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ENVIRONMENTAL MANAGEMENT PLAN FOR THE OPERATION AND MAINTENANCE OF AN EXISTING 66kV OBIB - LORELEI T-OFF TRANSMISSION LINE.



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Table of Contents

1	LIST OF TERMS, ACRONYMS AND ABBREVIATIONS	3
2	INTRODUCTION.....	4
2.1	GENERAL AREA DESCRIPTION	5
3	OBJECTIVES AND SCOPE OF THIS ENVIRONMENTAL MANAGEMENT PLAN (EMP)	9
4	POLICY AND LEGISLATIVE FRAMEWORK	10
5	ROLES AND RESPONSIBILITIES	14
6	DESCRIPTION OF OPERATIONAL ACTIVITIES TO BE UNDERTAKEN AND ASSOCIATED IMPACTS	17
7	MANAGEMENT AND MITIGATION MEASURES	19
8	REPORTING, MONITORING AND AUDITING	32
9	NON-COMPLIANCE AND CONFLICT MANAGEMENT PROCEDURES ..	32
10	RECORD KEEPING.....	33
11	CONCLUSION	33
12	REFERENCES.....	34
	Annexure 1: Areas of importance and protected species	35
	Annexure 2: Protection of Ecology & Vegetation.....	36
	Annexure 3: Landowner permission form	37
	Activities to be undertaken on the property (completed by the contractor):	37
	Specific conditions to be met on the property (as stipulated by the landowner):.....	38
	Annexure 4: Chance find procedure	0

1 LIST OF TERMS, ACRONYMS AND ABBREVIATIONS

APD	Anti-Perching Devices
BFD	Bird Flight Diverters
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act no 7 of 2007
EMP	Environmental Management Plan
GIS	Geographical Information System
HIV/AIDS syndrome	Human immunodeficiency virus/ acquired immunodeficiency
MEFT	Ministry of Environment, Forest and Tourism
NHC	National Heritage Council
REDs	Regional Electricity Distributors
SAPP	Southern African Power Pool
SHE	Safety, Health and Environment
SHEW	Safety, Health, Environment and Wellness
kV	Kilovolt

2 INTRODUCTION

NamPower's core business is the generation, transmission and energy trading, which takes place within the Southern African Power Pool (SAPP), the largest multilateral energy platform on the African continent. NamPower supplies bulk electricity to Regional Electricity Distributors (REDs), Mines, Farms and Local Authorities (where REDs are not operational) throughout Namibia. To carry out its mandate of transmission and distribution of electricity, NamPower's has a transmission network across all regions countrywide as well as distribution networks in areas where there are no regional electricity distribution companies. The continuous operation of the transmission and distribution networks allow NamPower to provide uninterrupted supply of electricity to regions to improve the living conditions of Namibian citizens and to enable economic development.

The 66kV Obib–Lorelei transmission line, commissioned in 2002, extends over a distance of approximately 38 kilometres. It connects the Obib Substation to a T-off point on the 66kV Namib–Lorelei transmission line. The infrastructure is supported by wooden pole structures. Figure 1 presents a locality map of the 66kV Obib–Lorelei transmission line.

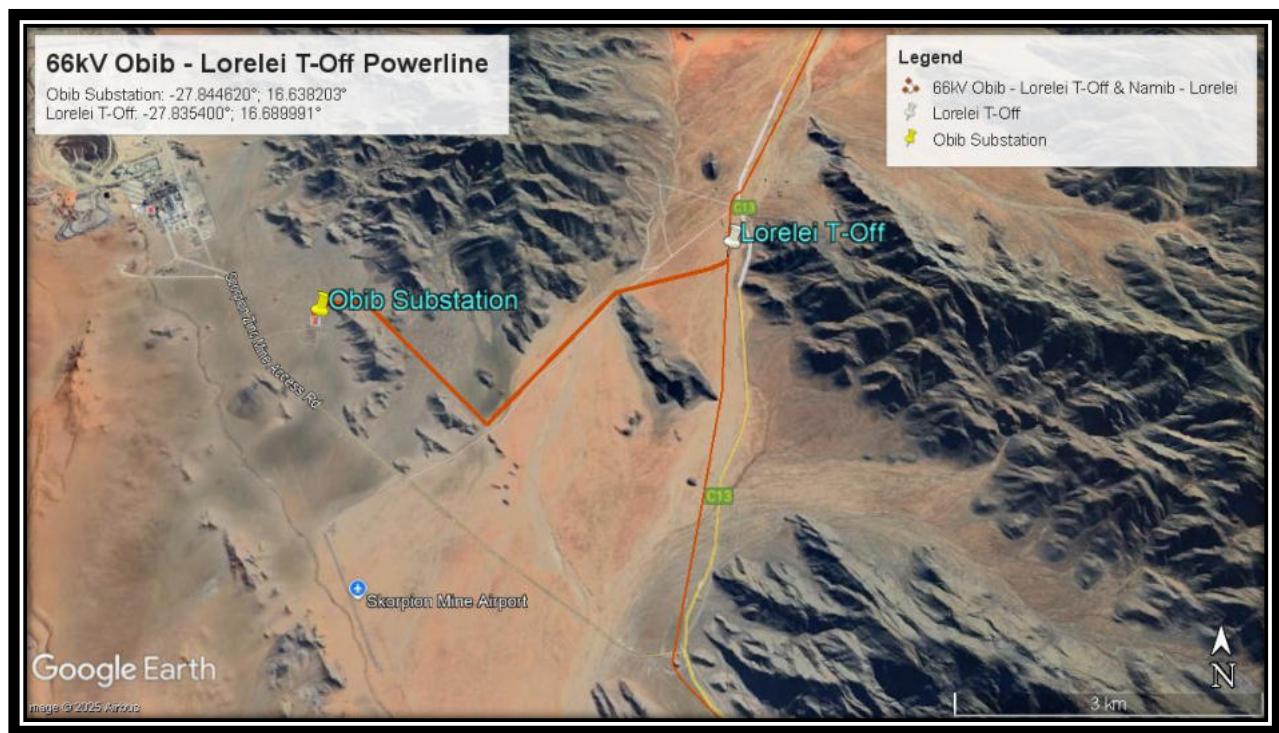


Figure 1: Locality map showing the 66kV Obib – Lorelei transmission line

2.1GENERAL AREA DESCRIPTION

The 66kV Obib - Lorelei T-Off transmission line falls within the vegetation type known as the Desert and Succulent Steppe or the Succulent Karoo–Succulent Steppe, (Cunningham, 2021). The area is fairly well vegetated and the vegetation cover is dominated by *Mesembryanthemum cryptanthum*, *M. barklyi*, *Salsola* spp. and *Stipagrostis* spp, (Cunningham, 2021). The most important species encountered along the route are viewed as *Aloe dichotoma*, *Aloe ramosissima* and *Sarcocaulon inerme*, (Cunningham, 2021).

The general 66kV Obib - Lorelei T-Off transmission line route is located between the Scorpion mine and Rosh Pinah and has typical associated urban anthropomorphic influences, (Cunningham, 2021). The impact of line inspections and general maintenance activities would be site specific and have a relatively small environmental “footprint” and is not expected to have a major impact to the environment, (Cunningham, 2021).

The route passes through five “hotspot” areas of which one area is classified as “medium” sensitivity and four areas classified as “high” sensitivity, with potential medium and high biodiversity, (Cunningham, 2021). Along the 66kV Obib - Lorelei T-Off, 10.4% of the route is viewed as “medium” sensitivity, 16.1% is viewed as “high” sensitivity while 73.5% is “low” sensitivity. The areas of importance are the drainage lines, rocky areas and hills. Figure 2 – 7 show the sensitive areas and some of the protected plant species found along and in the vicinity of the line servitude.



Figure 2. The 66kV Obib-Lorelei line passes through rocky/mountainous terrain although traverses the gravel plains, dominated by *Stipagrostis* spp. grasses, *Mesembryanthemum barklyi* and *Salsola* spp. shrubs.



Figure 3. Large trees are limited along the route with *Euclea pseudebenus* (wild ebony) observed along a small ephemeral drainage line.



Figure 4. A few *Aloe dichotoma* (quiver tree) individuals were encountered en route (See arrow).



Figure 5. Only one *Aloe ramosissima* (bush quiver tree) individual was observed on a small outcrop along the route.



Figure 6. Hills adjacent the line are viewed as areas of “high” sensitivity due to a variety of unique flora associated with such rocky areas.



Figure 7. Ephemeral drainage lines are viewed as an important habitat.

3 OBJECTIVES AND SCOPE OF THIS ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The operation of powerlines has the potential to adversely affect the receiving environment. While such impacts are generally confined to the designated servitude area, it remains imperative that robust environmental management measures are implemented to mitigate any potential harm. This Environmental Management Plan (EMP) is designed to proactively manage and minimize negative environmental impacts associated with powerline operations, while simultaneously promoting and enhancing any positive and beneficial outcomes.

The scope of this EMP encompasses all activities related to the operation of the powerline infrastructure. It is important to recognize that the EMP is a living document, requiring periodic review and updates to remain relevant and effective. Furthermore, this EMP must be interpreted and applied in conjunction with the legal and regulatory frameworks outlined in Section 5, Table 1, as well as all other applicable environmental legislation.

The primary objective of this EMP is to outline the necessary management actions and mitigation measures to ensure that all operational activities are conducted in a manner that upholds the principles of environmental stewardship and complies with national environmental standards. Through its implementation, this EMP seeks to safeguard ecological integrity, promote sustainable practices, and reinforce NamPower's commitment to environmental protection.

This EMP has the following objectives:

- To outline mitigation measures to be implemented during the operation phase, to manage and minimize the extent of environmental impacts.
- Minimize negative impacts and enhance positive impacts associated with the operations.
- To ensure that the operational activities do not result in undue or reasonably avoidable adverse environmental impacts and ensure that any potential environmental benefits are enhanced.
- To identify key personnel who will be responsible for the implementation of the measures, outline functions and responsibilities.
- To propose mechanisms for monitoring compliance and preventing long term or permanent environmental degradation.

- To ensure that the concerns and complaints of Interested and Affected Parties (I&APs) with regards to the operational activities are addressed effectively and timely.
- Ensure compliance to legislative requirements.

4 POLICY AND LEGISLATIVE FRAMEWORK

The key legislative requirements relevant to the operational and maintenance activities of the powerline include, but are not limited to, those listed in Table 1 below. It is important to review each legislative instrument in full to gain a complete understanding, as the table only provides brief summaries.

Table 1 The legislative requirements which are applicable to the operational and maintenance activities

Legislation:	Section (s) applicable:	Implications:
Environmental Management Act no 7 of 2007	Section 3	<ul style="list-style-type: none"> • All activities performed should be in line with the following principles: <ul style="list-style-type: none"> ○ Interested and affected parties should have an opportunity to participate in decision making ○ Listed activities should be subject to an EIA ○ Polluter should pay for rehabilitation ○ Pollution should be minimized
	Section 27	<ul style="list-style-type: none"> • Environmental assessments should be carried out for listed activities. The proposed activity can be classified under the following range of activities: <ul style="list-style-type: none"> ○ Generation of electricity ○ Transmission of electricity
	Section 33 onwards	<ul style="list-style-type: none"> • These sections detail the process to be

	And all other applicable sections.	<p>followed to obtain a clearance certificate.</p> <ul style="list-style-type: none"> • All existing listed activities must obtain a clearance certificate within one year of the law coming into effect. Therefore, all existing activities which can be considered a listed activity should apply for clearance.
EMA Regulations GN 28-30 (GG 4878) (February 2012)	<ul style="list-style-type: none"> • Listed activity: • 5.1 • 6 – 9; 13; 15; 21 -24 • Any other applicable sections 	<ul style="list-style-type: none"> • This activity can be considered as electricity generation and transmission. • These sections detail the process to be followed in terms of producing an Environmental Assessment and this process should be adhered to during the generation of information for this document.
No. 156 Labour Act, 1992: Regulations relating to the health and safety of employees at work.	All applicable regulations	All regulations applicable to different activities must be complied with.
Labour Act no 11 of 2007	<ul style="list-style-type: none"> • Section 3 • Section 4 • Section 9 • Section 39 – 42 • All other applicable sections 	<ul style="list-style-type: none"> • Children under the age of 16 may not be employed • Forced labour may not be used. • Basic conditions of employment as stipulated by the law must be met. • The employer shall ensure the health and safety of all employees and non-employees on site. Employees must fulfil their duties to ensure their own health and safety and that of other employees and people. Employees may leave the workplace if reasonable measures to protect their health are not taken.
Electricity Act no 4 of 2007	<ul style="list-style-type: none"> • Section 33 	<ul style="list-style-type: none"> • Installations used for the provision of electricity

		<p>should be operated with due compliance with the requirements of laws relating to health, safety and environmental standards. Therefore – any company involved within the Electricity Supply Industry must adhere to the laws covering the previously stated aspects or stand to lose their licenses to operate.</p>
Public and Environmental Health Act no 1 of 2015	<ul style="list-style-type: none"> • Section 52 • Section 53 • All other sections applicable to different activities. 	<ul style="list-style-type: none"> • A person generating waste must ensure that the waste generated is kept and stored under conditions that causes no harm to human health or damage to the environment. • Waste must only be disposed of at a waste disposal site, including an incinerator approved by the local authority concerned.
Water Resources Management Act no 24 of 2013	<ul style="list-style-type: none"> • Section 89 • All other sections applicable to different activities. 	<ul style="list-style-type: none"> • The owner or occupier or other person in control of land where an incident that causes or is likely to cause a water resource to be polluted must take all reasonable measures to contain and minimize the effects of the incident; and to clean up polluted areas and remedy the effects of the incident.
Hazardous Substances Ordinance 14 of 1974	<ul style="list-style-type: none"> • Section 27 • All other sections applicable to different activities. 	<ul style="list-style-type: none"> • 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 importation, manufacture, sale, use, operation, application, modification, disposal or dumping

		<p>of such substances; and</p> <ul style="list-style-type: none"> • To provide for matters connected therewith.
Fertilizers, farm feeds, agricultural remedies and stock remedies Act no 36 of 1947	<ul style="list-style-type: none"> • Definitions • Section 7 • Section 10 • All other sections applicable to different activities. 	<ul style="list-style-type: none"> • Arborocides application is defined as an agricultural remedy under this Act • Only registered pesticides may be used. • May only buy herbicides in a container that complies with the prescribed requirements and is sealed and labelled. • Only allowed to use herbicides in the prescribed manner. • Landowners must be notified about applications, and the following information must be supplied: <ul style="list-style-type: none"> ○ Purpose of administration ○ Registered name and number of the product • Precautions to be taken before, during and after each administration.
The Nature Conservation Ordinance (1975) as amended through the Nature Conservation Amendment Act of 1996.	<ul style="list-style-type: none"> • Chapter 11: Game Parks, Nature Reserves, Conservancies and Wildlife Councils 	<ul style="list-style-type: none"> • Permits are required to enter the National Park. Permits are also required for the removal of any protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological, historical or other scientific interest without the appropriate permits.
National Heritage Act No 27 of 2004	<ul style="list-style-type: none"> • Section: 46, 48, 55 • All other sections applicable to different activities. 	<ul style="list-style-type: none"> • All heritage resources are to be identified and either protected or removed/mitigated with a permit from the National Monuments Council, before any development may take place • A chance find procedure should be followed in

		case of discovery of a heritage resource.
Soil Conservation Act no 76 of 1969	<ul style="list-style-type: none"> • Section 4 • Section 13 • Section 21 • And other applicable sections 	<ul style="list-style-type: none"> • Institutions may be ordered by the relevant Minister to construct soil conservation works when and where necessary. • Fire protection schemes may be implemented to regulate the prohibition of veld burning as well as the prevention, control and extinguishing of veld and forest fires. • It is illegal to damage, destroy / fail to maintain any soil conservation works; fire belts; works constructed in terms of a fire protection scheme.
Forest Act no 12 of 2001	<ul style="list-style-type: none"> • Section 66 • Section 41 • And applicable sections 	<ul style="list-style-type: none"> • Vegetation may not be removed within 100 m of a river, stream or water course • A person shall be liable for damage caused by any fire which arises because of activities carried out on site without having taken reasonable measures to prevent a fire.

5 ROLES AND RESPONSIBILITIES

It is the responsibility of NamPower and/or contractor to ensure that all the environmental management actions are carried out effectively and timeously. It is important to note that the successful implementation of the EMP is, however, dependent on clearly defined roles and responsibilities by several stakeholders. Below are the key employees that are responsible for the management of environmental and social issues during the operational phase:

Table 2: The roles and responsibilities for operational and maintenance activities:

Responsible person	Responsibilities
The Area Superintendent	<ul style="list-style-type: none"> • Is responsible for the enforcement of the EMP • To ensure that environmental requirements are adequately covered in any external service provider contracts. • To ensure that SHE requirements are included in the tender documents sent to the contractors. A copy of this EMP should also form part of the tender documents. • To ensure that corrective actions are implemented for non-compliances. • To ensure that appropriate records and information regarding compliance with environmental requirements are maintained. • To ensure that the line remain in compliance with the requirements of this EMP, through regular communication and monitoring. • To ensure that all incidents, accidents and complaints are reported. To also ensure that incidents and accidents are investigated to prevent re-occurrence.
Project Manager	<ul style="list-style-type: none"> • Is responsible for the enforcement of the EMP. • To ensure that SHE requirements are included in the tender documents sent to the contractors. • Must ensure that the contractor/NamPower Team remain in compliance with the requirements of this EMP throughout the project.

NamPower SHEW	<ul style="list-style-type: none"> • To ensure that all requirements with regards to this EMP are fulfilled. • Communicate NamPower SHEW requirement to the contractors and NamPower employees. • Provides SHEW inductions to NamPower and contractor employees. • Implement monitoring, conduct inspections and audits in consultation with the Project Manager/Area Superintendent. • Document and communicate monitoring, audit and inspection findings to project manager and area superintendent. • Communicate the final inspection report to the Project manager on project team compliance to the EMP before the project close-off and final payment is made to the contractor.
Contractor	<ul style="list-style-type: none"> • Is responsible for the implementation of the EMP • To appoint an environmental officer responsible for the implementation of this EMP. • To ensure that all tasks undertaken under the scope of work, are in accordance both with NamPower's SHEW policies and procedures as well as to the requirements of this EMP. • Ensure that employees are regularly trained and awareness built relating to environmental and social management. • To ensure that all incidents, accidents and complaints are reported to the project manager. The contractor to ensure that incidents and accidents are investigated to prevent re-occurrence.

	<ul style="list-style-type: none"> Ensuring that all employees receive a SHEW induction before the start of the project. Ensuring that the work being done does not create a nuisance to any being working, residing or living on adjacent properties or within the immediate surroundings of the site.
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6 DESCRIPTION OF OPERATIONAL ACTIVITIES TO BE UNDERTAKEN AND ASSOCIATED IMPACTS

The activities associated with operational, and maintenance (the socio-economic and environmental impacts) include but not limited to the ones listed in table 3 below.

Table 3: Description of the activities related to the operational activities.

Activity	Description	Associated potential impacts
General functioning and presence of the powerline.	<ul style="list-style-type: none"> Physical presence and functional characteristics of the powerline. 	<ul style="list-style-type: none"> Animal (including birds) mortalities through collisions and electrocution. Visual impact. Community impacts in a form fatalities or injuries caused by electrocution. Meeting electricity demand (positive impact).
Maintenance of the line	<ul style="list-style-type: none"> The maintenance of the line entails but not limited to: General line components 	<ul style="list-style-type: none"> Soil and water contamination Waste generation leading to filling up of landfill

	<p>repairs/replacements.</p> <ul style="list-style-type: none"> • Construction or repairing of access roads. • Repair or replacement of towers or tower components and others. • Upgrades 	<p>space</p> <ul style="list-style-type: none"> • Loss of biodiversity • Loss of sensitive habitats, flora and fauna. • Social issues related to the introduction of new workers in the area, e.g. HIV/AIDS spreading • Loss of human life (through electrocution)
Periodic inspections and monitoring	<ul style="list-style-type: none"> • Inspecting the line and substation conditions and assess compliance to procedures and legal requirements. 	<ul style="list-style-type: none"> • Soil and ground water contamination as a result of oil spills • Soil contamination as a result of improper waste handling and disposal. • Loss of biodiversity if existing access roads are not used.
Installation of Optic Fiber networks	<ul style="list-style-type: none"> • Design, Supply, Delivery, Installation and Commissioning of Optic Fiber networks for communication purposes. 	<ul style="list-style-type: none"> • Loss of biodiversity • Soil contamination because of improper waste handling and disposal. • Loss of sensitive plants and habitats.
Vegetation Management	<ul style="list-style-type: none"> • Removal of trees and bushes to maintain access to the line servitude. 	<ul style="list-style-type: none"> • Loss of biodiversity • Conflict with stakeholders

		<ul style="list-style-type: none"> • Loss of topsoil • Soil and water contamination • Loss or damage to heritage and cultural resources.
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7 MANAGEMENT AND MITIGATION MEASURES

To ensure that the potential impacts are eliminated and/or minimised, it is necessary to ensure that the various activities related to the operation and maintenance of the power lines are adequately managed and monitored. Table 4 below outline mitigation measures as well as objectives to be achieved. A responsible person (s) has been assigned to each mitigation measure (s).

Table 4: Proposed mitigation measures for the general operational activities

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
Safety Health and Environmental Awareness (SHE)	<ul style="list-style-type: none"> • All employees shall undergo general environmental awareness training prior to commencing any work on-site, to ensure understanding of environmental responsibilities and compliance with the Environmental Management Plan (EMP) • All personnel shall undergo a Safety, Health, and Environmental (SHE) induction prior to the commencement of any on-site activities. • Regular SHE toolbox talks shall be conducted, and detailed records of these sessions shall be maintained. 	<ul style="list-style-type: none"> • Area superintendent • Project manager • SHEW • Contractor
Safety Management	<ul style="list-style-type: none"> • A SHE file must be submitted and reviewed by the SHEW section in case of projects in accordance with NamPower SHE requirements. • NamPower Procedures, policies and legal requirements pertaining to safety must be complied with. 	<ul style="list-style-type: none"> • Area superintendent • Project manager • Contractor • SHEW
Fire Management	<ul style="list-style-type: none"> • All potential sources of ignition shall be identified and eliminated, and appropriate fire prevention equipment shall be provided to mitigate fire risks. 	<ul style="list-style-type: none"> • Area superintendent • Project manager

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> Fire extinguishers shall be readily accessible at all operational sites and in vehicles used for project activities. Fire extinguishers must undergo regular inspection and servicing to ensure functionality. All personnel shall receive basic firefighting training, including the proper use of firefighting equipment and emergency response procedures. Fire breaks shall be established and maintained in accordance with applicable regulations and site-specific risk assessments. 	<ul style="list-style-type: none"> Contractor
Air Quality	<ul style="list-style-type: none"> Dust emissions resulting from all operational activities shall be minimized through appropriate control measures. The excavation, handling, and transportation of erodible materials shall be avoided during periods of high wind or when visible dust plumes are present. Speed limits shall be strictly enforced on-site to reduce dust generation from vehicular movement. Dust suppression techniques, such as water spraying shall be implemented as necessary to maintain air quality standards. 	<ul style="list-style-type: none"> Area superintendent Project manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> • All vehicles, machinery, and equipment shall be maintained in optimal working condition to minimize exhaust emissions and ensure operational efficiency. • Servicing and maintenance of vehicles, machinery, and equipment shall be conducted by qualified personnel, and detailed service records shall be maintained and filed for audit purposes. 	
Resources Efficiency	<ul style="list-style-type: none"> • Water usage shall be optimized by minimizing wastage and maintaining accurate records of consumption. • Materials shall be utilized efficiently, and any unnecessary or excessive use shall be avoided. • Where feasible, goods and services shall be sourced locally to support regional economies and reduce environmental impact associated with transportation. 	<ul style="list-style-type: none"> • Area superintendent • Project manager • Contractor
Waste Management	<ul style="list-style-type: none"> • Waste generation shall be minimized through the application of the waste management hierarchy, prioritizing reduction, reuse, and recycling. • The transmission line servitude must be always maintained free of any waste materials. • The burning, burying, or unauthorized dumping of waste on-site is strictly prohibited. 	<ul style="list-style-type: none"> • Area superintendent • Project manager • Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> Clearly labelled waste bins with secure lids shall be provided at designated stations or campsites (where applicable), and all waste shall be disposed of at the nearest approved waste disposal facility. Waste segregation shall be conducted at the point of generation to ensure proper handling and disposal of different waste streams. Hazardous waste must be disposed of at a registered hazardous waste disposal site in accordance with applicable regulations. Certificates confirming the safe disposal of hazardous waste shall be retained in the Safety, Health, Environment and Wellness (SHEW) file for record-keeping and compliance verification. Concrete waste shall not be discarded on-site under any circumstances. 	
Wastewater management	<ul style="list-style-type: none"> Water containing environmental pollutants shall be appropriately collected and removed from the site to prevent contamination of surrounding areas. The discharge of wastewater, including uncontrolled runoff from operational or working areas, is strictly prohibited. In remote locations, mobile sanitation facilities such as portable toilets or septic tanks shall be provided to ensure compliance with hygiene and environmental 	<ul style="list-style-type: none"> Project manager Contractor Area superintendent

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	standards.	
Hazardous Substances	<ul style="list-style-type: none"> The use, handling, storage, and disposal of hazardous chemicals shall strictly adhere to the specifications outlined in the relevant Material Safety Data Sheets (MSDS). All containers used for hazardous substances must be clearly labeled to indicate their contents and quantities. Designated storage areas for hazardous substances shall be equipped with bunding capable of containing at least 110% of the volume of the largest container stored within the area. Diesel, oil, hydraulic fluids, and other liquid fuels must be stored in appropriate tanks or bowsers fitted with secondary containment systems. Regular inspections and maintenance of hazardous storage areas and bund walls shall be conducted to prevent overflow or leakage. Drip trays must be readily available and utilized beneath equipment prone to leakage. Spill kits and absorbent materials shall be maintained on-site to facilitate 	<ul style="list-style-type: none"> Area superintendent Project manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<p>immediate clean-up of any spills.</p> <ul style="list-style-type: none"> • Safety signage indicating the presence of hazardous substances must be prominently displayed in all relevant storage areas. • All spill incidents must be promptly reported, thoroughly cleaned, and remediated in accordance with NamPower's Safety, Health, Environment and Wellness (SHEW) requirements. 	
Social Impact	<ul style="list-style-type: none"> • NamPower/ Contractor must sign land permission form and agreement with landowners 14 days prior to the commencement of any on-site activities. • NamPower and/or the appointed contractor shall enter into a formal land access agreement with the respective landowners at least fourteen (14) calendar days prior to the commencement of any on-site activities. • All employees shall receive appropriate education and awareness training regarding the impacts and implications of HIV/AIDS and unintended pregnancies. • The consumption or possession of intoxicating substances, including alcohol and narcotic drugs, by employees is strictly prohibited while on duty or within the project site. 	<ul style="list-style-type: none"> • Area Superintendent • Project Manager • All NamPower employees • Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> • All stakeholder queries and complaints shall be systematically recorded, thoroughly investigated, and addressed in a timely and effective manner. • A formal complaints register shall be maintained, documenting all grievances received from stakeholders along with the corresponding actions taken to resolve each issue. 	
Archaeology	<ul style="list-style-type: none"> • In the event that a heritage site or archaeological feature is uncovered during the operational phase, the “chance find” procedure outlined in Annexure 4 of this Environmental Management Plan (EMP) shall be strictly followed. • All chance finds must be promptly reported to the NamPower Environmental Section for appropriate action. • Should human remains or culturally significant artefacts be discovered, all work in the immediate vicinity shall cease immediately. The police (in case of human remains) and/or a qualified archaeologist shall be consulted to conduct a formal investigation and provide guidance on the appropriate course of action. 	<ul style="list-style-type: none"> • Area superintendent • Project Manager • SHEW • Contractor
Fauna and Flora	<ul style="list-style-type: none"> • The site shall be maintained in a clean and orderly condition, free from any waste or debris that may attract animals or pests. 	<ul style="list-style-type: none"> • Area superintendent • Project Manager

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> The harvesting, collection, or destruction of any plant species is strictly prohibited. The translocation of endemic and protected plants must be prioritized in case of any project that may cause damage to them. The poaching or disturbance of any wild or domestic animals is not permitted under any circumstances. Bird nests shall not be disturbed unless they pose a direct interference with the safe and effective operation of the transmission line. Vehicles operating along the transmission line route must engage four-wheel drive to prevent soil disturbance caused by wheel spinning. Protected flora species encountered during operations shall not be destroyed, damaged, or collected unless they directly interfere with the functionality of the transmission infrastructure. Activities within ecologically sensitive areas shall be minimized to reduce environmental disturbance. Vegetation removal or pruning shall be limited strictly to flora that directly 	<ul style="list-style-type: none"> Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<p>affects the transmission line.</p> <ul style="list-style-type: none"> • Areas prone to bird collisions shall be identified and monitored. • Bird Flight Diverters (BFDs) must be installed in designated collision-prone zones where high bird mortality rates have been recorded. • All bird mortalities observed beneath the transmission line shall be systematically monitored and documented. • Any interactions between wildlife and electrical infrastructure, including incidents of animal or bird fatalities, must be promptly reported to the SHEW Section. 	
Water Resources	<ul style="list-style-type: none"> • Appropriate measures shall be taken to prevent any form of water pollution during operational activities. • Naturally occurring water sources shall not be utilized for personal hygiene purposes under any circumstances. • The extraction of water from private or government-owned properties shall only be permitted upon the establishment of a formal agreement between NamPower, the appointed contractor, and the legal custodian of the respective 	<ul style="list-style-type: none"> • Area superintendent • Project Manager • Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	water source.	
Erosion	<ul style="list-style-type: none"> Erosion control measures shall be implemented and maintained as necessary along the access routes to prevent soil degradation and preserve land stability. All areas affected by erosion shall be rehabilitated effectively to restore the natural landscape and prevent further environmental impact. 	<ul style="list-style-type: none"> Area superintendent Project Manager Contractor
Campsite Establishment	<p>In case camping is required:</p> <ul style="list-style-type: none"> Adequate ablution facilities shall be provided on-site in proportion to the number of personnel, in full compliance with applicable legislative and health standards. In remote areas, septic tanks or equivalent wastewater containment systems shall be utilized to manage sanitation effectively. Ablution facilities shall not be located within 100 meters of any natural water source, including rivers, stream channels, pans, dams, or boreholes, to prevent contamination. Fire extinguishers, first aid kits, designated assembly points, and emergency contact numbers shall be readily available and clearly displayed on-site to 	<ul style="list-style-type: none"> Area superintendent Project Manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<p>support emergency preparedness.</p> <ul style="list-style-type: none"> • All waste generated on-site shall be managed in accordance with the NamPower Waste Management Procedure. 	
Site Rehabilitation (progressive and post rehabilitation)	<ul style="list-style-type: none"> • Progressive rehabilitation shall be undertaken concurrently with project activities, and post-project rehabilitation shall be completed upon conclusion of all works. This includes the removal of all materials, equipment, and waste from the site to restore environmental integrity. • An inspection shall be conducted prior to the contractor's demobilization. Any identified non-conformances must be rectified before the contractor or project team vacates the site. 	<ul style="list-style-type: none"> • Area superintendent • Project Manager • SHEW • Contractor
Emergency Procedures	<ul style="list-style-type: none"> • All potential emergency scenarios relevant to the operational activities shall be identified through a risk assessment process. • Emergency preparedness and response plans shall be developed for each identified scenario and effectively communicated to all relevant stakeholders, including NamPower personnel, contractors, and service providers. • District personnel and any individuals conducting work along the transmission lines shall be in position of a list of emergency contact numbers, including 	<ul style="list-style-type: none"> • Area superintendent • All district personnel • Project Manager • Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	those for fire brigades, ambulance services, hospitals, police, and specialized responders such as snake and bee catchers.	

8 REPORTING, MONITORING AND AUDITING

Environmental monitoring, inspections, and audits shall be conducted in accordance with the relevant procedures and requirements outlined in this plan. The Safety, Health, Environment, and Wellness (SHEW) Section shall be responsible for preparing reports detailing the outcomes of all monitoring and audit activities. These reports shall be communicated to the designated Area Manager, Superintendent, or Project Manager and other relevant stakeholders.

All records pertaining to monitoring, inspections, and audits shall be maintained and made readily available for review during internal or external inspections and audits.

9 NON-COMPLIANCE AND CONFLICT MANAGEMENT PROCEDURES

The Area Superintendent or project manager or the appointed Contractor shall be responsible for ensuring that all employees and external service providers strictly adhere to the requirements set forth in this Environmental Management Plan (EMP). Compliance with the EMP is essential to maintaining environmental integrity and operational accountability throughout the project lifecycle.

In instances where non-compliance is observed, the following procedure shall be implemented:

Identification and Reporting of Non-Compliance

Non-compliances shall be identified during routine inspections/audits conducted by the Safety, Health, Environment, and Wellness (SHEW) Section or reported in any other form. Findings shall be formally documented and reported to the relevant Area Manager, Superintendent, or Project Manager for appropriate corrective action.

Notification to Responsible Stakeholders

Upon receipt of the non-compliance report, the Area Superintendent or Project Manager shall promptly notify all responsible stakeholders, including contractors and service providers, of the specific non-compliance issues.

Implementation of Corrective and Preventative Actions

Corrective and preventative measures shall be developed and implemented within an agreed timeframe. These actions must be appropriate to the nature and severity of the non-compliance and aim to prevent recurrence.

Follow-Up Verification

Follow-up inspections or audits shall be conducted by the SHEW Section to verify the effectiveness of the implemented corrective and preventative actions. The results of these follow-ups shall be documented and communicated to relevant parties.

In addition, the Contractor shall be obligated to notify NamPower immediately in the following circumstances:

- Any disputes or conflicts arising with landowners or their representatives.
- Any special conditions or requests made by landowners or their representatives that may affect project activities or environmental compliance.

NamPower reserves the right to suspend or halt all contractor activities in the event of a gross violation of the EMP. Such action may be taken to prevent further environmental harm, ensure regulatory compliance, and uphold the standards of responsible project execution

10 RECORD KEEPING

Record keeping is important for the effective functioning and implementation of an EMP. EMP documentation must be kept in both the hard copy and electronic format for safe keeping. These must include but not limited to:

- Copy of the Environmental Clearance Certificate
- A copy of an EMP
- EMP implementation activities
- Induction records
- Audit and Inspection reports
- Other related documents

11 CONCLUSION

All management measures and legal obligations stipulated in this Environmental Management Plan (EMP) shall be fully implemented to ensure environmental compliance by all parties involved in operational activities. This approach is essential to proactively identify, prevent, or mitigate potential adverse environmental impacts, while simultaneously enhancing positive outcomes. Given the

nature of the operational and maintenance activities associated with the powerline and its related infrastructure, it is anticipated that the environmental and social impacts will be minimal. Therefore, it is recommended that the Environmental Clearance Certificate (ECC) be issued.

12 REFERENCES

Cunningham, P. (2022). VEGETATION ASSESSMENTS WITHIN SERVITUDES OF HIGH VOLTAGE LINES [Rapid Vegetation Assessment] – 66kV OBIB - LORELEI T-OFF.

Annexure 1: Areas of importance and protected species

Table 6. Areas of importance, with protected species potentially affected, along the 66kV Obib - Lorelei T-Off transmission line.

Hotspot areas	Distance (km)	Area	Important species	Common names	Status	Aliens	Other important features	Importance ranking
	0 to 0.3	Obib SS						Low
1	0.3 to 2.8	Obib SS	<i>Boscia albitrunca</i> <i>Brownanthus arenosus</i> <i>Euphorbia chersina</i> <i>Euphorbia dregeana</i> <i>Sarcocaulon inerme</i>	Shepherd's tree	F N-end N-end N-end End	Rocky + DL's		Medium
	2.8 to 8.6	Obib SS						Low
2	8.6 to 10.1	Obis SS				DL		High
	10.1 to 11.3	Obis SS	<i>Aloe dichotoma</i> <i>Boscia albitrunca</i>	Quiver tree Shepherd's tree	N-end; F; NC; C2 F			Low
3	11.3 to 11.5	Obib SS	<i>Euclea pseudebenus</i>	Wild ebony	F	DL		High
	11.5 to 16.4	Obib SS						Low
4	16.4 to 16.6	Lorelei SS	<i>Aloe ramosissima</i>		N-end; F; NC, C2, LC	Hills		High
	16.6 to 22.2	Lorelei SS						Low
5	22.2 to 24.2	Lorelei SS				Hills		High

Distance: Might not be precise as it was measured using car odometer

Importance ranking: Low, Medium & High

Status: F = Forest Act No. 12 of 2001;

NC = Nature Conservation Ordinance No. 4 of 1975

End & N-end = Endemic & Near endemic (Mannheimer and Curtis 2018)

C2: CITES Appendix 2 species

LC: Least concern (Loots 2005)

DL's: Drainage lines

Annexure 2: Protection of Ecology & Vegetation

Activity: Protection of Ecology & Vegetation	Compliance	
	Yes	No
Track discipline		
Evidence of new tracks		
Evidence of off-road driving		
Evidence of turnaround violations		
Evidence of oil spills		
Evidence of waste		
Evidence of litter		
Illegal collection/damage of flora		
Evidence of illegal plant collection		
Evidence of vehicle damage to plants		
Evidence of unauthorised people/vehicles		
Erosion		
Evidence of erosion along route		
Evidence of recovery at rehabilitated sites		
Invasive alien plants		
Evidence of invasive alien plants along route		
Bird mortalities		
Record all dead birds encountered below the line		

Annexure 3: Landowner permission form



Landowner Permission Form



Landowner name: _____ Contact number: _____

Representative name: _____

Farm name: _____

Contractor: _____

Representative name: _____ Contact number: _____

General Notice

This form is to be used prior to a contractor entering a landowner's property to commence any work related to the construction or maintenance of power-line structures and servitudes.

The form must be completed by either the landowner or his / her legal representative on the property.

Section A: Before activities commence

Activities to be undertaken on the property (completed by the contractor):

Use of water resources
Powerline erection Powerline
refurbishment Trimming of
vegetation Use of other
infrastructure (please specify)

Camping Bush
clearing
Herbicide application
Access Road usage
Rehabilitation

Specific conditions to be met on the property (as stipulated by the landowner):

Dates when access is needed:

From: _____

To: _____

Signatures (prior to entry)

Landowner/Representative

Contractor representative

Date

Date

Section B: Upon completion of work and prior to leaving the property

Remarks on compliance or misconduct (upon completion of activities):

Issues still to be resolved upon completion of activities:

Signatures (upon completion)

Landowner/Representative

Contractor representative

Date

Date

Annexure 4: Chance find procedure

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

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

Procedure:

Action by person identifying archaeological or heritage material

- a) If operating machinery or equipment stop work
- b) Identify the site with flag tape
- c) Determine GPS position if possible
- d) Report findings to foreman

Action by foreman

- a) Report findings, site location and actions taken to superintendent
- b) Cease any works in immediate vicinity

Action by superintendent

- a) Visit site and determine whether work can proceed without damage to findings
- b) Determine and mark exclusion boundary
- c) Site location and details to be added to project GIS for field confirmation by archaeologist

Action by archaeologist

- a) Inspect site and confirm addition to project GIS
- b) Advise NHC and request written permission to remove findings from work area
- c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

- a) Actions as above
- b) Field inspection by archaeologist to confirm that remains are human
- c) Advise and liaise with NHC and Police
- d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.