ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED SUBDIVISION OF ERF 1249 KLEINE KUPPE WINDHOEK, KHOMAS REGION, NAMIBIA

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

APRIL 2024

PLAN AFRICA CONSULTING CC
TOWN AND REGIONAL PLANNERS

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PROJECT NAME	**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED SUBDIVISION OF ERF 1249 KLEINE KUPPE, KHOMAS REGION, NAMIBIA**
REPORT TITLE	**ENVIRONMENTAL MANAGEMENT PLAN: (EMP)**
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Definitions

TERMS	DEFINITION
BID	Background Information Document
DEFRA	The Department for Environment, Food and Rural Affairs
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
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
PRP	Pit Rehabilitation Plan
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change

1 CHAPTER ONE: BACKGROUND

1.1 Introduction

The Proponent, Demushuwa Property Developers (Pty) Ltd intends to subdivide Erf 1249 Kleine Kuppe, into 6 sizeable individual portions. 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, the proponent has appointed Plan Africa to undertake an Environmental Impact Assessment (EIA) and develop an Environmental Management Plan (EMP) for the proposed subdivision, in order to apply for an Environmental Clearance Certificate (ECC) to the Ministry of Environment, Forestry and Tourism (MEFT): Directorate of Environmental Affairs (DEA).

In Namibia, town planning activities are one of the listed activities under the 2012 (EIA) Regulations of the Environmental Management Act (EMA) No. 7 of 2007 that cannot be undertaken without an EIA or Environmental Scoping Assessment (ESA) conducted and Environmental Clearance Certificate (ECC) issued by the Environmental Commissioner. The EIA 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 are focused on Erf 1249 Kleine Kuppe, which is to be subdivided into 6 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 ECC 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 Localities and Descriptions

Erf 1249 is located in Kleine Kuppe, at the intersection of Chasie Street and Frankie Fredericks Drive. Furthermore, the Erf is located adjacent to Metro Hyper on the Remainder of Erf 326. The erf measures approximately ±3 5622ha in extent and is zoned 'Office' with a bulk of 1.0. The Erf is currently occupied by a small mobile Police Station and a large part of it is still vacant.

Erf 1249 Kleine Kuppe, is to be subdivided into 6 Portions and the Remainder is to be reserved as street. Council previously approved the rezoning of the Erf to business with a bulk of 1.0. The owner and developer intends to expand the existing business node in Kleine Kuppe, while improving service delivery within the area.

Portions A, B, C, D, E and F will measure 7940.85m^2, 4660.57 m^2, 3771.80 m^2, 8755.25 m^2, 4214.83 m^2, 4247m^2 respectively, in extent and the Remainder (to be created as Street) will be approximately 15m wide, and a 28m wide turning circle.

PLAN AFRICA CONSULTING CC TOWN AND REGIONAL PLANNERS	LOCALITY OF ERF 1249 KLEINE KUPPE C/O OF FRANKIE FREDERICKS AVENUE AND CHASIE STREET	CO -ORDINATES: (Lat -22.624477° | Long 17.091258 °) KKLEINE KUPPE,KHOMAS REGION NAMIBIA

Figure 1: Aerial View of Erf 1249 Kleine Kuppe

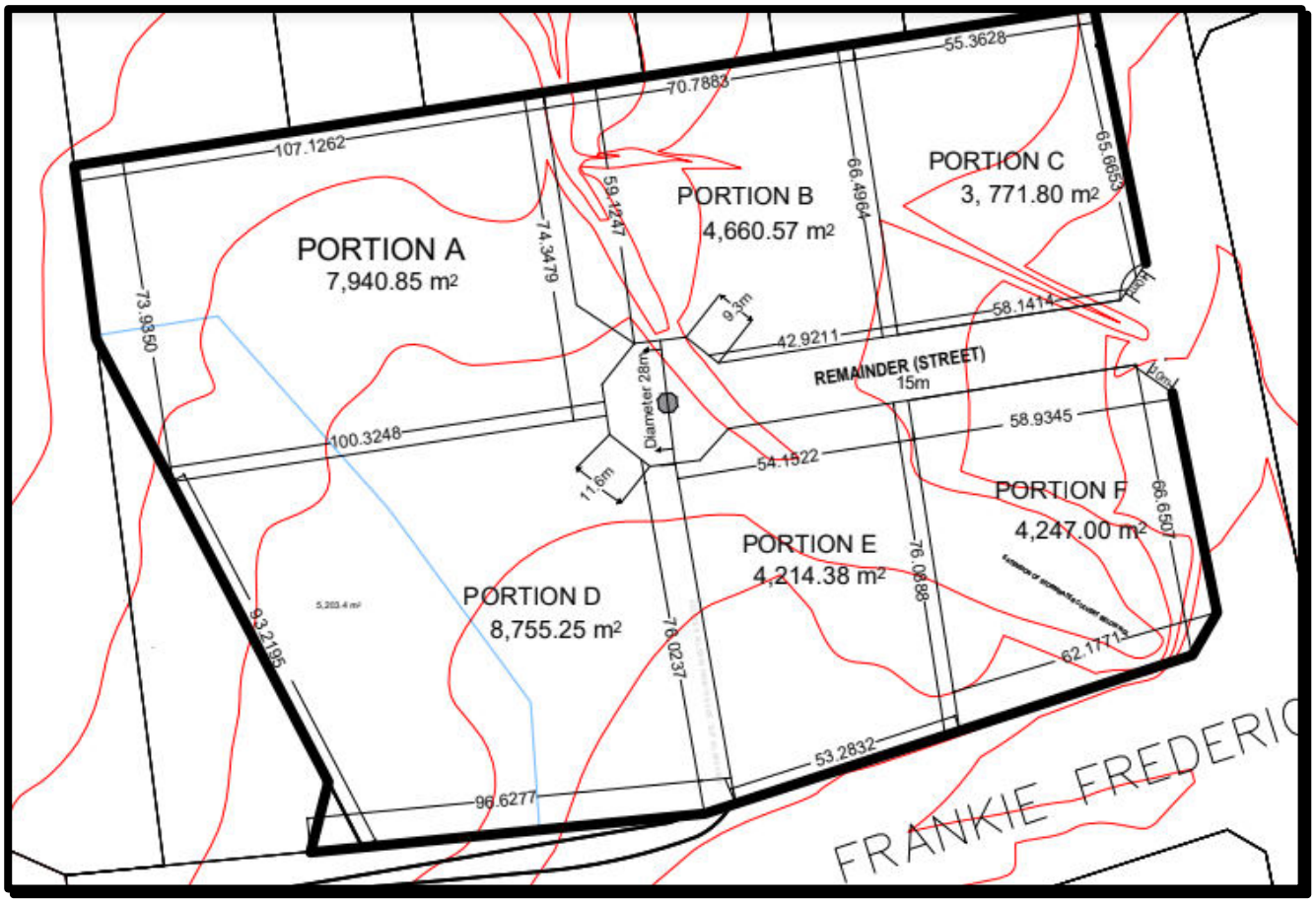

Figure 2: Proposed Subdivision of Erf 1249 Kleine Kuppe

1.2.1 Infrastructure and services

Erf 1249 is located in an area that has existing services such as roads, water and electricity. In this regard, no major work will be conducted to connect the erf with bulk services. The developer will be responsible for the internal services and access at own cost. Access to the area is available via Chasie Street, and further via the proposed internal street which will be 15m wide with a 28m wide turning circle.

1.2.2 Proposed Development

Erf 1249 Kleine Kuppe is to be subdivided into 6 Portions and the Remainder is to be reserved as street. The existing zoning and density of the erf allows for the subdivision of the erf as it is in line with the Windhoek Zoning Scheme. City Council has previously approved the rezoning of the Remainder of Erf 1249, Kleine Kuppe, Chasie Street, from “office” with a bulk of 1.0 to “business” with a bulk of 1.0 as per council Resolution No. 198/ 09/ 2019. The erf in question is 3, 5622ha in

extent. The newly created portions A, B, C, D, E and F will measure 7940.85m^2, 4660.57 m^2, 3771.80 m^2, 8755.25 m^2, 4214.83 m^2, and 4247m^2 respectively, in extent, and the Remainder (to be created as Street) will be approximately 15m wide, and a 28m wide turning circle.

2. CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1. Land Use and Ownership

The section is a presentation of the legislative framework within which the proposed development related activities will conform; the focus is on compliance with the legislation during the planning, construction and operational phases. All relevant legislation, policies and international statutes applying to the project are highlighted in Table below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012).

Table 1: Policies, Legal and Administrative Regulations

Aspect	Legislation	Relevant Provisions	Relevance to the Project
The Constitution	Namibian Constitution First Amendment Act 34 of 1998	– Article 16(1) guarantees all persons the right to property. It therefore provides everyone a right to acquire, own and dispose of property, alone or in association with others and to bequeath such property. – "The State shall actively promote and maintain the welfare of the people by adopting policies that are aimed at maintaining ecosystems, essential ecological processes and the biological diversity of Namibia. It further promotes the sustainable utilization of living natural resources basis for the benefit of all Namibians, both present and future." (Article 95(I)).	– The project will enable the full execution of right to practice any profession, or carry on any occupation, trade or business by availing necessary provisions such as practicing any profession, or carry on any occupation, trade or business in the country. – Through implementation of the environmental management plan, the proponent will ensure conformity to the constitution in terms of environmental management and sustainability.
National Development Plans		- Namibia's overall Development ambitions are articulated in the National Vision 2030. At the operational level, five-yearly national development plans (NDP's) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. The Government has so far launched a 4th NDP focusing on high and sustained economic growth, increased income equality Employment creation.	– The proposed project will propel NDP4 targets in logistics and commodities market. Adding on, this will create employment which will work towards the NDP and Vision 2030.
Archaeology	National Heritage Act 27 of 2004	- Section 48(1) states that "A person may apply to the Namibian Heritage Council (NHC) for a permit to carry out works or activities in relation to a protected place or protected object"	– Any heritage resources discovered would require a permit from the NHC for relocation.
	National Monuments Act of Namibia (No. 28 of	- "No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia:	- The proposed site of development is not within any known monument sites, both movable and immovable as specified in the Act, however in

	1969) as amended until 1979	– Meteorites, fossils, petroglyphs, ornamental infrastructure graves, caves, rock shelters, middens, shells that came into existence before the year 1900 AD; or – any other archaeological or palaeontological finds	finding any materials specified in the Act, contractors on site will take the required route and notify the relevant commission.
Environmental	Environmental Management Act 7 of 2007	– Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). – Requires for adequate public participation during the environmental assessment process for interested and affected parties to voice their opinions about a project (Section 2(b-c)). – According to Section 5(4) a person may not discard waste as defined in Section 5(1)(b) in any way other than at a disposal site declared by the Minister of Environment and Tourism or in a manner prescribed by the Minister. – Details principles which are to guide all EIAs	– This Act and its regulations should inform and guide this EIA process.
	EIA Regulations GN 57/2007 (GG 3812)	– Details requirements for public consultation within a given environmental assessment process (GN No 30 S21). – Details the requirements for what should be included in a Scoping Report (GN No 30 S8) an EIA report (GN No 30 S15).	– This Act and its regulations should inform and guide this EIA process.
	Pollution and Waste Management Bill (draft)	– This bill defines pollution and the different types of pollution. It also points out how the Government intends to regulate the different types of pollution to maintain a clean and safe environment. – The bill also describes how waste should be managed to reduce environmental pollution. Failure to comply with the requirements considered an offence and is punishable.	– The project should be executed in harmony with the requirements of the act to reduce negative impacts on the surrounding environs from waste during construction or operation. Windhoek waste management by-laws will be abide to during construction and operation.
	Soil Conservation Act 76 of 1969	- This acts makes provision for combating and for the prevention of soil erosion, it promotes the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic of Namibia.	- The Project impact on soil will rather be localised, however the Act should provide for guidelines of operation during construction to prevent soil erosion and contamination during operation.

	National Biodiversity Strategy and Action Plan (NBSAP2)	– The action plan was operationalized in a bid to make aware the critical importance of biodiversity conservation in Namibia, putting together management of matters to do with ecosystems protection, biosafety, and biosystematics protection on both terrestrial and aquatic systems.	– Forming part of the EIA of and EMP for this Project, the proponent will consider all associated impacts, both acute and long term, and will propose methods and ways to sustain the local biodiversity.
Forestry	Forest Act 12 of 2001	– Tree species and any vegetation within 100m from a watercourse may not be removed without a permit (S22(1) – Provision for the protection of various plant species.	– The clearing of vegetation is prohibited (subject to a permit) 100m either side of a river. Certain tree species occurring in the area are protected under this Act. Permits must be obtained from MAWF in accordance with the Act. However, on site there are no trees that require clearing permit.
Water	Water Act 54 of 1956	– The Water Resources Management Act 24 of 2004 is presently with-out regulations; therefore, the Water Act No 54 of 1956 is still in force: – A permit application in terms of Sections 21(1) and 21(2) of the Water Act is required for the disposal of industrial or domestic wastewater and effluent. – Prohibits the pollution of underground and surface water bodies (S23(1). – Liability of clean-up costs after closure/ abandonment of an activity (S23(2)). – Protection from surface and underground water pollution	– The protection of ground and surface water resources should guide development's layout plans.
Health and Safety	Labour Act (No 11 of 2007) in conjunction with Regulation 156, 'Regulations Relating to the Health and Safety of Employees at work'.	– 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 about the structure of such buildings of otherwise to prevent or extinguish fires, and to ensure the safety in the event of fire, of persons in such building;" (Ministry of Labour and Social Welfare). – This act emphasizes and regulates basic terms and conditions of em-ployment, it guarantees prospective health, safety and welfare of employees and protects employees from unfair labour practices.	The proponent will employ several people from the local and shall ensure securing a safe environment and preserving the health and welfare of employees at work. This will include applying appropriate hazard management plans and enforcing Occupational Health and Safety (OHS) enforcement by contractors.

	Public Health and Environmental Act, 2015	– Under this act, in section 119: "No person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	– The service station and mini market operations will ensure compliance to the terms of the Act.
Services and Infrastructure	Road Ordinance 1972 (Ordinance 17 0f 1972)	– Width of proclaimed roads and road reserve boundaries (S3.1) – Control of traffic during construction activities on trunk and main roads (S27.1) – Infringements and obstructions on and interference with proclaimed roads. (S37.1) – Distance from proclaimed roads at which fences are erected (S38)	– Although the project is a major boost for the suburb and the commodities market, the proponent needs to ensure that the development do not affect the major roads within their vicinity during construction and operation phases.
	Townships and Division of Land Amendment Act, 1992 (Act 28 of 1992)	– "(I) Whenever any area of land constitutes, by reason of its situation, a portion of an approved township, or adjoins an approved township, the Executive Committee may, by proclamation notice in the Gazette and after consultation with the Board, extend the boundaries of that township to include such area". (Minister of Regional and Local Government) – A new township needs to be created for approval by the Namibian Planning Advisory Board and the Township Board.	– Through conducting this EIA and preparation of The townships board already approved this project, however the construction and operation will need to be regulated accordingly.

3. CHAPTER THREE: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

3.1. Introduction

In line with the Namibian Environmental Management legislation and International best practices the proponent will implement an Environmental Management Plan (EMP) to prevent, minimize and mitigate negative impacts. The EMP is developed by Plan Africa Consulting cc to address all the identified expected impacts. The EMP will be monitored and updated on a continuous basis with the aim for continuous improvement to addressing impacts.

The EMP stipulates the management of environmental programs in a systematic, planned and documented manner. This EMP includes the organizational structure, planning and monitoring for environmental protection at the proposed development site and other areas of its influence. The aim is to ensure that the facility maintains adequately controlled environmental management over the project operations to:

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

3.2. 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 (project manager) to ensure the successful implementation of the EMP as highlighted in Table 2

Table 2: Roles and Responsibilities in EMP Implementation

ROLE	RESPONSIBILITIES
Demushuwa Property Developers (Pty) Ltd	Responsible to enforce EMP implementation to employees and 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

ROLE	RESPONSIBILITIES
	• 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.
The Department of Environmental Affairs	• Review the EMP and any amendments to the EMP. • Review reports of environmental issues and non- conformances as issued. • Review and approve environmental reports submitted as part of EMP implementation
Site Engineers	• Control and monitor actions required by the EMP. • Report all environmental issues to HSE Manager. • Ensure documented procedures are followed and records kept on site. • Ensure any complaints are passed onto the management within 24 hours of receiving the complaint.
Employees	• 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

3.3. EMP Management Actions

The management actions aim to avoid potential impacts where possible. Where impacts cannot be avoided, management actions are outlined in order to minimize the significant impacts.

The tables below outline the specific management actions which need to be undertaken during the construction and operational phase of the development to ensure that the site activities are compliance.

Table 3: Construction Phase Management Actions

Impact	Description	Effects	Class	Time frame	Responsibility	Action
Construction Phase-Negative Impacts						
Noise pollution	Noise may 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 affected - Passers-by could be disturbed by the noise. - General annoyance -migration of local animals species near the project site -Residents nearby will be affected	Environmental	6-8 months	-Environmental Control Officer -Site Manger	- A construction interval will be established, used and adhered to. - Workers will be issued ear plugs to protect them from excessive noise. - Public will be notified through printed timetable stating planned operational activities. - Construction activities will be conducted during daytime. -Site notices will be erected on and around the site notifying visitors and nearby residents of different hazards on site.
Dust Generation	Dust may accumulate because of the land preparation, onsite movements of vehicles and machines, wind blowing on loose material during construction and tipping.	- Can lead to respiratory illnesses especially to those working in the area. - General air pollution. -Nuisance to nearby residents	Environmental	6-8 months	-Environmental Control Officer -Project Manger	- Dust suppression will be done through watering of dust sources surfaces. -Watering down dusty surfaces, -Ensure that protective equipment such as respirators are distributed to employees, and ensure their use as necessary -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	- The clearing of vegetation will result in the disturbance of ecosystem	Environmental	Construction phase	-Environmental Control Officer -Site Manager	- The proposed project area had development before the area was proclaimed and there is massive urban area disturbances already,
	-Habitat destruction for both ground dwelling species and tree dwelling species. -Soil disturbance on and around the site.	-Loss of aesthetic value of the proposed project area. -The few small animals still occupying the site such as small rodents and birds will be forced away. -The ecosystem food chain on and around the area will be broken.				hence there is little vegetation to be affected by the development. - All the major trees will be preserved and the layout plan will fit into the environment without affecting the trees. - Ground disturbance will only be limited to boundary area to avoid affecting a large area. -Upon completion of construction activities more trees and lawn will be planted on and around the site to restore the site into a status that is environmentally friendly. -When necessary a permit must be obtained from the Directorate of Forestry before removing a protected plant species.
Greenhouse gas emissions	Green House Gases (GHGs) may 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.	-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 waste management system for domestic waste.	Environmental	Construction phase	-Environmental Control Officer -Project Manger	- Ensure that all waste from construction activities is stored and contained in designated containers and transported to the Windhoek waste disposal site. -Bulky waste such as building rubbles must be collected and disposed of at any of the various municipal satellite sites or for landfilling. -Adequate mobile toilets must be provided at the construction camps for the use of the workers. -A skip container will 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 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 -Waste oil, fuels and other chemicals from drip trays on stationery vehicles and machinery will be disposed of as hazardous waste at a licensed facility by a specialist hazardous waste handler.

						-Oil residue will be treated with oil absorbent material such as Drizit or bio-remediation and removed to an approved waste disposal site -Spill kits will be easily accessible and workers will be trained in the use thereof. -Staff and contractors will 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 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 work place -Provide site signs warning and informing about different hazards on site.
Population Influx	The project will bring in skilled and unskilled workforce into Windhoek 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	Socio-economic	Construction phase	-Environmental Control Officer -Project Manger	-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

Land use change	-The existing environment will drastically change from a dormant piece of land to a modernized urban development.	-The area will no longer be suitable for agriculture. -Sudden change in landscape appearances may be unfavorable to the conservatives.	-Social -Terrestrial environment	Permanent	-Environmental Control Officer -Project Manger	-The development should blend into the existing area through designing and colour coding. -Green designing will bring life to the site and blend with surrounding areas.
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	-Environmental Control Officer -Site Engineer	-The project manager will only 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 Manger	-Water saving should be ensured by the site manager i.e. repairing leakages, opening taps only when water is required and recycling of water on site. -Electricity supply can be augmented by sustainable energy such as solar to power things such as boreholes and smaller appliances on site.

Construction Phase-Positive Impacts						
Employment creation	The construction exercise provides an opportunity of outsourcing work	- Improves disposable income to those employed and their immediate families.	Socio-economic	Project life time	-Project Manger	- Work with local leadership (councillor) on acquiring non-skilled labour from the residents.
Business linkages	-Raw materials acquiring and contracting companies provide an opportunity for 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 Manger	-The proponent will outsource most of its materials and services from Windhoek.
Infrastructure development	The development presents a unique opportunity for infrastructure development in Windhoek Town.	-Existing roads will be upgraded which will benefit the local community. -Development of the facilities will also pave way for future developers to grow interests in the area and result in ripple effects and quick growing of the area.	-Socio-economic	Construction phase	-Project manager	-Development such as road upgrading will not only be limited up until the project site, but it will be extended to service other residents as well. - Electricity supply can be augmented by sustainable energy such as solar to power things such as boreholes and smaller appliances on site.

3.4. Operational Phase

The operational phase is the most critical component of project implementation since it is long term, 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 facilities. This phase is expected to last permanently, but with upgrading activities occasionally. There will be several impacts that will occur on a daily basis or other sequential routine. The phase forms the basis of an Environmental Management Plan 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.

Table 4: Impacts associated with the Operation Phase

Aspect	Description	Effects	Class	Time Frame	Responsibility	Action
Operation Phase-Positive 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 Windhoek City Council's water reticulation system.	-Straining local water supply from the municipal council water reticulation system	Environmental	Permanent	Building/Site manager	- Apply a supply and demand model that will be determined by seasonal variations in water availability. -Water saving connections to 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 has a plan of using solar energy to power the area, but initially electrical energy will be supplied by Windhoek City Council.
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 live-stock health	Environmental Socio-economic	Permanent	-Site manager	-Visual inspections monitoring -All waste will be managed by Windhoek City Council, the developer will ensure that domestic waste handling facilities such as dust bins and skip containers are available for all erven. -Waste separation will be provided for to allow for recycling of recyclable materials.

Sewerage and effluent waste	Domestic activities will result in ablution sewer water	-Health hazard	-Environmental -Health	Permanent	Site Manager	-All sewerage waste will be channeled 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	-Project proponent -Police -Health services	- public and personal health awareness to prevent transmission of diseases and maintain good public and environmental health.
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	-Enhances 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: potential risks that building pose to its inhabitants, local environment or surrounding residents.	-There is potential for building collapse. -Fire risks and hazards	-Socio-economic -Environmental	Permanent	-Site Engineer -Contractor -Project proponent -Buildings inspectorate -Ministry of Health and Social Services. -Ministry of Safety and security	-Sewerage infrastructure will be regularly monitored and inspected over time. -Standard buildings will be constructed and building inspection will be done by Regional Council officers. -Fire emergency evacuation plan will be put in place to avoid fatalities and injuries in case of an emergency.

Pressure on social amenities	The incoming population to the area will result in pressure on available social amenities.	-There will be increased demand for education and health facilities.	-Social	Permanent	-Project proponent	-The project proponent has left space for possible institutional facilities for education or health, which will also serve the surround communities and further.
Operational Phase-Positive Impacts						
Development of the area	-The project will further develop Windhoek as a growing city.	-Ripple effects will result in construction of supporting infrastructure such as schools, hospitals, car services and supermarkets.	-Economic	Permanent	-Regional council	-The Development 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 Windhoek City Council and the government	-The regional council, village council and other service providers will benefit from revenue generation from the development -Business facilities will be paying tax to the government; benefiting the country's economy a t large.	National	Permanent	-Project proponent -Inland Revenue department	-The project will benefit the locals, authorities and the government if all dues, rates and taxes are adhered to.
Rehabilitation maintenance of the environment.	Currently the project environment is already degraded	-After construction, trees will be planted and a green zone created improving the aesthetic value of the environment to a better position than it was before.	Environmental	Permanent	-Building/site manager	- During operation phase tree planting will continue and maintenance of the green zone. -Regular watering of the lawns that will be panted.

3.5. Environmental Monitoring Plan

Monitoring is important for identifying the success of mitigation measures formulated for the significant impacts identified. Monitoring of activities will identify impacts that have not been foreseen and give enough time to analyse the situation and formulate measures to minimise impacts. 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 environmental monitoring plan (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 Environmental Consultant.

- The developer should present a landscape plan and the trees/vegetation earmarked for protection should be flagged and hoarded by the contractor.

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

i. 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.
ii. 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.
iii. Ensure transportation of earth materials is done by covered trucks and from approved sites.
iv. The contractor must immediately and completely clean up spills of materials in public areas.
v. Solid waste disposal practices to ensure appropriate on-site management and final disposal at approved dump.

4. CHAPTER FOUR: CONCLUSION AND RECOMMENDATIONS

The environmental impact assessment process for the proposed township establishment was conducted in accordance to the Environmental Management Act 2007 and EMA Regulation 2012. Further consideration was given to relevant legislation throughout the entire process to ensure a successful assessment process.

Impacts likely to occur during project phases (construction and operation) were assessed depicting a positive outlook despite limited details of the magnitude of the proposed development. Based on the assessment, the overall project is less damaging to the environment demonstrating high job creation opportunities and community development. Impacts with negative effects were also identified and summarized in a form of environmental management plan to ensure sustainable implementation.

The site has access to services such as electricity and roads for accessibility. Additionally, the site has minimal vegetation such that no trees will be removed during the construction phase. It is important that the proponent observes and maintain accountability to both socio-economic and environmental sensitive activities from the project, such that the project is harmonized with policy, regulations, administrative frameworks and social interface with the public as proposed in the environmental management plan. Failure to observe these measures will significantly affect the local environment and lead to non-compliance. Therefore, implementation environmental protection measures should be executed in consultation with the key stakeholders.

Plan Africa Consulting cc hereby recommends that MEFT: DEAF grant the environmental clearance certificate for the following:

SUBDIVISION OF ERF 1249 KLEINE KUPPE INTO PORTIONS A, B, C, D, E, F AND REMAINDER (STREET), KHOMAS REGION – NAMIBIA

In the case of ECC issuance the project would need to be approved, under the condition of full implementation of this EMP.

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