

April 2023

***Operational Environmental
Management Plan (EMP) for
the existing Etango Ranch
Guest Farm on Remainder of
Portion 4 (Detmont) (a portion
of Portion 2) of the Farm
Ondekaremba No. 78,
Windhoek, Khomas Region.***




APP - 003529

EMP

Final



PROJECT STATUS

Title	Environmental Management Plan for the: <ul style="list-style-type: none"> Operational Environmental Management Plan (EMP) for the existing Etango Ranch Guest Farm cc on Remainder of Portion 4 (Detmont) (a portion of Portion 2) of the Farm Ondekaremba No. 78, Windhoek, Khomas Region. 		
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ABBREVIATIONS

AIDS	Acquired Immuno-Deficiency Syndrome
PR	Proponent's Representative
EA	Environmental Assessment
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GG	Government Gazette
GIS	Geographic Information System
GN	Government Notice
GPS	Global Positioning System
HIV	Human Immuno-deficiency Virus
I&APs	Interested and Affected Parties
NHCN	National Heritage Council of Namibia
Reg.	Regulation
S	Section
SPC	Stubenrauch Planning Consultants
TB	Tuberculosis

1 INTRODUCTION

Mrs Anke Grellmann (Remainder of Portion 4 (Detmont) (a portion of Portion 2) of the Farm Ondekaremba No. 78) hereinafter referred to as the proponent intends to undertake the following activities:

- **Operation of a "Tourist Establishment and Holiday Accommodation" in the form of a Guest Farm**

An Environmental Management Plan (EMP) is defined as:

"...a plan that describes how activities that may have significant environments effects on the environment are to be mitigated, controlled and monitored."

An EMP is one of the most important outputs of the EA process as it synthesises all the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the Environmental Impact Assessment (EIA) Process and the required environmental management on the ground during project implementation and operation. It is important to note that an EMP is a legally binding document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This EMP is a living document and should be amended to adapt to project changes and/or environmental conditions and feedback from compliance monitoring.

The purpose of this document is therefore to guide environmental management throughout the following life-cycle stages of the proposed development, operation, and decommissioning.

The following phases are addressed in this EMP:

- **Operation** - the period during which the facility is operational.
- **Decommissioning** – Should the development be closed; this phase will be implemented.

The decommissioning of these developments is not envisaged; however in the event that this should be considered some recommendations have been outlined in **Table 4-3**.

2 PROPOSED DEVELOPMENT

2.1 Project Background

The Remainder of Portion 4 (Detmont) (a portion of Portion 2) of the Farm Ondekaremba No. 78 is situated along the B6 Road to Gobabis, directly opposite the Hosea Kutako International Airport as depicted in **Figure 1** below. The Remainder of Portion 4 (Detmont) (a portion of Portion 2) of the Farm Ondekaremba No. 78 measures 3327.7749 Ha in extent.

Ownership of the Remainder of Portion 4 (Detmont) (a portion of Portion 2) of the Farm Ondekaremba No. 78 vests with Anke Grellmann.

The Remainder of Portion 4 (Detmont) (a portion of Portion 2) of the Farm Ondekaremba No. 78 currently accommodates the Etango Guest Farm, as depicted in **Figure 2** and **Figure 3** below.

2.2 The Etango Ranch Guest Farm

The Etango Ranch Guest Farm offers eight (8) guest rooms for clients, as well as a main house for the owners of the farm, employee quarters and farm sheds. Part of the guest farm's facilities also include a dining area for patrons and a souvenir shop. As such, this application serves to formalize an existing situation.

The Etango Ranch Guest Farm is an asset to the Namibian hospitality industry, as it offers a wide variety of activities for guests, including scenic views and bird watching. The guest farm also offers guests a self catering option, which allows travelers to stay in decent accommodation establishment, while cutting out some of the cost that comes with lodging at hotels or guesthouses, such as meals.

The Etango Ranch Guest Farm is quite compatible with the adjacent land uses, as it blends in with the surrounding in terms of tranquillity, and how quiet the area is. The guest farm is located on a farm (Farm Detmont as it is locally known), which is quite large in area, and since the guest rooms are located centrally on the farm there is no way for surrounding landowners to be disturbed by the patrons of the Etango Ranch Guest Farm as the patrons of the guest farm produce little to no noise. As such, the guest farm is not a nuisance to the surrounding landowners.

Formalizing the Etango Ranch Guest Farm will allow for the property owners to renew their fitness certificate. This will then allow the property owners as well as their employees to continue making an income from the property, as it sustains them.

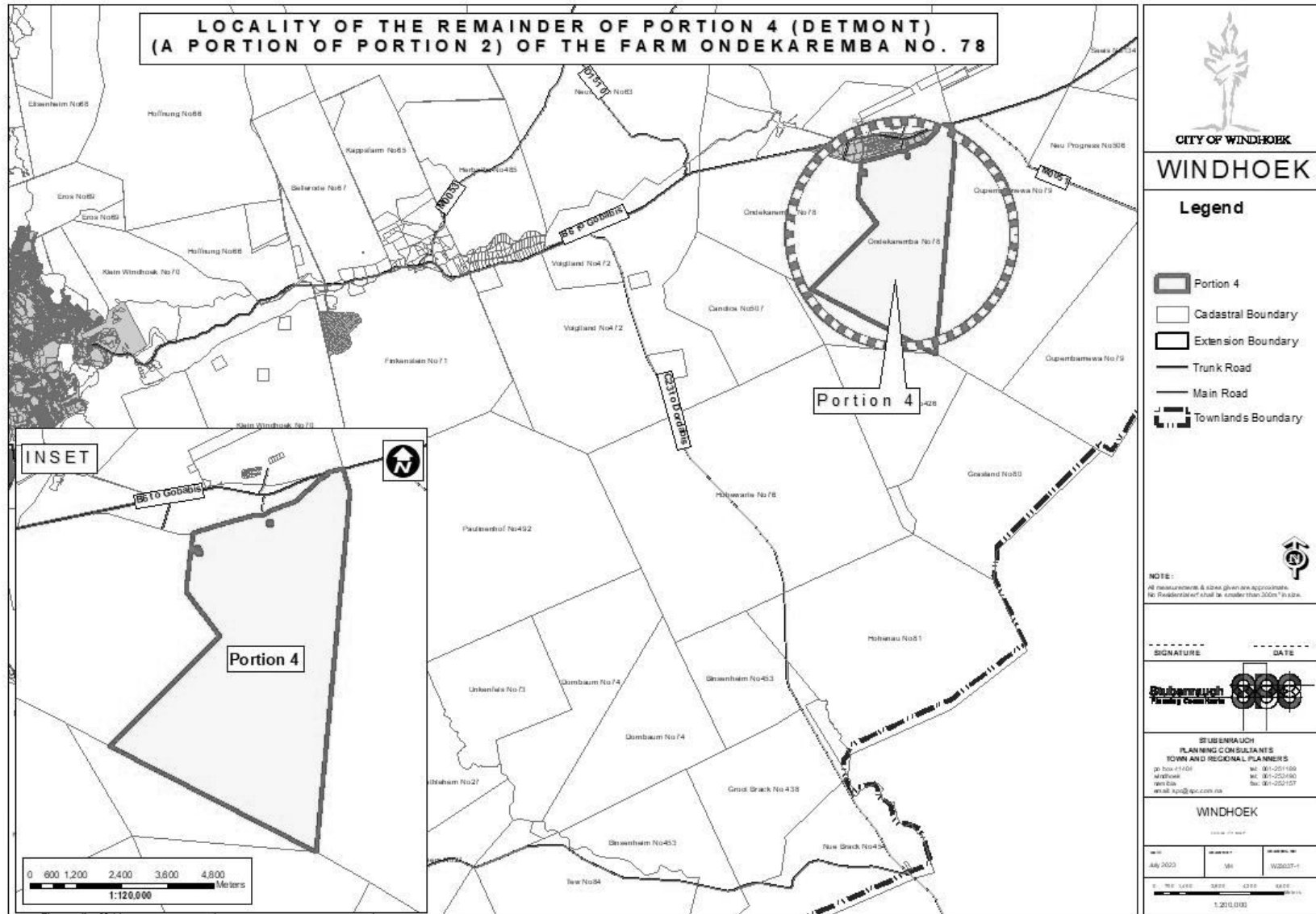


Figure 1: Locality map of Portion 2 of Remainder of Portion 4 (Detmont) (a portion of Portion 2) of the Farm Ondekaremba No. 78

The proponent intends to formalize the existing Etango Ranch Guest Farm which will allow for the property owners to renew their fitness certificate to operate the guest farm. This will then allow the property owners as well as their employees to continue making an income from the property, as it sustains them.

The proposed application is not expected to have any negative environmental impacts on the area and no new buildings will be added onto the subject erf.

The consent use approval will merely serve to formalise existing activities on the Remainder of Portion 4 (Detmont) (a portion of Portion 2) of the Farm Ondekaremba No. 78 and allow the owners to obtain a fitness certificate from the City of Windhoek. Formalising the guest farm will further allow for the owners of the farm to continue receiving an income from their operations, as well as allowing the employees of the farm to continue earning a livelihood for themselves, as well as for their families.



Figure 2: Aerial view of the built-up area of Portion 4



Figure 3: Etango Ranch Guest Farm

2.2.1 Accommodation facilities

The resort includes the following accommodation facilities:

- 6 Twin Rooms
- 2 Family Units

Other facilities include a restaurant and swimming pool.

2.2.2 Engineering Services

2.2.2.1 Waste Disposal

The general waste is collected in designated waste bins onsite. The waste is then collected by Rent a drum weekly.



Figure 4: General waste collection on site

2.2.2.2 *Water*

Residents and guests of the Etango Ranch Guest Farm use water which is obtained from boreholes on the Farm.

2.2.2.3 *Electricity*

The Etango Ranch Guest Farm has access to prepaid electricity, provided by Nampower. The Ranch also uses solar energy and a generator for electricity as depicted in **Figure 5** below. The solar energy is used during the day and the generator during the night.



Figure 5: Generator at the site

2.2.2.4 Sewer

Sewerage on Etango Ranch Guest Farm is catered to by septic tanks.

2.2.2.5 Access

The Etango Ranch Guest Farm gains access from the internal road network of the Sungate extension, as depicted on **Figure 6** below.

It is important to note that the Roads Authority is currently busy with the realignment of the national B6 road. As such access the Remainder of Portion 4 (Detmont) (a portion of Portion 2) of the Farm Ondekaremba No. 78 might change in future depending on this realignment of the B6 national road.

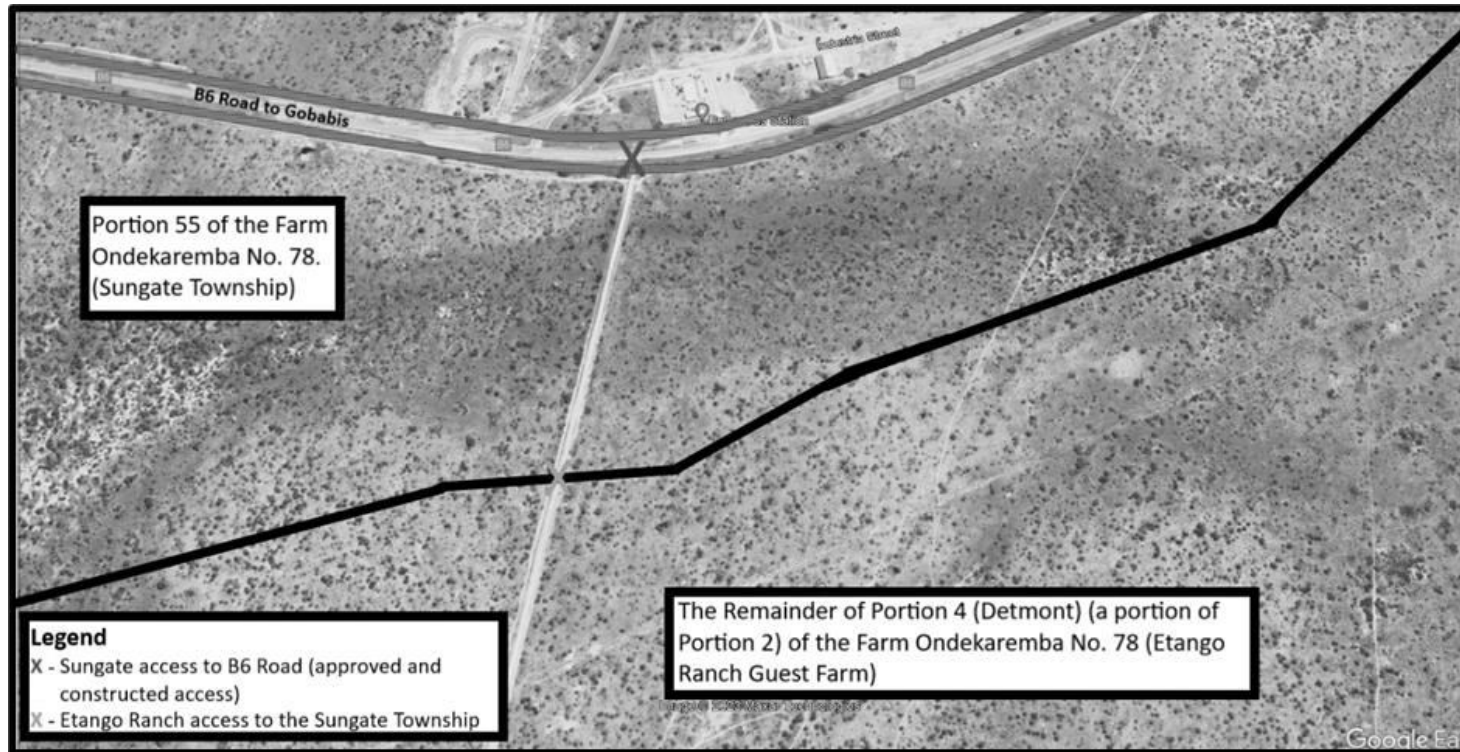


Figure 6: Access to Etango Ranch Guest Farm

3 ROLES AND RESPONSIBILITIES

The proponent is ultimately responsible for the implementation of the EMP, from the planning and design phase to the decommissioning phase (if these developments are in future decommissioned) of these developments. The proponent will delegate this responsibility as the project progresses through its life cycle. The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals:

- Proponent’s Representative;
- Environmental Control Officer; and
- Contractor (Operations and Maintenance).

3.1 PROPONENT’S REPRESENTATIVE

The proponent should assign the responsibility of managing all aspects of these developments for all development phases (including all contracts for work outsourced) to a designated member of staff, referred to in this EMP as the Proponent’s representative (PR). The proponent may decide to assign this role to one person for the full duration of these developments, or may assign a different PR to each of the development phases – i.e. one for the planning and design phase, one for the construction phase and one for the operation and maintenance phase. The PR’s responsibilities are as follows:

Table 3-1 Responsibilities of PR

Responsibility	Project Phase
<p>Making sure that the necessary approvals and permissions laid out in APPLICABLE LEGISLATION</p> <p>There are multiple legal instruments that regulate and have a bearing on good environmental management in Namibia. Table 4-1 below provides a summary of the legal instruments considered to be relevant to this development and the environmental assessment process.</p> <p>Table 4-1 are obtained/adhered to.</p>	<ul style="list-style-type: none"> • Throughout the lifecycle of these developments
<p>Monitoring the implementation of the EMP weekly.</p>	<ul style="list-style-type: none"> • Operation and maintenance

Suspending/evicting individuals and/or equipment not complying with the EMP	<ul style="list-style-type: none"> • Operation and maintenance
Issuing fines for contravening EMP provisions	<ul style="list-style-type: none"> • Operation and maintenance

3.2 ENVIRONMENTAL CONTROL OFFICER

The proponent should assign the responsibility of overseeing the implementation of the whole EMP on the ground during the construction and operation and maintenance phases to an independent and suitably qualified external consultant, referred to in this EMP as the Environmental Control Officer (ECO). The proponent may decide to assign this role to one person for both phases, or may assign a different ECO for each phase. The ECO will have the following responsibilities during the construction and operation and maintenance phases of these developments:

- Management and facilitation of communication between the proponent, PR, the contractors, and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting bi-annual site inspections and auditing all construction and/or infrastructure maintenance areas with respect to the implementation of this EMP (audit the implementation of the EMP);
- Assisting the Contractor in finding solutions with respect to matters pertaining to the implementation of this EMP;
- Advising the PR on the removal of person(s) and/or equipment not complying with the provisions of this EMP;
- Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP; and
- Undertaking an annual review and bi-annual audit of the EMP and recommending additions and/or changes to this document.

3.3 CONTRACTOR

Contractors appointed by the proponent are automatically responsible for implementing all provisions contained within the relevant chapters of this EMP. Contractors will be responsible for the implementation of this EMP applicable to any work outsourced to subcontractors. **Error! Reference source not found.** applies to contractors during the operation and maintenance phase. In order to ensure effective environmental management, the aforementioned chapters should be included in the applicable contracts for outsourced construction, operation and maintenance work.

The tables in the following chapter (**Chapter 4**) detail the management measures associated with the roles and responsibilities that have been laid out in this chapter.

4 MANAGEMENT ACTIONS

The aim of the management actions in this chapter of the EMP is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The following tables provide the management actions recommended to manage the potential impacts rated in the scoping-level EA conducted for these developments. These management actions have been organised temporally according to project phase:

- Applicable legislation (**Table 4-1**);
- Operation and maintenance phase management actions (**Table 4-2**); and
- Decommissioning phase management actions (**Table 4-3**).

The proponent should assess these **commitments** in detail and should acknowledge their commitment to the specific management actions detailed in the tables below.

4.1 ASSUMPTIONS AND LIMITATIONS

This EMP has been drafted with the acknowledgment of the following assumptions and limitations:

- This EMP has been drafted based on the scoping-level Environmental Assessment (EA) conducted for the proposed development. SPC will not be held responsible for the potential consequences that may result from any alterations to the above-mentioned layout.
- No engineering designs have been carried out for the development of the associated services infrastructure (roads, potable water, storm water, sewerage and electrical reticulations).
- The mitigation measures recommended in this EMP document are based on the risks/impacts which were identified based on the provided project description and site investigation. Should the scope of the project change, the risks will have to be reassessed and mitigation measures provided will be revised accordingly.

4.2 APPLICABLE LEGISLATION

There are multiple legal instruments that regulate and have a bearing on good environmental management in Namibia. **Table 4-1** below provides a summary of the legal instruments considered to be relevant to this development and the environmental assessment process.

Table 4-1: Legislation applicable to proposed development

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
The Constitution of the Republic of Namibia as Amended	<p>Article 91 (c) provides for duty to guard against “the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia.”</p> <p>Article 95(l) deals with the “maintenance of ecosystems, essential ecological processes and biological diversity” and sustainable use of the country’s natural resources.</p>	Sustainable development should be at the forefront of this development.
Environmental Management Act No. 7 of 2007 (EMA)	<p>Section 2 outlines the objective of the Act and the means to achieve that.</p> <p>Section 3 details the principle of Environmental Management</p>	The development should be informed by the EMA.
EIA Regulations GN 28, 29, and 30 of EMA (2012)	<p>GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate.</p> <p>GN 30 provides the regulations governing the environmental assessment (EA) process.</p>	<p>The following listed activities are triggered by the proposed project:</p> <p>Activity 6. Tourism Development Activities</p>
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The project should consider the impact it will have on the biodiversity of the area.
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The EA process should incorporate the aspects outlined in the guidelines.
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that the development does not lead to the degradation of the natural beauty of the area.
Water Act No. 54 of 1956	Section 23(1) deals with the prohibition of pollution of underground and surface water bodies.	The pollution of water resources should be avoided during construction and operation of the development.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
<p>The Ministry of Environment and Tourism (MET) Policy on HIV & AIDS</p>	<p>MET has recently developed a policy on HIV and AIDS. In addition, it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.</p>	<p>The proponent and its contractor must adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when migrant construction workers interact with local communities.</p>
<p>Urban and Regional Planning Act 5 of 2018</p>	<p>The Act provides 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 decentralise certain matters relating to spatial planning; to provide for the preparation, approval and review of the national spatial development framework, regional structure plans and urban structure plans; to provide for the preparation, approval, review and amendment of zoning schemes; to provide for the establishment of townships; to provide for the alteration of boundaries of approved townships, to provide for the disestablishment of approved townships; to provide for the change of name of approved townships; to provide for the subdivision and consolidation of land; to provide for the alteration, suspension and deletion of conditions relating to land; and to provide for incidental matters.</p>	<p>The rezoning, subdivision and consolidation of land as well as the establishment of townships is to be done in accordance with the act.</p>
<p>Local Authorities Act No. 23 of 1992</p>	<p>The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council.</p>	<p>The development must comply with provisions of the Local Authorities Act.</p>

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Labour Act no. 11 of 2007	<p>Chapter 2 details the fundamental rights and protections.</p> <p>Chapter 3 deals with the basic conditions of employment.</p>	<p>Given the employment opportunities presented by the development, compliance with the labour law is essential.</p>
National Heritage Act No. 27 of 2004	<p>The Act is aimed at protecting, conserving and registering places and objects of heritage significance.</p>	<p>All protected heritage resources (e.g. human remains etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated.</p>
Roads Ordinance 17 of 1972	<ul style="list-style-type: none"> • Section 3.1 deals with width of proclaimed roads and road reserve boundaries • Section 27.1 is concerned with the control of traffic on urban trunk and main roads • Section 36.1 regulates rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads • Section 37.1 deals with Infringements and obstructions on and interference with proclaimed roads. 	<p>Adhere to all applicable provisions of the Roads Ordinance.</p>
Public and Environmental Health Act of 2015	<p>This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals</p>	<p>Contractors and users of the proposed development are to comply with these legal requirements.</p>

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	the Public Health Act 36 of 1919 (SA GG 979).	
Nature Conservation Ordinance no. 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants	Indigenous and protected plants must be managed within the legal confines.
Water Quality Guidelines for Drinking Water and Wastewater Treatment	Details specific quantities in terms of water quality determinants, which wastewater should be treated to before being discharged into the environment	These guidelines are to be applied when dealing with water and waste treatment
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.	This EIA considers this term of Environment.
Water Resources Management Act No. 11 of 2013	Part 12 deals with the control and protection of groundwater Part 13 deals with water pollution control	The pollution of water resources should be avoided during construction and operation of the development. Should water need to be abstracted, a water abstraction permit will be required from the Ministry of Water, Agriculture and Forestry.
Forest Act 12 of 2001 and Forest Regulations of 2015	To provide for the establishment of a Forestry Council and the appointment of certain officials; to consolidate the laws relating to the management and use of forests and forest produce; to provide for the protection of the environment and the control and management of forest fires; to repeal the Preservation of Bees and Honey	Protected tree and plant species as per the Forest Act No 12 of 2001 and Forest Regulations of 2015 may not be removed without a permit from the Ministry of Agriculture, Water and Forestry.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	<p>Proclamation, 1923 (Proclamation No. 1 of 1923), Preservation of Trees and Forests Ordinance, 1952 (Ordinance No. 37 of 1952) and the Forest Act, 1968 (Act No. 72 of 1968); and to deal with incidental matters.</p>	
<p>Atmospheric Pollution Prevention Ordinance No 45 of 1965</p>	<p>Part II - control of noxious or offensive gases, Part III - atmospheric pollution by smoke, Part IV - dust control, and Part V - air pollution by fumes emitted by vehicles.</p>	<p>The development should consider the provisions outlined in the act. The proponent should apply for an Air Emissions permit from the Ministry of Health and Social Services (if needed).</p>
<p>Hazardous Substance Ordinance 14 of 1974</p>	<p>To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.</p>	<p>The handling, usage and storage of hazardous substances on site should be carefully controlled according to this Ordinance.</p>

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Soil Conservation Act No 76 of 1969	Act to consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources	The proposed activity should ensure that soil erosion and soil pollution is avoided during operation.

4.3 OPERATION AND MAINTENANCE PHASE

The management actions included in **Table 4-2** below apply during the operation and maintenance phase of these developments.

Table 4-2: Operation and maintenance management actions

Environmental Feature	Impact	Management Actions
EMP training	Lack of EMP awareness and the implications thereof	<ul style="list-style-type: none"> • Employees appointed for work (construction, maintenance etc.) must ensure that all personnel are aware of necessary health, safety, and environmental considerations applicable to their respective work. • A copy of the EMP should be available at the facility. • Employees appointed for work (construction, maintenance etc.) should be made aware by the PR of the provisions of the EMP that their work must comply with.
Monitoring	EMP non-compliance	<ul style="list-style-type: none"> • Appoint a Proponents Representative (PR) or delegate a member of staff to be the PR. • The PR must be a senior person reporting directly to the Resort Manager and PROPONENT Environmental and Compliance Specialist at Head Office. • Establish an Environmental Management Committee (EMC) (which comprises of the PR from each resort in the ENP and the Environmental and Compliance Specialist) which meets regularly to discuss the implementation of this EMP, including water and power use (using figures collected for monitoring purposes during the month), management of litter, wise use of natural resources and adherence to park rules and regulations in this regard, etc. • The Proponent/PR should monitor the implementation of this EMP. • The PR should inspect the site at least on a monthly basis. • Bi-annual audits should be conducted of site activities by an external ECO.
Environmental Awareness	Environmental Education	<ul style="list-style-type: none"> • PROPONENT to promote environmental awareness through ongoing programmes such as water saving initiatives. • Set up incentive programmes to encourage staff, residents, and local community organizations, including schools, to become actively involved in the management of the environment.

Environmental Feature	Impact	Management Actions
Illegal Harvesting of natural resources and poaching	Loss of Biodiversity	<ul style="list-style-type: none"> • Ensure all staff, residents and local community members are aware of the park rules and regulations relating to the harvesting of natural resources (firewood) and the need for these. • Enforce regulations to prohibit stripping of natural vegetation. • Consider how the use of firewood can be reduced, consider alternatives to firewood as a source of fuel, and consider the sourcing of sustainably harvested fuel wood. • Ensure that poaching in the park or on neighbouring land by staff, residents and local community members is not tolerated and that action is taken against any offenders in collaboration with MEFT.
Groundwater	Groundwater contamination	<ul style="list-style-type: none"> • Be on the lookout for leaking water pipes and any signs of environmental contamination resulting from the sewage infrastructure (encouraging residents to do the same) and take remedial action to resolve any identified problems as rapidly as possible. • Ensure that all solid waste remains in sealed containers at all times and that any leachate from waste transfer stations is effectively channelled into the sewage treatment works. • Ensure that all banded areas, e.g., in workshops and around generators, are regularly drained and cleared and that all material is safely stored on site until disposed of as hazardous waste at appropriate facility. • Conduct regular checks for water leaks, including taps, toilets, pipes and geysers and encourage residents to fix or report such leaks immediately when they are encountered. • All faulty equipment to be repaired at the workshop and not in situ, where possible. • Set up a Contingency Plan to deal with minor and major pollution incidences e.g., oil spill clean-up kit available at all necessary points.
Waste Management	Visual impact and soil contamination	<ul style="list-style-type: none"> • Formally adopt and implement the Solid Waste Management Plan (SWMP) for ENP. • Formally assign responsibility for SWMP in Etosha to person/position. • Plan capacity needed for the organisation of SWMP and for contracting and monitoring a waste collection company. • Appoint a collection company to take the recyclable waste to Windhoek.

Environmental Feature	Impact	Management Actions
		<ul style="list-style-type: none"> • Set up a Waste Management Programme to include sorting of waste by separate waste streams for recycling wherever possible. • Ensure the provision of sufficient public waste bins and their regular emptying. Encourage all staff and residents to use these bins and to keep their surrounding litter free. • Ensure regular collection of household waste, with immediate transfer to transfer stations. • Ensure that all waste is transported in an environmentally responsible manner (covered and no leakage) to appropriate licensed (if possible) facilities for the type of waste. • Appoint operator of waste transfer station and ensure they are fully acquainted with the services provided and the maintenance thereof. • Check interlocking paving for vegetative growth and prevent roots from establishing by physically removing the vegetation. • Inspect paved areas after heavy rainfall to ensure bedding sand not washed away and blocks out of position. If this is the case then fine-grained sand must be swept into these areas to replace lost sand. • Check the retaining walls for any damages and cracks. If found these need to be repaired as soon as possible to prevent moisture penetrating and corroding the steel reinforcing • All silt must be removed from the concrete drains and channels as soon as it accumulates to prevent vegetative growth in these structures and their joints. • Pipe culverts must be cleaned monthly to prevent silt from building up in these structures resulting in blockage of the culverts. These can be flushed with water using the standpipes provided. • The headwall outlet must be examined for erosion after heavy rains. If this is discovered, the eroded areas must be backfilled with boulders and soil to prevent a donga forming. Where possible these areas must be revegetated in order to try to bind the soil.
Hazardous Waste	Soil and groundwater contamination	<ul style="list-style-type: none"> • Adequate separate waste containers (bins) for hazardous and domestic / general waste must be provided on site. • Hazardous waste should be disposed of at a facility that is able to receive such waste and records of disposal should be kept.

Environmental Feature	Impact	Management Actions
		<ul style="list-style-type: none"> • Maintenance and washing of vehicles and machinery on site should take place only at a designated workshop area that is on a bunded, impermeable surface. • Ensure that all bunded areas, e.g. in workshops and around generators, are regularly drained and cleared and that all material is safely stored on site until disposed of as hazardous waste at appropriate facility. • Set up a Contingency Plan to deal with minor and major pollution incidences e.g. oil spill clean-up kit available at all necessary points.
Biodiversity	Loss of Biodiversity	<ul style="list-style-type: none"> • Trees and plants protected under the Forest Act No 12 of 2001 are not to be removed without a valid permit from the local Department of Forestry. • Off-road driving should not be allowed on site. • Ensure that all gardens only make use of indigenous vegetation (with the exception of food gardens) and educate residents in this regard. • Conduct regular checks to prevent alien and/or invasive plants from establishing. • Implement the ENP's alien and invasive management programme in all areas, especially newly constructed areas. • No pets or domestic animals allowed in settlements as per standing park rules.
Noise	Disturbance to fauna	<ul style="list-style-type: none"> • Noise restrictions should be in place on site to minimise disturbance.
Health and Safety	Health and Safety on site	<ul style="list-style-type: none"> • Ensure first aid training and environmental awareness training is provided to staff. • Fire extinguisher training should be provided to a designated member of staff who will act a fire marshal during fire events. • Any accidents/incidents occurring on site should be reported to MEFT and other relevant authority within 24 hours. • Ensure that adequate emergency procedures are in place to reduce the magnitude of the impacts in the event of an emergency.

Environmental Feature	Impact	Management Actions
	Tourist, visitors, employees	<ul style="list-style-type: none"> • Structurally defective buildings must be vacated as rapidly as possible and renovated or demolished as required and as per government process. • Check perimeter fences around the camps, tourists’ areas, staff villages (including around strategic infrastructure such as boreholes, evaporation ponds, solid waste dumping sites or transfer stations etc.). • In collaboration with MEFT, maintain fences as required. • Control access into the camps and staff villages. Access should be through one motorized gate. Place a security guard at camp and staff villages’ entrances. All residents should have appropriate authorization to allow them to enter the staff villages. • Compile an emergency response plan (fire, flood, intruding animals, disease, etc.) for the village and communicate it to the residents. Make sure each household is provided with a list of emergency contact details and familiar with the emergency response plan. • Have well stocked first aid kits / boxes at all critical areas. There must be at least two employees per resort who are well trained in first aid. • Put in place a Sanitation and Hygiene awareness promotion programme to meet the principles set out in the Namibian National Sanitation Strategy for 2010/11 – 2014/15. • Look after the social well-being of the employees and provide sufficient entertainment for the employees when they are off duties. The following are some of the key aspects that should be provided to employees by PROPONENT. <ul style="list-style-type: none"> ○ Well-equipped and well-stocked staff shop. Where establishment of staff shop is not possible, employees need to be taken for personal shopping at least once per month. ○ Entertainment area & facilities e.g. cable TV.
	Fire	<ul style="list-style-type: none"> • Ensure adequate fire breaks and control of moribund material around and between infrastructures as needed.

Environmental Feature	Impact	Management Actions
		<ul style="list-style-type: none"> • Establish emergency procedures to allow for immediate action in the case of accidental fire and ensure that firefighting equipment is on hand and in good working order at all times and that all staff and residents are trained and understand procedures to be followed and how to use equipment.
	Fire or incidents	<ul style="list-style-type: none"> • Ensure adequate emergency procedures are in place to reduce the magnitude of the impacts in the event of an emergency. • The fuel storage facility should be fitted with the required health and safety warning and information signage that is required and suitable for such installations. • Ensure that there are adequate and appropriate first aid provisions to respond to accidents in the facility. • Routine housekeeping to reduce fire risk - <ul style="list-style-type: none"> ○ Install a fire extinguisher. ○ Use a carbon dioxide (CO2) fire extinguisher which is suitable for inflammable and combustible liquids and does not leave a harmful residue after use (as a dry chemical extinguisher does). ○ The fire extinguisher must be easily accessible in case of emergency (i.e. close enough to the fuel facility to be able to use immediately but not so close that the intensity of a fire would prevent it from being accessed). ○ Ensure that any minor spills are cleaned up immediately. ○ Keep the area within 6m of the tanks clear of all vegetation and debris. ○ Check and maintain the extinguisher regularly. ○ Ensure electrical systems, such as pumps, are properly maintained to prevent sparks. ○ Ensure fuel lines, hoses, valves and nozzles are in good repair. ○ Close the valves on tank discharges when they are not in use to prevent leakage through the hose or nozzle.

Environmental Feature	Impact	Management Actions
		<ul style="list-style-type: none"> ○ Ensure that gasoline is not used as a cleaning or degreasing agent (has inherent fire risk). ○ Material Safety Data Sheets containing information on the potential hazards and how to work safely with the chemical product which must be obtained from the supplier and should be available on site.
Power and electrical	Solar	<ul style="list-style-type: none"> • Complete O&M Manuals will be issued to the client on handover. Maintenance as per specifications therein • Battery replacements every 5 years
	Evaporative coolers	<ul style="list-style-type: none"> • It is recommended that an evaporative cooler is regularly maintained. The frequency of maintenance is dependent upon the quality of water, the cleanliness of the air and the frequency of use. Under the current conditions, a three-month maintenance frequency is recommended.
	Liquefied Petroleum Gas (LPG) Storage and Reticulation	<ul style="list-style-type: none"> • Maintenance procedures are standardised and should be stringently and completely followed by a certified LPG installer. • GAS containers need to be stored safely in the covered and lockable facility.
	Generators	<ul style="list-style-type: none"> • On-Going maintenance as per supplier specification is required. • O&M Manuals must be consulted during the maintenance. • Weekly Generator tests to be done on standby generators. • Annual Maintenance to be done by specialist • Diesel fuel to be stored in bulk tanks that are stored safely on lockable areas to allow for refilling once a week. • Reasonable precautions to prevent fuel spillage and leakages during refuelling of pumps. • Generators need to be placed and operated on paved, well ventilated, lockable covered facilities which are accessible only by authorized operators. • Portable drip trays to be used to collect waste oil & lubricants.
	Lighting	<ul style="list-style-type: none"> • Attic stock of lamps and fittings to be kept for regular maintenance.

Environmental Feature	Impact	Management Actions
Employment	Recruitment	<ul style="list-style-type: none"> • Local employment and use of local businesses/suppliers should be encouraged to promote and improve the local economy as far as reasonably possible. • Should the required services and/or goods not be available locally then look to other localities for these services/goods.
Ablution	Sanitation	<ul style="list-style-type: none"> • Separate ablutions should be available for men and women and should clearly be indicated as such. • Sewage waste needs to be removed on a regular basis to the nearest approved sewage disposal site. • Workers responsible for cleaning the toilets should be provided with latex gloves and masks.
Sewage Management	Environmental pollution and underground water resources contamination from waste water	<ul style="list-style-type: none"> • Ensure that the shared ablution facilities, septic tanks, sewers, pump stations and evaporation ponds are managed and maintained as per design and engineering specifications. • Ensure that all concerned staff are trained in critical health and safety issues regarding operation and maintenance of the sewage system components • Ensure that all concerned staff are issued with the necessary safety equipment and protective clothing required for them to do their jobs safely and at no risk to their health. • Be on the lookout for leaking water pipes and any signs of environmental contamination resulting from the sewage infrastructure (encouraging residents to do the same) and take remedial action to resolve any identified problems as rapidly as possible. • Ensure that all solid waste remains in sealed containers at all times and that any leachate from waste transfer stations is effectively channelled into the sewage treatment works. • Ensure that all bunded areas, e.g., in workshops and around generators, are regularly drained and cleared and that all material is safely stored on site until disposed of as hazardous waste at appropriate facility. • Ensure that all manhole access covers are firmly closed (may have to assign a certain number of manholes to each caretaker as the whole network may be too large for just one caretaker to patrol). • Visually check for any signs of leaking pipes. • Visually check for any loose fittings.

Environmental Feature	Impact	Management Actions
	Evaporation ponds	<ul style="list-style-type: none"> • Check that boundary gates are closed and locked. • Ensure that penstocks in chambers/manholes are open as necessary and that sewage is flowing into the correct ponds. • Remove floating debris that may have moved close to the edges by wind/wave action. • Check that weirs are flowing freely. • Remove litter that accumulates.
	Conservancy tanks	<ul style="list-style-type: none"> • Empty conservancy tanks and transport to nearest evaporation ponds.
	Septic tanks	<ul style="list-style-type: none"> • Inspect tanks on continuously bases for potential problems. • Clear all grease traps at least once a month. • The septic tanks should be dislodged at least every two months. • The septic tank must be emptied at least every 5 years of all sludge. NB. If this is not done, the septic tank will fill up and when sewage flows into the tank, it cannot settle and instead passes through the pipes into the percolation trench. It will lead to the percolation trench becoming blocked and if this happens, a new trench must be constructed. • Empty septic tank. NB. If the sewage pipes become backlogged at any of the ablutions, checks must be done on the connections for any blockages, and if these are all clear, then the septic tank must be checked to see if it is full. • Replace blocked percolation trench. NB A sign of a blocked percolation trench will be the build-up of sewage in the Septic Tank and blocked sewer pipes. When this occurs, the pipes and joins must be checked. If these are clear, then the percolation trench is blocked and must be replaced.
	Pumping Stations	<ul style="list-style-type: none"> • Check that doors to pump station and boundary gates are closed and locked. • Regularly removes solids, rags, etc., from the baskets (screen cage). • Check electrical control panel to see if any warning lights are showing. This will give an indication of actual or potential problems. For example, if the standby light is on or the high-level alarm has sounded there should be a reason for this, and it may be due to a failed or failing pump.

Environmental Feature	Impact	Management Actions
		<ul style="list-style-type: none"> • Listen for unusual noises. These pumps are relatively quiet when operating normally. An unusual noise will probably indicate a problem, such as large solid stuck in impeller, damaged impeller, air trapped in pump, cavitation at suction, damaged casing, bearing failure or vee- belt breaking. • Check that soakaways for overflow in sump well are operating satisfactorily and not saturated. • Same as for daily checks above - Check level of oil in seal cavity. • Put all electrically powered pumps onto “manual” setting on the control panel. When there is sufficient sewage in pump, manually start all pumps and check if they are running smoothly and not getting hot. Switch back onto “auto”. • Check to see that all pumps are in good working order i.e. visually check all moving components and check for any loose nuts and bolts. • Check oil levels and oil quality and top up or replace if necessary in the bearings and seal cavity.- Cut grass and any other unwanted plants within pump station premises.
Water Management	Water consumption and saving	<ul style="list-style-type: none"> • Water saving mechanisms should be implemented on site e.g., installation of water saving devices where practical. • Conduct regular checks for water leaks, including taps, toilets, pipes and geysers and encourage residents to fix or report such leaks immediately when they are encountered. • All faulty equipment to be repaired at the workshop and not in situ, where possible. • Set up a Contingency Plan to deal with minor and major pollution incidences e.g., oil spill clean-up kit available at all necessary points.
	Groundwater contamination	<ul style="list-style-type: none"> • Should any hazardous material and wastes be produced these shall be managed in a safe and responsible manner so as to prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials. • Hazardous and non-hazardous waste shall be stored separately at all times and should be disposed at a facility that is licenced to receive such waste. • In the event of a pipe burst, the burst pipe section must be isolated by closing the nearest valves on either side of the break.

Environmental Feature	Impact	Management Actions
		<ul style="list-style-type: none"> • A qualified plumber with water distribution pipeline experience must be contacted to repair such pipe breaks as soon as possible. • The plumber must repair the burst pipe by means of an approved method, and the repair must be tested by opening all the valves prior to backfilling of the trench. • Only once the repair is tested and confirmed to be correct may the pipe trench be backfilled. • Replace washers and seals on pipes fittings, taps and toilets when fittings leak
Archaeology	Archaeological Impacts	<ul style="list-style-type: none"> • Should a heritage site or archaeological site be uncovered or discovered on site, a “chance find” procedure should be applied in the order they appear below: <ul style="list-style-type: none"> ○ If operating machinery or equipment, stop work; ○ Demarcate the site with danger tape; ○ Determine GPS position if possible; ○ Report findings to the construction foreman; ○ Report findings, site location and actions taken to superintendent; ○ Cease any works in immediate vicinity; ○ Visit site and determine whether work can proceed without damage to findings; ○ Determine and demarcate exclusion boundary; ○ Site location and details to be added to the project’s Geographic Information System (GIS) for field confirmation by archaeologist; ○ Inspect site and confirm addition to project GIS; ○ Advise the National Heritage Council of Namibia (NHCN) and request written permission to remove findings from work area; and ○ Recovery, packaging and labelling of findings for transfer to National Museum.
Traffic	Traffic Impacts	<ul style="list-style-type: none"> • Introduce speed limits and signage within the facility.

Environmental Feature	Impact	Management Actions
		<ul style="list-style-type: none"> • Roads to be clearly demarcated. • No off-road driving to be permitted on site.
Stormwater and Drainage Management	Surface and groundwater contamination	<ul style="list-style-type: none"> • Inspect the entire drainage system at least once every two months. This can only be done on foot. • Remove all debris from the open drains and dispose of it appropriately. • Ensure that all culverts are de silted and kept clean at all times. Ensure that all culvert inlets and outlets are clear of any debris. • Ensure that all staff and residents (including children) are made aware of the dangers of blocking any of the open drains with domestic refuse etc. • The dumping of oil/grease into the open drains should be prevented through education of the residents. • All vegetation in the unlined open drains should be removed completely if possible or should be trimmed from time to time to ensure free passage of storm water. • In addition to the above, prior to the onset of the rainy season all drains and culverts should be checked to ensure that, there is no debris that is blocking the passage of storm water. It is more important that the culvert outlets are kept clear of debris.
Sense of place	Visual Impact	<ul style="list-style-type: none"> • Educate staff and residents about the desirability of maintaining housing and residential facilities in good condition and the need for regular and ongoing maintenance activities. It needs to be clear what the responsibilities are of households. • Check roofs for leaks and undertake repair work needed. • Maintain the exterior walls of houses in good condition and in natural colours as per original design specifications. • Manage the use of existing and any new lighting in dwellings, floodlighting and security lights in order that light pollution does not become a problem. • Treat timber structures as required with (MEFT approved) environmentally friendly products.
Roads	Condition of roads	<ul style="list-style-type: none"> • Inspect all the roads (within settlement) on foot. • Remove or trim any vegetation that is encroaching on the carriageway. • Fill and compact with suitable gravel when potholes appear.

Environmental Feature	Impact	Management Actions
Community relations	Communication	<ul style="list-style-type: none"> • Establish a forum through which ENP can communicate with its neighbours. This forum can be used to share information and to address operational issues that concern all the parties involved. • Establish an official complaints procedure and communicate the procedure to all stakeholders. Ensure that feedback loops are in place. • Establish a community relations programme to manage interaction with stakeholders.

4.4 DECOMMISSIONING PHASE

The decommissioning of these developments is not foreseen as the intended development is envisaged to be permanent. In the event that this infrastructure development is decommissioned the following management actions should apply.

Table 4-3: Decommissioning phase management actions

Environmental Feature	Impact	Management Actions
Employment	Loss of employment	<ul style="list-style-type: none"> • The Proponent should inform the employees well in advance (no less than 6 months), of its intentions to close the facility, and the expected date of such. • The Proponent should raise awareness of the possibilities for work within the tourism sector.

Environmental Feature	Impact	Management Actions
Rehabilitation	Soil and Groundwater contamination	<ul style="list-style-type: none"> • An inspection of the soil and groundwater contamination must be undertaken to determine the presence, nature and extent of contamination on site. • This will guide the level and kind of remediation to be undertaken on site. • Prior to the infrastructure being destroyed, all residue products must be carefully removed for recycling or safe disposal. • Solid materials must be used for filling. Only clean soil should be used for filling purposes.
Waste Management	Pollution	<ul style="list-style-type: none"> • Contaminated soil must be removed from site and disposed at a facility that is able to receive such waste. • No waste may remain on site after the closure of the facility. • Waste must be disposed of at an approved waste facility. Proof of disposal certificates must be available.

4.5 Recommendations for Monitoring

In order to prevent and minimize the above-mentioned environmental impacts, the following site monitoring measures need to be done:

- Monitor whether provisions as set out in the EMP has been complied with.
- Non-compliance is to be recorded and discussed at weekly site meetings and timeous remedial actions taken.
- Monitoring feedback is to be recorded.

4.6 CONCLUSION

Based on the recommendation given in this EMP, Stubenrauch Planning Consultants is confident that the activities, as described in Chapter 1 of the EMP may be granted an Environmental Clearance Certificate, provided that the EMP is implemented and that all the legal requirements pertaining to this development are complied with.