emergency evacuation plan will be put in place to avoid fatalities and injuries in case of an emergency.

Aspect	Description	Effects	Class	Time Frame	Responsibility	Action
Operational Phase-Positive Impacts						
Development of the area	-The project will further develop Rehoboth Town as a growing town.	-Ripple effects will result in construction of supporting infrastructure such as schools, hospitals, car services and supermarkets.	-Economic	Permanent	-Rehoboth Town Council	-The subdivision and construction should be regulated in such a way that the local people are empowered and benefit from the development activities.
Revenue generation	The development is bound by to pay tax and rates to Rehoboth Town Council and the government	-The town council will benefit from revenue generation from the development -Business facilities will be paying tax to the government benefiting the country at large.	National	Permanent	-Proponent -Inland Revenue department (now the Namibia Revenue Agency (NamRa)	-The project will benefit the locals, relevant authorities, and the government if all dues, rates and taxes are adhered to.

2.4. ENVIRONMENTAL MONITORING PLAN

Monitoring component is very important for identifying successfulness of mitigation measures formulated for the significant impacts identified. The monitoring works will identify impacts that have not been foreseen and give enough time to analyse the situation and formulate measures to minimise impact. Survey records and results must be maintained for these monitoring and inspections, highlighting any problems and the measures taken to address it.

Prior to site preparation and construction activities, the main contractor should present an EMP (including, *inter alia*, location of construction camp and toilet facilities, location of material storage areas, solid waste management plan, dust control measures, activity schedule, etc.) for review and approval by the DEAF, the environmental monitor and the Project Manager. The Proponent should present a landscape plan and the trees/vegetation earmarked for protection should be flagged and adhered to by the contractor.

The entity selected to carry out environmental monitoring of the construction works should then prepare an environmental monitoring programme based on the above, the requirements of the EIA, and conditions of the development permit. The major elements of the environmental impact monitoring programme to be implemented during the subdivision and construction phase of the project are as follows:

- Site clearance to ensure that trees marked for protection are left untouched and that large areas of soil are not left exposed and uncovered for extended periods of time.
- Site drainage and surface runoff, especially during and shortly after major rainfall events, to ensure there is no flooding, ponding and runoff of surface water Compliance of construction works with site management and landscape plans.
- Ensure transportation of earth materials is done by covered trucks and from approved sites.
- The contractor must immediately and completely clean up spills of materials in public areas.
- Solid waste disposal practices to ensure appropriate on-site management and final disposal at approved dump.
- Health and Safety should be prioritised at all times.

3. CHAPTER THREE: CONCLUSION AND RECOMMENDATIONS

3.1. CONCLUSION

Arising from the analysis by the Consultants, the proposed project will create permanent land cover/use change on the proposed project site. The document has thus provided adequate mitigation measures for the identified impacts for sustainable land development, because the land must be developed and or upgraded, but with land development there should not be environmental degradation, thus the EMP provides for the sustainable land development for the subdivision and construction implementation.

3.2. RECOMMENDATIONS

To alleviate any negative impacts that may emanate from the construction and operation phases of the subdivision implementation, and its affiliate development, relevant and cost-effective management and mitigation measures will be put in place. The following recommendations are proposed:

a) Waste Management Recommendations

Solid and liquid waste shall be generated during the project lifespan and must be managed in such a way that it does not impact on the environment.

- The waste water reticulation system should be regularly monitored and maintained in good working conditions and odours managed to make the facility environmentally friendly.
- Provision of colour coded dust bins at all erven to ensure that recyclable material is recovered.

b) Environment Management Plan Recommendations

To ensure a healthy and safe environment in the proposed site and its environs, a plan for environmental management has to be instituted through monitoring. This involves the collection and analysis of relevant environmental data of the site including:

- Health & Security provision for workers
- Firefighting equipment that is strategically placed for easy access
- Devoted maintenance status of drainage facilities (drainage lines)
- Energy production and use

- Ensuring that only efficient taps are installed to conserve water.
- Quantification on amount of waste generated and its management to obtain information for continued improvement in handling and disposal
- Observation on socio-economic & demographic characteristics of the project's life cycle and identification of unexpected environmental impact
- Formulation of countermeasures to mitigate against the observed unexpected negative impacts and comparing them with actual impacts.

Appendix 1: Archaeology's Chance Finds Procedure (CFP) After Kinahan, 2020

Areas of proposed activities or developments are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found during development work. The procedure set out here covers the reporting and management of such finds.

Scope: The "*chance finds*" procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance: The "chance finds" procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): "*a person who discovers any archaeological …. object ……must as soon as practicable report the discovery to the Council*". The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

Manager/Supervisor must report the finding to the following competent authorities:

- **National Heritage Council of Namibia (061 244 375)**
- **National Museum (061 276 800)**
- **National Forensic Laboratory (061 240 461).**

Archaeological material (graves, artefacts, sites, etc) must NOT be touched. Tempering with the materials is an offence under the Heritage act and punishable upon conviction by the law.

Responsibility:

Operator: To exercise due caution if archaeological remains are found

Foreman: To secure site and advise management timeously

Superintendent: To determine safe working boundary and request inspection

Archaeologist: To inspect, identify, advise management, and recover remains

Procedure:

Action by person identifying archaeological or heritage material:

a) If operating machinery or equipment stop work

b) Identify the site with flag tape

c) Determine GPS position if possible

d) Report findings to foreman

Action by foreman

a) Report findings, site location and actions taken to superintendent

b) Cease any works in immediate vicinity

Action by superintendent

a) Visit site and determine whether work can proceed without damage to findings

b) Determine and mark exclusion boundary

c) Site location and details to be added to project GIS for field confirmation by archaeologist

Action by Archaeologist

a) Inspect site and confirm addition to project GIS

b) Advise NHC and request written permission to remove findings from work area

c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

a) Actions as above

b) Field inspection by archaeologist to confirm that remains are human

c) Advise and liaise with NHC and Police

d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.