

Environmental Management Plan (EMP)

The Proposed Construction and Operation of Wind Resource Assessment (WRA) Meteorological Masts and Associated Activities in the Tsau //Khaeb National Park, //Kharas Region, Namibia - Application for Environmental Clearance Certificate (ECC)



MEFT Application No.: APP-005972

Proponent: Namibia Power Corporation (Pty) Ltd





P. O. Box 2864 Windhoek, Namibia

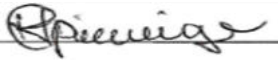
September 2025

DOCUMENT INFORMATION

Title: Environmental Management Plan (EMP) for the Proposed Construction and Operation of Wind Resource Assessment (WRA) Meteorological Masts and Associated Activities in the Tsau //Khaeb National Park, //Kharas Region, Namibia.

Prepared by:

Author:	Fredrika N. Shagama (Environmental Assessment Practitioner)
Qualifications:	PhD. Student: Civil Engineering (Geotechnics & Hydrogeology), VSB - Technical University of Ostrava, Czech Republic Post Graduate Diploma in Environmental Studies, International University of Management (IUM) MSc. Geological Engineering (<i>cum laude</i>) with primary focus in Hydrogeology, VSB - Technical University of Ostrava, Czech Republic BSc. Geological Engineering, VSB - Technical University of Ostrava, Czech Republic
Professional Affiliations:	Environmental Assessment Professionals of Namibia (EAPAN) - Practitioner (Membership No. 183); Geoscience Council of Namibia (GSCN) – Geoscientist, Registration No. GSCN/G-057; International Association of Hydrogeologists (IAH) - Full Member, Membership No.139790; Namibian Hydrogeological Association (NHA) – Member
Contact Details:	Email: eias.public@serjaconsultants.com ; P.O. Box 27318, Windhoek, Namibia
Signature:	
Date:	September 2025
REVIEWERS' DETAILS	
Reviewer:	Nicola Rump: Principal Environmental Scientist SRK Consulting (South Africa) Pty Ltd
Qualifications:	MSc (Animal Physiology)
Professional Affiliations:	Registered Environmental Assessment Practitioner (EAPASA)
Contact Details:	nrump@srk.co.za 254 Walmer Boulevard, South End Gqerberha, South Africa
Signature:	 <p>SRK Consulting - Certified Electronic Signature 51085145906WRA Report 5240-5069-5705-RUMP-09/09/2025 This signature has been signed digitally. The Authorities please refer to the use for this document. The details are stored in the SRK Signature Database</p>
Date:	September 2025

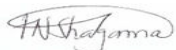
PROPONENT DETAILS	
Proponent:	Namibia Power Corporation (Pty) Ltd 15 Luther Street, Windhoek P.O. Box 2864, Windhoek, Namibia
Name of the Representative & Role:	Linda lipinge: Project Manager
Contact details:	Email Address: Linda.lipinge@nampower.com.na CC: retf@nampower.com.na Telephone: +264 (61) 205 2602
Signature:	
Date:	September 2025
Project Reference No.	SC/RP/NPWR-14/2024 NA-NAMPOWER-388248-CS-QCBS: Consulting Services for the Provision of an Environmental and Social Impact Assessment (ESIA) for NamPower Wind Project, Including the Transmission Line, in the Tsau //Khaeb (Sperrgebiet) National Park Area

SERJA'S STATEMENT OF INDEPENDENCE

As the Appointed Environmental Consultant to undertake the EIA Study and Preparation of this Environmental Management Plan (EMP) for the Proposed Construction and Operation of Wind Resource Assessment (WRA) Meteorological Masts and Associated Activities in the Tsau //Khaeb National Park, //Kharas Region, Serja Hydrogeo-Environmental Consultants cc declares that we:

- do not have, to our knowledge, any information or relationship with the Proponent (Namibia Power Corporation (Pty) Ltd), the Ministry of Environment, Forestry and Tourism (MEFT)'s Department of Environmental Affairs and Forestry (DEAF) that may reasonably have the potential of influencing the outcome of this Environmental Assessment and the subsequent Environmental Clearance Certificate (ECC) applied for.
- have knowledge of and experience in conducting environmental assessments, the Environmental Management Act (EMA) No. 7 of 2007, and its 2012 Environmental Impact Assessment (EIA) Regulation, as well as other relevant national and international legislation, guidelines, policies, and standards that govern the proposed project as presented herein.
- have performed work related to the ECC application in an objective manner, even if the results in views and findings, or some of these may not be favourable to the Proponent.
- have complied with the EMA and other relevant regulations, guidelines, and other applicable laws as listed in this document.
- declare that we do not have and will not have any involvement or financial interest in the undertaking/implementation of the proposed project, other than remuneration (professional fees) for work performed to conduct the EIA and apply for the ECC in terms of the EIA Regulations' requirement as an Environmental Assessment Practitioner (EAP).

Disclaimer: Serja Hydrogeo-Environmental Consultants will not be held responsible for any omissions and inconsistencies that may result from information that was not available at the time this document was prepared and submitted for evaluation.



.....

Signature:

Fredrika N. Shagama: Environmental Assessment Practitioner

Date: September 2025

TABLE OF CONTENTS

DOCUMENT INFORMATION i

TABLE OF CONTENTS iv

LIST OF FIGURES..... iv

LIST OF TABLES v

LIST OF APPENDICES v

LIST OF ABBREVIATIONS..... v

1 INTRODUCTION..... 1

 1.1 Project Background and Location 1

 1.2 Purpose of the Environmental Management Plan (EMP) 2

2 BRIEF DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES..... 4

 2.1 Planning and Design 4

 2.2 Site Preparation and Construction Phase 8

 2.2.1 Required Resources and Services..... 8

 2.3 Decommissioning and Rehabilitation of Disturbed Sites 10

 2.4 Operational and Maintenance Phase..... 11

3 LEGAL FRAMEWORK: PERMITTING AND LICENSES 12

 3.1.2 World Bank Environmental and Social Framework..... 14

4 EMP IMPLEMENTATION RESPONSIBILITIES 15

 4.1 Financing of Environmental Control 17

 4.2 Amendments of the EMP 17

5 ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES 18

 5.1 Key Identified Potential Negative Impacts 18

 5.1.1 Positive impacts 18

 5.1.2 Negative (adverse) impacts 18

 5.2 The Environmental Management Measures and Rehabilitation of Sites 19

 5.3 The Environmental Monitoring 42

LIST OF FIGURES

Figure 1-1: Locality map of the proposed WRA met masts and LiDAR instruments in the Tsau //Khaeb National Park, //Kharas Region..... 1

Figure 1-2: The locality of the project site within the hosting (!Nami#Nûs) constituency in the Region 2

Figure 2-1: Explanatory drawing of the met mast as intended to be installed at PML01, PML02, and PML03 (source: GEO-NET, 2025) 5

Figure 2-2: Photo of typical LiDAR Installation (Option 1) for PML04 (source: GEO-NET, 2025)..... 6

Figure 2-3: Example of LiDAR Installation (Option 1) for PML04 (source: GEO-NET, 2025) 7

Figure 2-4: Typical LiDAR Temporary Installation (Option 2) for PML04 (source: GEO-NET, 2025..... 7

LIST OF TABLES

Table 2-1: Details for the proposed WRA measurement sites (GEO-NET, 2025)..... 4
 Table 3-1: List of legal requirements and permits for the WRA Met masts 12
 Table 4-1: The EMP implementation responsibilities for the WRA Met masts installation and operations 15
 Table 5-1: The Environmental and social management and mitigation measures for the Planning (Pre-construction) Phase 20
 Table 5-2: The Environmental and social management and mitigation measures for the Construction Phase 23
 Table 5-3: The Environmental and social management and mitigation measures for the Operational and Maintenance Phase 33
 Table 5-4: Decommissioning Management Measures for the WRA Met masts and associated structures 40

LIST OF APPENDICES

Annexure 1: Chance Finds Procedure (Archaeology & Heritage)

LIST OF ABBREVIATIONS

- BME: Bat Monitoring Equipment
- DEAF: Department of Environmental Affairs and Forestry
- DWNP: Directorate of Wildlife and National Parks
- EAP: Environmental Assessment Practitioner
- ECC: Environmental Clearance Certificate
- ECO: Environmental Control Officer
- EIA: Environmental Impact Assessment
- EMA: Environmental Management Act
- EMP: Environmental Management Plan
- GG: Government Gazette
- GN: Government Notice
- HSE Officer: Health, Safety & Environment Officer

LiDAR:	Light Detection and Ranging
MAFWLR	Ministry of Agriculture, Fisheries, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MIME	Ministry of Industries, Mines and Energy
NHC	National Heritage Council (NHC) of Namibia
PML	Proposed Measurement Location
PPE:	Personal Protective Equipment
Reg, S:	Regulation, Section
SPCC:	Spill Prevention, Control, and Countermeasure (SPCC)
TKNP:	Tsau //Khaeb National Park
TLB:	Tractor-Loader (front bucket)-backhoe
WEF:	Wind Energy Facility
WRA:	Wind Resource Assessment

1 INTRODUCTION

1.1 Project Background and Location

The Namibia Power Corporation (Pty) Ltd (hereinafter referred to as NamPower or the Proponent) proposes to install and operate three (3) climbable guyed-wired lattice meteorological masts (met masts) and one unmanned Light Detection and Ranging (LiDAR) in the Tsau //Khaeb National Park (TKNP) - Figure 1-1. The met masts will be used to monitor and assess the wind resource for a proposed NamPower utility-scale Wind Energy Facility (WEF) in the area. (Note: the WEF will be subject to a separate Background Information Document (BID) and EIA process and is therefore not specifically discussed in this Scoping Report). The proposed wind resource monitoring structures to be installed are PML01 (met mast), PML02 (met mast), PML03 (met mast), and PML04 (LiDAR). The met masts, inclusive of the associated anchoring cables, will cover a footprint of 100m x 100m (10,000m² = 1ha) each and will be 120m high above ground level. The LiDAR instruments will be approximately 2m high and cover a minimal footprint area. The site area planned for the installation of the Wind Resource Assessment (WRA) structures is located in the TKNP, about 45km west of Rosh Pinah Town in the //Kharas Region of Namibia. The project site is within the !Nami#Nūs (Naminus) Constituency - Figure 1-2.

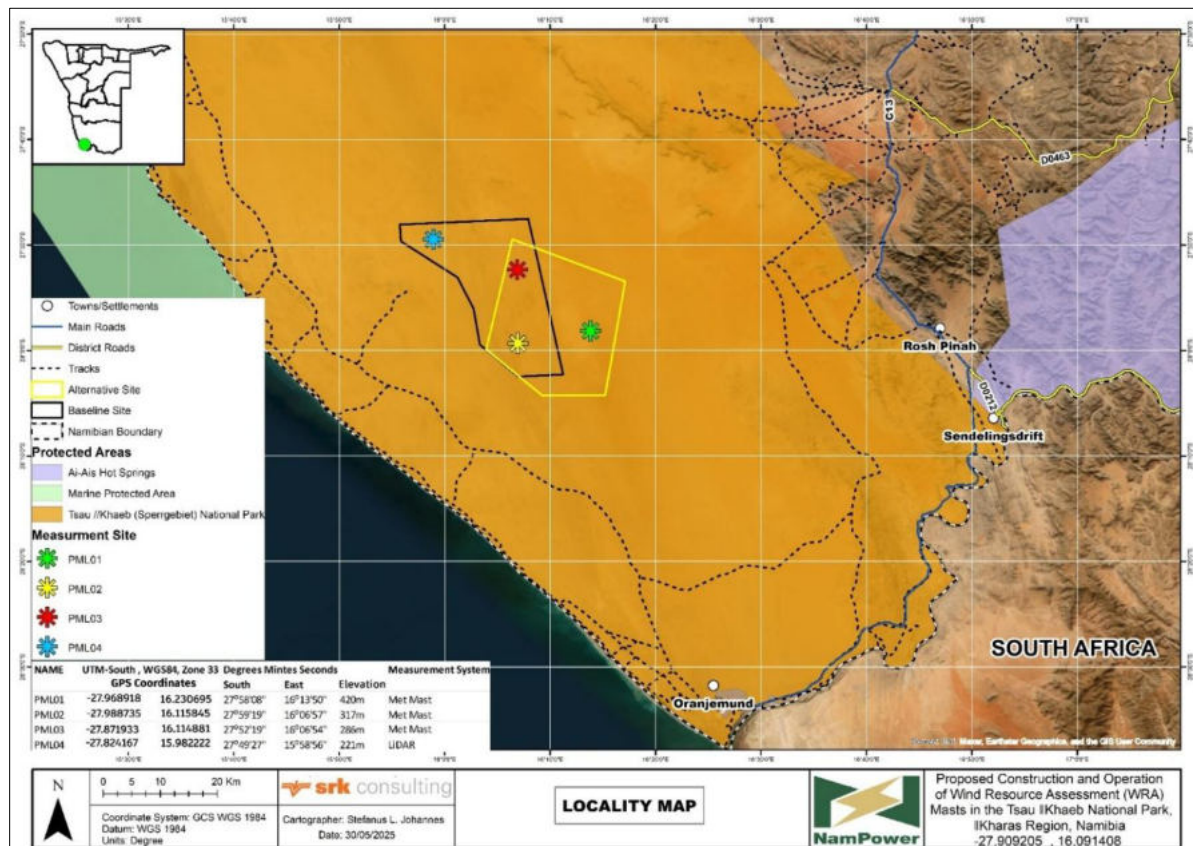


Figure 1-1: Locality map of the proposed WRA met masts and LiDAR instruments in the Tsau //Khaeb National Park, //Kharas Region

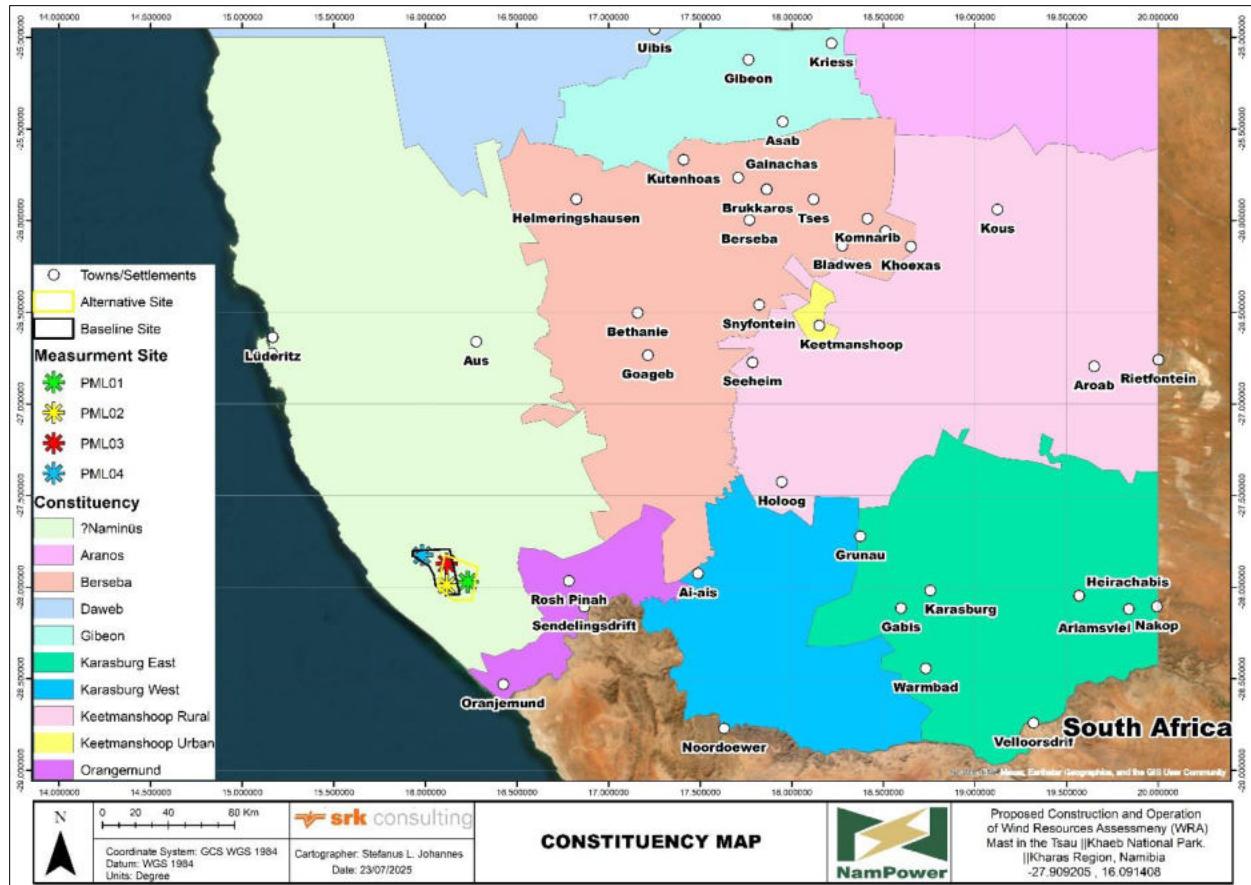


Figure 1-2: The locality of the project site within the hosting (!NamiñNùs) constituency in the Region

1.2 Purpose of the Environmental Management Plan (EMP)

The EMP is developed in accordance with Regulation 8(j) of the EIA Regulations (2012) and should be included as part of the Environmental Assessment (EA) scoping report. A 'Management Plan' is defined as:

"...a plan that describes how activities that may have significant environmental 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 synthesizes all proposed management and mitigation actions, along with monitoring actions, set within a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EA process and the required mitigation measures to be implemented on-site. It is important to note that an EMP is a statutory 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 can be amended to adapt to address project changes and/or environmental conditions and feedback from compliance monitoring.

The EMP is therefore aimed at guiding environmental management throughout the different phases of the proposed project, namely: planning and design, construction, operational and maintenance, and decommissioning.

- Planning and Design phase – Preparation of all the administrative and technical requirements needed for the actual works on the ground. The planning would entail obtaining the necessary permitting and authorization from relevant national and local stakeholders (land custodian), facilitating the recruitment and procurement processes (tender for the construction of the met masts), etc.
- Construction (installation) phase – The phase during which earthworks and site preparation works will be carried out on certain areas of the project site to erect the met masts, and for the installation of the necessary services infrastructure and support services required for the met mast operations.
- Operational and Maintenance phase: The phase during which the met masts and related activities will be operated and managed by NamPower and its appointed external maintenance specialist (contractor). It is during this phase that the met masts will be used to collect the required wind data onsite (essential for evaluating wind energy potential before the implementation of the proposed wind farm). The met masts will also provide the required height for installation of the bat monitoring equipment to record bat activity in the area, to facilitate the bat impact assessment for the WEF EIA.
- Decommissioning and Rehabilitation – The decommissioning phase of the met masts entails the careful dismantling and removal of all temporary infrastructure, including the met mast structures, LiDAR equipment, guy wires, and associated foundations or cabling. This will be undertaken with minimal disturbance to the surrounding environment, adhering to best environmental practices. Following removal, the disturbed sites will be rehabilitated by levelling and stabilising the soil, promoting natural regeneration of native vegetation, and ensuring no litter or hazardous materials remain. This will be done to restore the sites as closely as possible to the original, pre-installation condition, thereby preserving the ecological and visual integrity of the TKNP.

2 BRIEF DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES

2.1 Planning and Design

The details of the four (4) WRA measurement sites are provided in Table 2-1, while the preliminary design drawing (the anchoring design) and a typical photo of the met mast type proposed for PML01, PML02, and PML03 sites are shown in Figure 2-1. Each 120m met mast will be equipped with both Bat Monitoring Equipment (BME) and Wind Resource monitoring equipment. LiDAR systems typically have a limited footprint area and are usually mobile and solar-powered, thus minimizing disturbance to the landscape. The installation of such equipment shall ensure easy maintenance of all equipment and avoid any potential interference among the monitoring equipment.

Table 2-1: Details for the proposed WRA measurement sites (GEO-NET, 2025)

Name	GPS coordinates (Latitude, Longitude)	Equipment Height above ground level (magl)	Elevation (meters above sea level (masl))	Measurement system
PML01	27° 58' 8.1048" S 16° 13' 50.5020" E	120	420	Met mast
PML02	27° 59' 19.4460" S 16° 6' 57.0420" E	120	317	Met mast
PML03	27° 52' 18.9552" S 16° 6' 53.5644" E	120	286	Met mast
PML04	27° 56' 21.1740" S 16° 11' 40.3116" E	2	221	LiDAR

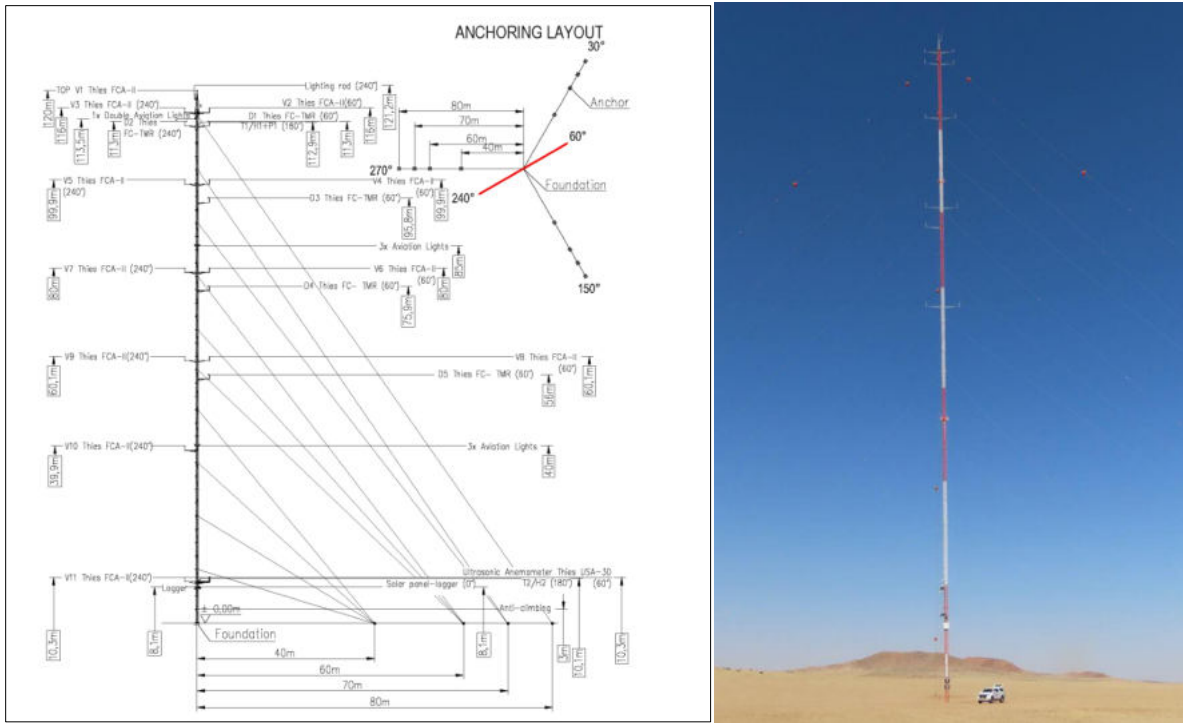


Figure 2-1: Explanatory drawing of the met mast as intended to be installed at PML01, PML02, and PML03 (source: GEO-NET, 2025)

For the LiDAR system (PML04), there are two (2) considered options (Option 1 and Option 2). Typical examples of LiDAR installations for Option 1 (preferred option) and Option 2 (alternative option), with a temporary installation for up to 24 months, are shown in Figure 2-2, Figure 2-3, and Figure 2-4.

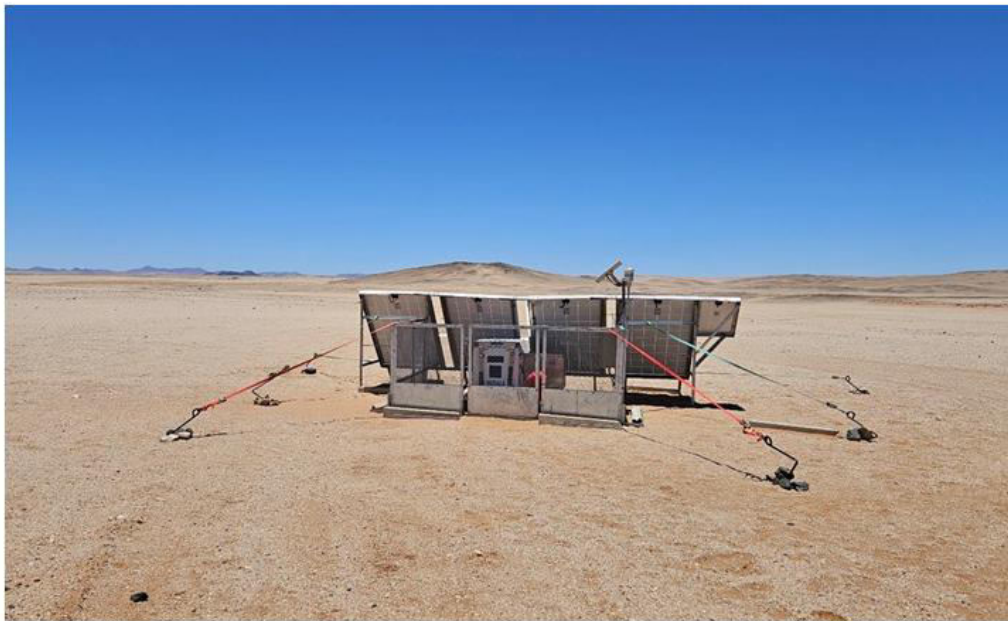


Figure 2-2: Photo of typical LiDAR Installation (Option 1) for PML04 (source: GEO-NET, 2025)



Figure 2-3: Example of LiDAR Installation (Option 1) for PML04 (source: GEO-NET, 2025)

An example photo of Option 2 of the PML04 LiDAR installation on a trailer is in Figure 2-4.



Figure 2-4: Typical LiDAR Temporary Installation (Option 2) for PML04 (source: GEO-NET, 2025)

2.2 Site Preparation and Construction Phase

A contractor (consultant) will be appointed to carry out the project construction/installation work. Site construction work will include minimal excavation/earthwork to prepare the sites for the masts' construction and installation, concrete civil works, and mast rigging. The construction of the concrete foundation for the met masts will take place on site using manual labour as far as practicably possible.

The duration of the construction work is anticipated to be three (3) to four (4) weeks per met mast (depending on the weather).

The appointed contractor (consultant) will have to make arrangements for their logistics (including transportation of workers and materials to the site). The construction workers will have to camp on site (with the relevant permissions/permits from MEFT) for periods during the construction phase.

The appointed contractor (and any other personnel using the site) will be required to adhere to health, safety, and environmental requirements for construction and operation (as well as maintenance) to be presented in the EMP for the project. The met masts will be fully earthed once construction is complete.

The required resources and services for the construction phase are presented in the subsections below.

2.2.1 Required Resources and Services

The following services and infrastructure, as provided below, will be required for the project activities:

2.2.1.1 *Human resources and accommodation*

About twenty (20) people will be involved in the construction phase of the project. However, the maximum number of construction personnel on site at any one time would be twelve (12) people. This workforce will include, but not be limited to, site work team, supervisors, climbers, and Tractor-Loader (front bucket)-backhoe (TLB) operators.

All logistics related to the workers, including transportation to and from the site, will be determined by the appointed construction contractor (WRA consultant). There is no existing access track for much of the route - the idea is that the contractor will use the same tracks where possible to minimize soil disturbance.

The construction workforce will be temporarily camping on site for the duration of the installation of the met masts. On-site accommodation (which will be temporary structures, such as tents or similar, with rudimentary portable cooking and ablution facilities) is required due to the distance from Rosh Pinah to the site and the rough terrain. Commuting daily would mean significant periods spent on travelling from and to the site, thus extending the installation (construction) work period. All on-site accommodation facilities and waste will be removed at the end of the construction period at each site, and the area returned to as close to its pre-construction state as possible.

2.2.1.2 Water supply

Minimal water is required for the construction (installation) of met masts, specifically for concrete works (casting concrete foundation for structures). However, water will be needed for the workforce (drinking, cooking, and ablution purposes). The contractor will transport and provide water on-site for the workforce.

2.2.1.3 Power supply

Electricity is not required during the construction stage of the met masts. For camping, there will be a need for electricity for lighting and cooking, among others, and the suitable power supply needs will be determined by the WRA consultant (construction team). As there is no power supply on site, it is anticipated that a diesel-powered generator and/or solar panels & battery storage will be used, and solar panels to supply power for the operational phase.

2.2.1.4 Fuel Supply (machinery and equipment)

On-site refueling of project vehicles will only be undertaken as an exception, as this will be done at the nearest fuel service station in Rosh Pinah, and travel distances within the site are relatively small. However, due to the road/travelling and terrain challenges (conditions) between the site and Rosh Pinah, the contractor may need to store small amounts of fuel on site, for generators and other machinery, during the construction period. Correct storage and handling methodologies and mitigation measures to deal with any accidental leaks or spills will be in place.

2.2.1.5 Vehicles and equipment

The construction vehicles will consist of two (2) to three (3) light-duty vehicles, two (2) TLB heavy equipment, and two (2) trucks. These will be stored and parked at a designated storage area on site (preferably next to the campsite).

2.2.1.6 Site Accessibility (Access roads)

Since the site is in a National Park, there are no existing access roads or tracks. Thus, a new temporary track will be created to safely access the site. This will not be paved or lined; however, it is intended that, to minimize environmental damage (such as soil erosion and vegetation loss) by creating multiple access tracks, all vehicles use the same tracks when accessing the site as far as practically possible.

2.2.1.7 Waste management

The different waste generated on-site during construction will be handled as follows:

- Sewage: At least two (2) chemical portable toilets will be provided on-site and emptied according to the manufacturer's instructions.
- General and domestic waste: Solid, scavenger-proof waste containers will be made available on site for temporary waste storage and subsequently ensure proper disposal at the dedicated waste landfill in Rosh Pinah.
- Hazardous waste: All construction vehicles, machinery, and fuel-consuming equipment on site will be provided with drip trays containing sand to capture potential fuel spills and waste oils.

It is not anticipated that there will be waste fuels or oil generated on-site. However, if leaks occur, these will be carefully stored in a standardized container to be safely disposed of at the approved hazardous waste management facility in Windhoek.

2.2.1.8 Occupational Health and Safety

Adequate and appropriate Personal Protective Equipment (PPE) will be provided to all project personnel while on and working at the construction site. A fully-equipped first aid kit will be readily available on-site, and staff will be trained in its correct use.

Since this activity will include lifting, working at heights, and potential exposure to environmental elements (snakes, extreme heat, etc.), the following mitigation measures will need to be implemented to eliminate or reduce occupational health and safety issues:

- Contractor to prepare a health and safety plan
- All workers working at heights will need to have appropriate working at heights training
- Contractor to have a fall arrest and working at heights plan
- Emergency preparedness plan including emergency equipment such as fire extinguishers, first aid, antivenom kits, trained first aider.

2.2.1.9 Potential Accidental Fire Outbreaks

A minimum of two (2) well-serviced fire extinguishers with valid service dates will be readily available on-site throughout the construction phase, and staff will be trained in the correct use thereof.

2.3 Decommissioning and Rehabilitation of Disturbed Sites

Once the construction activities are completed, the contractor will need to implement site rehabilitation measures. Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental, and contingency aspects by the WRA construction team. As part of site rehabilitation, and to ensure that the project activities are ceased in an environmentally sustainable manner, the site will be rehabilitated by the WRA contractor through carrying out the following:

- Dismantling and removal of construction temporary support structures (such as camps, where applicable) and associated infrastructures from the project site and area, and appropriate disposal of sewage
- Removing all construction equipment and vehicles, and
- Clean up of site working areas and transporting the waste to the solid waste facility in Rosh Pinah, and hazardous waste will be transported to the appropriate approved facility to handle this type of waste, i.e., the Kupferberg Landfill site in Windhoek.

Further decommissioning and rehabilitation practices on site will include:

- Backfilling of pits and trenches used for construction,
- Replacement of any topsoil that was removed/set aside for construction, and light scarification of any compacted soil, to allow vegetation regrowth,
- Closing and capping of construction holes to ensure that they do not pose a risk to wildlife in the area, and
- Levelling of stockpiled topsoil: This will be done to ensure that the disturbed land sites are left as close to their original state as possible.

2.4 Operational and Maintenance Phase

During this phase, the met masts will be operational and provide the data required for the wind resource assessment. The same met masts will also be used to affix the bat monitoring equipment required for one year of pre-construction bat monitoring at heights corresponding to within the expected swept area of the standard wind turbine rotors, to inform the EIA for the WEF itself. Data from the bat monitoring equipment will need to be downloaded and checked periodically to ensure proper functioning of the equipment.

Regular maintenance and inspections of the met masts and LiDAR will be carried out by the WRA contractor (consultant) according to the maintenance schedule. All contractors and personnel accessing the site will be required to adhere to environmental, health, and safety measures to be provided in the EMP.

The next chapter presents relevant alternatives considered for the project development activities.

3 LEGAL FRAMEWORK: PERMITTING AND LICENSES

The Proponent has the responsibility to ensure that the project activities, as well as the EA process, conform to the principles of the EMA and must ensure that employees act per such principles. Table 3-1 presents requirements of an EMP as stipulated by Section 8 (e) of the EIA Regulations, primarily on specific approvals and permits that may be required for the activities required for the project.

Table 3-1: List of legal requirements and permits for the WRA Met masts

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts be subject to an environmental assessment process (Section 27). Details of the principles that are to guide all EAs.	The EMA and its regulations should inform and guide the EIA process. Should the ECC be issued to the Proponent, it should be renewed every 3 years, counting from the date of issue. For any amendments to the EMP/EMP (and subsequent ECC) or transfer of the ECC to another Proponent, an appropriate application should be submitted to the Office of the Environmental Commissioner at the Department of Environmental Affairs (DEAF) and Forestry of the MEFT. The contact details are: Mr. Timoteus Mufeti: Environmental Commissioner Tel: +264 61 284 2701
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21). Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
Nature Conservation Amendment Act, No. 3 of 2017	The Proponent, through their appointed contractor, will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and other State land.	The proposed sites fall within a national park. The relevant permits will therefore need to be obtained to enter the park and conduct the proposed activities, and the management measures and restrictions pertaining to activities within the park will need to be adhered to.
The Parks and Wildlife Management Bill of 2008	Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of Indigenous biological resources, and the management of protected areas, to conserve biodiversity and contribute to national development.	The Proponent and their contractors will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and other State land. Therefore, continued engagement with the Directorate of Wildlife and National Parks (DWNP) should be continued, and consent should be issued. MEFT: DWNP (Rosh Pinah) through the Head Office in Windhoek Director: Mr. Ben Kahuure Tel: +264 61 284 2518

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
		<p>Mr. Wayne Handley (Chief Control Warden): Rosh Pinah Tel: +264 63 223 223</p>
<p>Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)</p>	<p>Regulation 3(2)(b) states that “No person shall possess or store any fuel except under the authority of a license or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 liters or less in any container kept at a place outside a local authority area”</p>	<p>It is indicated that a small amount of fuel will be stored onsite for generators and other machinery. Thus, if the contractor is planning to store fuel of 600 litres or more onsite, the contractor should obtain the necessary authorization from the MIME for the storage of fuel on-site (Consumer Installation Permit).</p> <p>Mr. Carlo McLeod (MIME: Acting Director – Petroleum Affairs) Tel: +264 61 284 8291</p>
<p>Civil Aviation Act No. 6 of 2016</p>	<p>The heights of the proposed met masts might be a threat to the nearest aerodrome reference point. Therefore, the Proponent should verify these prior to construction with the Namibia Civil Aviation Authority (NCAA).</p>	<p>The proposed site (obstructions/masts) is over 50km west of the Rosh Pinah aerodromes (i.e., more than the recommended 15km distance). Therefore, the approval from the Namibia Airports Company (NAC) may not be required. However, clarity and information on known flight paths should be sought from the Namibia Civil Aviation Authority (NCAA) during siting.</p> <p>Mr B. /Uirab: Chief Executive Officer Mr. Uys Mwanawina: Safety officer Tel: +264 61 295 5000</p> <p>The Executive Director for the NCAA: Ms. Toska Sem Tel: +264 83 235 2100</p>
<p>National Heritage Act No. 76 of 1969</p>	<p>Call for the protection and conservation of heritage resources and artefacts.</p>	<p>Should any archaeological materials, such as bones, unknown graves, old weapons/equipment, etc., be found onsite, work should stop immediately, and the National Heritage Council of Namibia must be informed as soon as possible. The Heritage Council will then decide whether to clear the area or decide to conserve the site or materials.</p>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
		<p>Contact Details at the National Heritage Council (NHC) of Namibia. A heritage chance finds procedure is also included as Annexure 1 in this EMP, outlining the procedure to follow should any heritage items be discovered during construction.</p> <p>Mrs. Erica Ndalikokule – NHC Director</p> <p>National Heritage Council of Namibia</p> <p>Tel: +264 61 301 903</p>

Relevant international best practice standards and guidelines that were taken into consideration in the compilation of this EMP are summarised below.

3.1.1 International Finance Corporation (IFC) Standards

The International Finance Corporation's (IFC) Sustainability Framework articulates the Corporation's strategic commitment to sustainable development and is an integral part of IFC's approach to risk management. The Sustainability Framework comprises IFC's Policy and Performance Standards on Environmental and Social Sustainability and IFC's Access to Information Policy. The Policy on Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability. There are eight (8) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires project Proponents to meet (where relevant) throughout the life of an investment.

Given the fact that the proposed project is likely to be funded by international investors, the financing requires the project to comply with certain requirements, particularly the International Finance Corporation (IFC) Performance Standards (PSs). Therefore, it is crucial to analyze the EIA Study process against these IFC's PS.

3.1.2 World Bank Environmental and Social Framework

The World Bank Environmental and Social Framework (ESF) is a comprehensive policy adopted in 2018 to guide how the World Bank and its borrowers manage environmental and social risks in project financing. It aims to ensure development projects financed by the World Bank are environmentally and socially sustainable, and to protect people and the environment from adverse project impacts. It includes ten Environmental and Social Standards (ESS), which define project requirements for borrowers to meet throughout the project lifecycle.

3.1.3 World Bank Environmental and Social Framework

The World Bank Group's Environmental, Health, and Safety (EHS) Guidelines are technical reference documents that set out international good practice on environmental, health, and safety matters for projects and operations financed by the World Bank (WB) and International Finance Corporation (IFC). These guidelines provide a framework for managing environmental and health risks in projects, ensuring adherence to Good International Industry Practice (GIIP), and are designed to be used together with project-specific requirements and local regulations.

4 EMP IMPLEMENTATION RESPONSIBILITIES

NamPower (the Proponent) is ultimately responsible for the implementation of the EMP. However, the Proponent may delegate this responsibility or part of it to someone else at any time, as they deem necessary. The roles and responsibilities of all delegates/parties involved in the effective implementation of this EMP are provided in Table 4-1.

Table 4-1: The EMP implementation responsibilities for the WRA Met masts installation and operations

Role	Responsibilities
NamPower (Proponent)	<ul style="list-style-type: none"> • Managing the implementation of this EMP and updating and maintaining it when necessary. • Management and monitoring of individuals and/ or equipment on-site in terms of compliance with this EMP and issuing fines for contravening EMP provisions.
NamPower's assigned Project Manager	<p>This individual will be responsible for ensuring that the project activities of the project are completed on time. The Project Manager's duties and responsibilities will include:</p> <ul style="list-style-type: none"> • Ensure that relevant commitments contained in the EMP are adhered to. • Ensure relevant staff are trained in procedures entailed in their duties. • Maintain records of all relevant environmental documentation for the project. • Reviewing the EMP annually and amending the document when necessary. • Issuing fines to individuals who may be in breach of the EMP provision and, if necessary, removing such individuals from the project site. • Cooperate with all relevant interested and affected parties/stakeholders. • Development and management of schedules for daily activities
Planning/Construction/Maintenance Contractor (depending on the project phase) (and as deemed necessary, Subcontractors)	<ul style="list-style-type: none"> • The Contractors' representative or site supervisors (as appropriate) will be required to: • Ensure that the relevant commitments contained in the EMP Action Plans are adhered to.

Role	Responsibilities
	<ul style="list-style-type: none"> • Compile relevant procedures and method statements for approval by the applicable phase site manager before initiation of project activities on the sites. • Ensure that all relevant staff are trained in procedures. • Maintain records of all relevant environmental documentation applicable to their work. • Immediately report any environmental, health, or safety incidents/accidents to the NamPower Project Manager.
<p>Contractor's Environmental Control Officer (ECO) / Health, Safety & Environment (HSE) Officer</p>	<p>The appointed contractor may assign the responsibility of ensuring EMP compliance throughout the project life cycle to a designated member of staff or an externally qualified and experienced person, referred to in this EMP as the Environmental Control Officer (ECO) / HSE Officer. The ECO or HSE Officer will have the following responsibilities:</p> <ul style="list-style-type: none"> • Management and facilitation of communication between the Proponent and stakeholders regarding this EMP. • Conducting site inspections of all areas for the implementation of this EMP (monitor and audit the implementation of the EMP). • Advising the Proponent or Project Manager on the removal of person(s) and/or equipment not complying with the provisions of this EMP. • Making recommendations concerning the issuing of fines for contraventions of the EMP. • Undertaking an annual review of the EMP and recommending additions and/or changes to this document. • Facilitate environmental training and induction for contractors and site personnel. • Ensure all workers understand their roles in protecting the environment and minimizing impacts. • Identify, report, and record any non-compliance or environmental incidents (e.g., pollution, vegetation damage). • Act as a neutral liaison between the developer, contractors, regulators, and affected communities.
<p>Independent Environmental Assessment Practitioner (EAP)/Environmental Consultant</p>	<p>The responsibilities of an Independent EAP/Environmental Consultant are to:</p> <ul style="list-style-type: none"> • Ensure that all construction activities comply with the mitigation measures and conditions specified in the approved EMP. • Conduct regular site inspections and audits to verify adherence to environmental requirements. • Submit monitoring reports to the Environmental Commissioner or relevant authority as required. • Recommend corrective and preventive actions to mitigate such incidents. • Monitor the environment (oversee baseline and impact monitoring such as dust, noise, soil erosion, and vegetation disturbance).

Role	Responsibilities
	<ul style="list-style-type: none"> • Monitor the implementation of biodiversity protection, waste management, and water use controls on-site. • Maintain detailed records of inspections, audits, training sessions, and incidents. • Compile and submit EMP Implementation Reports (at the beginning of construction and at the end of the construction phase) to NamPower and MEFT.

4.1 Financing of Environmental Control

The financing of environmental requirements, as outlined in this document, apart from the appointment of the Environmental Assessment Practitioner (Environmental Consultant) and specialists, is the sole responsibility of the Contractor appointed by NamPower. Therefore, it is accepted that the cost incurred for implementing this EMP by the Contractor would be allocated for in the tender document. Any responsibilities not defined in this document or where any uncertainties arise in this matter will be the responsibility of NamPower. However, the costing associated with the EMP implementation is not part of the current scope or required by the Namibian authorities for ECC. Therefore, it will be provided at a later stage (post-authorisation).

4.2 Amendments of the EMP

Any party involved with the project can suggest changes to the EMP via the Environmental Control Officer (ECO) and the Project Manager. Therefore, such suggestions or changes will need to be discussed collectively. Approved changes will be drafted and incorporated into the existing EMP in the form of an appendix/annexure or amendments for implementation going forward. In the case that the amendments trigger a change in the project title on the ECC, the changes must be made on the ECC immediately.

5 ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES

5.1 Key Identified Potential Negative Impacts

The key potential positive and negative impacts identified, described, and assessed in the Scoping Report and for which the management measures (action plans) have been provided, are listed below:

5.1.1 Positive impacts

- (a) Creation of about twenty (20) temporary jobs for some local people during the installation phase.
- (b) Indirect economic benefits will result from the use of local suppliers for the procurement of goods and services for the project. This will, however, be limited due to the specialised nature of the wind resource equipment to be installed.
- (c) The met masts and LiDAR will provide precise, site-specific wind data (wind speed, wind direction, turbulence intensity, among other site meteorological conditions), essential for evaluating wind energy potential before the implementation of the proposed wind farm. The met masts will also provide the required height for the installation of the bat monitoring equipment to record bat activity in the project area, to facilitate the bat impact assessment for the WEF EIA.
- (d) The accurate wind resource data collected by the installed met masts and LiDAR structures will support reliable energy yield estimates, which can attract investors and project developers (bankability of the project).
- (e) Indirectly, the WRA met masts will contribute to the future development of a WEF in the area, and in that way help Namibia diversify its energy generation mix, reduce dependence on fossil fuels, and meet climate goals. Thus, supporting the development of renewable energy generation projects.

5.1.2 Negative (adverse) impacts

- (a) Soil disturbance resulting in compaction and erosion of desert soils, as well as wind-blown dust.
- (b) Environmental pollution (littering) from construction workers on-site.
- (c) Biodiversity and habitat disruption: Installation of met masts may disturb fragile native desert ecosystems or rare/endemic species due to noise, visual disturbance, and general disturbance due to the presence of humans in an area that was previously undisturbed.
- (d) Avian collision risk: High masts with guy wires can pose a threat to birds, especially during migration or low-visibility conditions.

- (e) Visual impact (nuisance): The met masts are over 100m in height above natural ground and can disrupt the visual integrity of pristine wilderness areas, thus resulting in landscape intrusion and compromising the aesthetic of the Tsau //Khaeb National Park. It is noted, however, that there are no known visual receptors (tourist areas, residences, etc) in the vicinity of the proposed met mast locations. The LiDAR instruments are much lower (approximately 2m high above ground level) and therefore are not expected to be visible from a distance.
- (f) Potential occupational health and safety risks associated with the mishandling of equipment and materials during the installation (and maintenance) of met masts and LiDAR equipment.
- (g) Impact on civil aviation based on the height of the met mast and the position and stability of transmitters concerning any civil aviation facilities in the area.
- (h) Impact on archaeological and cultural heritage resources in the case of any archaeological and heritage finds onsite (inadvertent unearthing during site preparation/excavations to enable installations of structures). Temporary LiDAR structures will be removed after the wind resource assessment, thus limiting long-term impact on the environment.
- (f) The presence of temporary workers in remote areas may pose risks of sexual exploitation, abuse, or harassment (SEA/SH), particularly toward vulnerable individuals. Although the site is uninhabited, SEA/SH risks may still arise among workers or during interactions with park staff or nearby communities

5.2 The Environmental Management Measures and Rehabilitation of Sites

The management actions are aimed at avoiding the above-listed potential negative impacts, where possible, and where it is impossible to avoid these impacts, measures are provided to reduce the impacts' significance.

The Management action plans (mitigation measures) recommended for the potential impacts rated in the EIA Scoping Report were based on the following project stages (phases):

- Pre-construction / Planning (Table 5-1),
- Construction, Operational, and Maintenance phases (Table 5-2), and
- Decommissioning measures (Table 5-4).

Table 5-1: The Environmental and social management and mitigation measures for the Planning (Pre-construction) Phase

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
Met mast design	Failure of met masts, wires, guy wires, and associated supporting infrastructures	<ul style="list-style-type: none"> All manufactured materials should be verified and approved according to the existing regulating authority for met masts and LiDAR. Ensure that the engineering design is certified by qualified professionals. Conduct structural inspections and maintenance. Use only approved and tested materials. 	<ul style="list-style-type: none"> Contractor (design & installation/construction) NamPower (oversight) 	<ul style="list-style-type: none"> Pre-construction/planning 	<ul style="list-style-type: none"> Structural certification documents No incidents of structural failure Maintenance logs updated quarterly
Authorizations	Lack of Permits/ Licenses	<ul style="list-style-type: none"> All the required agreements and licenses, or permits, should be applied for and obtained. Identify all required permits before construction (e.g., MEFT, NCAA, and others). The permits/agreements referred to herein include: <ul style="list-style-type: none"> Land acquisition from the MEFT: DWNP Petroleum storage permits (if fuel is stored on site in a volume of 600 litres or more) Waste disposal authorization Submit and track all applications. Maintain a compliance register. 	<ul style="list-style-type: none"> Project Manager NamPower (Environmental Officer / Legal Department) Construction Contractor 	<ul style="list-style-type: none"> Pre-construction/planning 	<ul style="list-style-type: none"> All relevant permits obtained before works commence Permits are accessible for inspection Zero (0) stop-work orders issued due to non-compliance (lack of permits, licenses, or consents)
Land acquisition	Loss of the National Park land	<ul style="list-style-type: none"> Proper consultation and engagement should be continued with the DWNP, and an agreement on land use should be reached. Secure land access and activity permits from MEFT's DWNP and relevant authorities. 	<ul style="list-style-type: none"> NamPower (Legal & Environmental Team) to the MEFT 	<ul style="list-style-type: none"> Pre-construction/planning 	<ul style="list-style-type: none"> Land use agreements/permits obtained No legal disputes or delays

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
		<ul style="list-style-type: none"> • Ensure alignment with the Park's land-use zoning and conservation objectives. • Engage early with MEFT and MET regional offices to prevent access delays. • Avoid permanent land transformation. 			<ul style="list-style-type: none"> • Activities limited to a temporary and agreed footprint
Labour recruitment	<p>Outsiders or out-of-area people (businesses) are often given employment and tender opportunities at the expense of locals who can perform the same work. This may result in conflicts between locals and construction contractors.</p>	<ul style="list-style-type: none"> • Prioritise local employment where possible, i.e., priority for most work to be done during the construction and operational phases should be given to locals (from nearest towns such as Rosh Pinah), if they have the skills to undertake the work. • Ensure recruitment is fair, transparent, and free of discrimination. • Avoid child labour or exploitative practices. • Comply with Namibian Labour Laws and relevant International Labour Organization (ILO) conventions. • Employment of out-of-area people should only be considered if the local community does not have the required skills. • Employment should be conducted through the Naminus Constituency office, as this way, the Constituency councillor can assist the Contractor in obtaining suitable people for construction. • Recruitment of workers should not be done on site, but only through the Constituency office or a representative office in Rosh Pinah. 	<ul style="list-style-type: none"> • Construction Contractor in partnership with the constituency councillor and or existing local development committee (if any) to determine employment considerations. • Contractor (Human Resources Department) • Oversight by NamPower 	<ul style="list-style-type: none"> • Pre-construction/planning 	<ul style="list-style-type: none"> • Percentage of labour sourced locally • Worker contracts and compliance audits • Zero (0) reports of labour rights violations

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
		<ul style="list-style-type: none"> Employment of women, marginalised people, and people with disability should be encouraged, where possible. 			
Procurement of goods and services	Procurement of goods and services for the project could benefit the local economy if local suppliers are prioritised.	<ul style="list-style-type: none"> The procurement stage for the project construction works should follow a fair, transparent, and competitive process. Encourage the provision of goods and services that are locally available should be sourced from the locally available businesses, especially small and medium businesses. Promote procurement from local suppliers and small and medium enterprises (SMEs), where feasible. Incorporate environmental and social criteria in supplier selection. Avoid engaging non-compliant or blacklisted vendors. 	<ul style="list-style-type: none"> NamPower Procurement Department Contractors 	<ul style="list-style-type: none"> Pre-construction/planning (for construction works) and as needed during the operational phase (for maintenance) 	<ul style="list-style-type: none"> Percentage (%) of spend on local suppliers Procurement process audit trail Supplier vetting records available
Sense of place and visual	Visual impact (nuisance)	<ul style="list-style-type: none"> As far as possible, design/paint LiDAR units and mast equipment (guy mast ropes) so as not to be visually intrusive. Communicate the temporary nature of structures to stakeholders. 	<ul style="list-style-type: none"> NamPower and Design Consultant (GEO-NET) 	<ul style="list-style-type: none"> Pre-construction/planning 	<ul style="list-style-type: none"> No complaints about visual impacts from stakeholders
Civil aviation	Impact on civil aviation structures	<ul style="list-style-type: none"> Notify the Namibia Civil Aviation Authority (NCAA) of mast locations and heights, and implement any requirements they may have about the design/ lighting, etc. 	<ul style="list-style-type: none"> NamPower (liaison) Contractor (planning) 	<ul style="list-style-type: none"> Pre-construction/planning 	<ul style="list-style-type: none"> NCAA requirements (if any) are implemented No complaints or incidents reported
Construction schedule	Delays or poor coordination of construction schedules	<ul style="list-style-type: none"> Develop a detailed and realistic construction schedule in consultation with all stakeholders. Conduct regular progress reviews and adjust timelines as necessary. 	<ul style="list-style-type: none"> NamPower Project Manager Contractors ECO 	<ul style="list-style-type: none"> Pre-construction (planning) and throughout the construction phase 	<ul style="list-style-type: none"> Approved and published construction schedule Schedule compliance (% milestones met on time)

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
		<ul style="list-style-type: none"> Establish clear communication channels between NamPower, contractors, and MEFT (for work within the National Park). Include buffer time to accommodate permit approvals or unforeseen delays. 			<ul style="list-style-type: none"> Monthly progress reports submitted Zero (0) critical delays due to poor planning
Biodiversity	Biodiversity and habitat disruption and destruction: Flora (Vegetation)	<ul style="list-style-type: none"> Conduct pre-construction ecological surveys to identify sensitive flora. 	<ul style="list-style-type: none"> NamPower with ECO & biodiversity specialist 	<ul style="list-style-type: none"> Before commencement of construction, i.e., during the planning phase 	<ul style="list-style-type: none"> Pre-construction survey report

Table 5-2: The Environmental and social management and mitigation measures for the Construction Phase

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
EMP implementation and training	Lack of EMP awareness and the implications thereof among personnel	<ul style="list-style-type: none"> Employees appointed for construction work on respective infrastructure must ensure that all personnel are aware of the necessary health, safety, and environmental considerations applicable to their respective work. Conduct mandatory EMP induction training for all staff and contractors. Distribute a summary of key EMP commitments. Appoint an Environmental Control Officer (ECO) to monitor compliance (to act as an on-site implementing agent). This person should be responsible for ensuring that the Proponent's responsibilities are executed in compliance with relevant legislation and this EMP. 	<ul style="list-style-type: none"> NamPower Project Manager Contractor's HSE Officer/ECO 	<ul style="list-style-type: none"> During construction 	<ul style="list-style-type: none"> 100% of staff trained before site access Training attendance records EMP posters/signs visible on-site Weekly inspection reports Non-compliance incidents logged and resolved Audit findings reported

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
Physical land (soils)	Soil disturbance (compaction & erosion)	<ul style="list-style-type: none"> • Restrict vehicle and machinery movement to designated tracks where possible. • Avoid construction during high-wind periods to prevent dust and erosion. • Use the least invasive excavation methods and hand tools where possible. • Stockpiled topsoil should be used to cover disturbed site areas/spots after backfilling with subsoil. • The topsoil that was stripped from certain site areas to enable project works and can be returned to its initial position should be returned. This is to avoid unnecessary stockpiling of site soils, which would leave them prone to erosion in a desert environment. • Soils that are not within the intended footprints of the site areas should be left undisturbed, and soil conservation implemented as far as possible. • Project vehicles/machinery should stick to access roads/tracks and not unnecessarily create further tracks on and around the site, resulting in soil compaction. 	<ul style="list-style-type: none"> • Contractor's ECO who is monitored /supervised by the NamPower ECO 	<ul style="list-style-type: none"> • During construction 	<ul style="list-style-type: none"> • No unnecessary tracks created • Rehabilitated areas visibly stabilised • No visible signs of erosion
Waste management	Environmental pollution (littering)	<ul style="list-style-type: none"> • Provide scavenger-proof waste bins for different categories of solid waste (hazardous materials, general wastes, recyclables, etc). • Enforce anti-littering policy • Project workers should be inducted • Burying or burning of waste is strictly prohibited. Use the provided waste bins and safely dispose of waste at registered waste sites. 	<ul style="list-style-type: none"> • Contractor • NamPower to enforce compliance 	<ul style="list-style-type: none"> • Continuous throughout the construction phase 	<ul style="list-style-type: none"> • Waste bins on-site • No visible litter • Attendance records of induction • No visible signs of scavenger activity • No burying or burning of waste onsite or in general areas of the TKNP

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
	Wastewater is generated by workers on-site.	<ul style="list-style-type: none"> • No open defecation is allowed on-site or in the general environment. • Ensure regular servicing and disposal of sewage by a licensed waste management company and according to the manufacturer’s specifications. • Train workers on proper hygiene and wastewater disposal. • Use biodegradable cleaning and personal hygiene materials on site, and minimise washing of laundry on site. • Prevent discharge of water that is contaminated with chemicals/oils or other pollutants into the natural environment – this must be collected in a leak-proof container/drum, evaporated, and the resultant sludge safely disposed of as waste (at a licensed waste disposal facility). 	<ul style="list-style-type: none"> • Contractor (Site Manager) • Oversight by NamPower Environmental Officer 	<ul style="list-style-type: none"> • Throughout the construction and site occupation period 	<ul style="list-style-type: none"> • Functional and clean sanitation units on-site • Sewage disposal receipts from licensed providers • No wastewater pooling or discharge to the environment • Hygiene training records available • No residue from wastewater visible on the soil
Biodiversity (fauna and flora)	Biodiversity and habitat disruption and destruction: Fauna (animals)	<ul style="list-style-type: none"> • Avoid met mast placement (erection) in areas with high biodiversity or known rare/endemic species. • Manage food waste and litter so that it does not attract wildlife/scavengers to the site. • Minimise the footprint of construction. Workers must be limited to the construction and site camp areas only so as not to unnecessarily disturb wildlife. • Refrain from disturbing, snaring, killing, or stealing (illegal hunting) wildlife on and around the project site and anywhere in the area. • Avoid the killing or harming of any wildlife found on site. 	<ul style="list-style-type: none"> • NamPower with ECO 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • No construction in sensitive habitats • Scavenger-proof bins and no signs of wildlife accessing site waste. • There are no incident reports of illegal hunting of wildlife linked to the project workers.

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when?	Key Performance Indicator (KPI)
		<ul style="list-style-type: none"> • Project trenches and holes should be backfilled after completion of work to prevent injuries to wild animals, and any open trenches during construction must be fenced and inspected daily for trapped fauna, which must be safely rescued. • Incorporate environmental awareness and biodiversity preservation into the employment contracts of all workers. • Breeding sites for faunal species that are found within the project site and nearby should not be disturbed. • Illegal hunting (poaching) and disturbance of wild animals are strictly prohibited. • A No Tolerance to Poaching Policy should be developed and applied to all site personnel (workers) and visitors. • Incorporate a No-tolerance rule for poaching in every employment contract and ensure that the workers understand the seriousness of such a rule. In other words, there is no tolerance for poaching or wildlife crime (illegal hunting). 			
	Biodiversity and habitat disruption and destruction: Flora (Vegetation)	<ul style="list-style-type: none"> • Illegal harvesting of wild flora is strictly prohibited. • Minimise the footprint of construction. • Monitor post-installation for any growth of alien invasive vegetation, which must be removed before it reaches the seed-bearing stage. • Avoid unnecessary removal of onsite vegetation, thus promoting a balance between biodiversity and the project. • Vehicle movement should be restricted to existing roads and tracks to prevent 	<ul style="list-style-type: none"> • NamPower with ECO and biodiversity specialist 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • No construction in sensitive areas • No intentional disturbance and destruction of site vegetation and faunal species • Visible preservation of onsite vegetation • No signs of alien invasive vegetation growth.

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when?	Key Performance Indicator (KPI)
		unnecessary damage to the surrounding vegetation. <ul style="list-style-type: none"> • No onsite vegetation should be cut without a valid reason and permission. • Any additional access roads that may be created should be created in a manner that disturbs minimal vegetation. • Environmental awareness on faunal and floral biodiversity preservation should be provided to the workers and contractors. This should be incorporated into the workers' contracts. • No use of chemical herbicides. 			
Avifauna	Avian collision risk	<ul style="list-style-type: none"> • Install bird flight diverters/ markers on the met mast guy wires • Use bird-friendly met mast designs where feasible. • Monitor bird strikes regularly and adjust mitigation accordingly. 	<ul style="list-style-type: none"> • Construction Contractor • NamPower ECO (monitoring) 	<ul style="list-style-type: none"> • Construction phase: Monitoring quarterly 	<ul style="list-style-type: none"> • Diverters/markers on mast guy wires installed and maintained • Bird strike records kept • An adaptive response plan is in place if strikes are recorded
Civil aviation	Impact on civil aviation structures	<ul style="list-style-type: none"> • Construct/install the masts according to the requirements that the NCAA may have about the met mast lighting, and any other permitting requirements as may be necessary. 	<ul style="list-style-type: none"> • NamPower (liaison) • Contractor (installation /construction) 	<ul style="list-style-type: none"> • Construction 	<ul style="list-style-type: none"> • NCAA requirements (if any) are implemented • No complaints or incidents reported
Occupational health and safety	Health and safety risks to workers on site during installation/maintenance	<ul style="list-style-type: none"> • Develop and implement a site-specific Health and Safety Plan. • Consider the use of safety nets below work areas where fall protection systems cannot be used. • Monitor weather conditions and avoid working at elevated heights during adverse weather, such as high winds, rain, which can increase the risk of falls. 	<ul style="list-style-type: none"> • Contractor with oversight by NamPower Health & Safety Officer 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Health & Safety plan approved • Zero lost-time incidents • PPE use compliance • Inspection reports filed

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when?	Key Performance Indicator (KPI)
		<p>Postpone (reschedule) site work until it is safe to commence or resume.</p> <ul style="list-style-type: none"> • Develop and implement a rescue plan to quickly and safely assist workers who may fall or become stranded at height. • Provide training as well as adequate and proper Personal Protective Equipment (PPE) for all workers. • Ensure proper engineering design and certified installation personnel. • Conduct regular site inspections and maintenance. • Provide specialized training for all workers involved in tasks at height, including safe use of equipment, emergency procedures, and fall protection. • Ensure all workers are familiar with the rescue plan and that rescue equipment is readily available. • First Aid Training should be provided to workers, focusing on injuries related to falls and other potential accidents. • The site should be provided with a fully furnished first aid kit (including anti-snake venom) and train at least two (2) to three (3) onsite personnel on administering first aid to others. 			
<p>Exploitation, abuse, or harassment toward vulnerable individuals.</p>	<p>Sexual exploitation, abuse, or harassment (SEA/SH), particularly toward vulnerable individuals.</p>	<ul style="list-style-type: none"> • Adopt a Zero-Tolerance SEA/SH Policy: All project contractors, subcontractors, and staff must sign and adhere to a zero-tolerance policy on SEA/SH. • Code of Conduct (CoC): Develop and enforce a CoC that explicitly prohibits SEA/SH, including clear disciplinary 	<ul style="list-style-type: none"> • Contractor with oversight by NamPower Health & Safety Officer 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Project has a documented SEA/SH policy signed by all parties. • The percentage of workers and staff who have signed the Code of Conduct and trained on SEA/SH at induction

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when?	Key Performance Indicator (KPI)
		<p>actions. It should cover behavior both during and outside of working hours.</p> <ul style="list-style-type: none"> • Ensure the CoC is explained in English and Afrikaans during induction and periodically thereafter. • All workers and staff must undergo SEA/SH training upon hiring and periodically throughout the project. • Incorporate local context, gender norms, and vulnerable group sensitivities into the training. • Display information on SEA/SH and reporting mechanisms in all common areas in languages spoken by workers and staff. • Set up a confidential, survivor-centered SEA/SH grievance mechanism. • Ensure multiple, safe, and anonymous reporting channels (e.g., hotline, suggestion boxes, designated staff). • Train designated SEA/SH focal points (ideally including a female officer) to handle complaints confidentially and sensitively. 			<ul style="list-style-type: none"> • The percentage of workers/staff who confirm they understand the SEA/SH policy (e.g., via induction feedback) • Existence of a functioning SEA/SH-specific grievance mechanism • Number of anonymous/confidential reporting channels accessible on-site. • Number of disciplinary actions taken in response to verified SEA/SH violations, if any reported.
Archaeology and cultural heritage	Impact on archaeological and heritage resources	<ul style="list-style-type: none"> • Train workers on the protocol for chance finds (Chance Finds Procedure (CFP)) • Cease work immediately if artefacts or remains are uncovered. • Notify the National Heritage Council of Namibia for further direction. • Document and protect any significant finds in situ where possible. 	<ul style="list-style-type: none"> • NamPower and the contractor 	<ul style="list-style-type: none"> • Construction 	<ul style="list-style-type: none"> • Chance Finds Procedure (CFP) – Anenxure 1 protocol in place • National Heritage Council engaged when needed

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when?	Key Performance Indicator (KPI)
Other crucial environmental components and impacts					
Water Resources Use	Over-abstraction (water demand and availability)	<ul style="list-style-type: none"> • Source water from approved/licensed providers. • No drilling of water boreholes or abstraction of water on site. • Water should be used efficiently, and recycling and reusing of water on certain site activities should be encouraged. • Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water on site. • Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and become accountable. • Monitor and record daily water usage 	<ul style="list-style-type: none"> • Contractor • Oversight by NamPower Environmental Officer 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Water storage tanks on site • Water sourced legally and documented • Daily usage logs maintained • Zero (0) unlicensed water abstraction
Soils	Soil pollution	<ul style="list-style-type: none"> • Spill control preventive measures should be in place on-site to manage soil contamination, thus preventing and or minimizing the contamination. • Store hazardous materials (fuels, oils) in bunded areas with impermeable floors. • All construction employees should be sensitized about the impacts of soil pollution and trained to follow appropriate fuel handling procedures. • Develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible. 	<ul style="list-style-type: none"> • Contractor Officer/ECO) (HSE 	<ul style="list-style-type: none"> • During construction 	<ul style="list-style-type: none"> • No complaints of pollutants on the soils. • No visible oil spills on the ground or pollution spots. • Spill kits available on site • Zero (0) incidents of uncontained spills • Non-permeable material to cover the ground surface in areas where hydrocarbons and potential pollutants are utilized. • Waste disposal certificates retained

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when?	Key Performance Indicator (KPI)
		<ul style="list-style-type: none"> • Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training. • Project construction machines and equipment should be equipped with drip trays to contain possible oil spills when operated or refuelled on-site. • Polluted soil should be removed immediately and put in a designated waste-type container for later disposal at a hazardous waste treatment facility in Windhoek (records of disposal must be maintained for auditing purposes). 			
Air Quality	Dust generation	<ul style="list-style-type: none"> • Project vehicles within the area should not be driven at a speed of more than 40 km/h to avoid dust generation. • Dust masks, eye protective glasses, and other respiratory Personal Protective Equipment (PPE), such as face masks, should be provided to the workers in trenching areas, where they are exposed to dust. • Excavating equipment should be in good condition to ensure excavation efficiency and to reduce dust generation and harmful gaseous emissions. • Limit idling of machinery and vehicles to reduce emissions. • Avoid construction during extremely high-wind events where possible. 	<ul style="list-style-type: none"> • Contractor, monitored by NamPower ECO 	<ul style="list-style-type: none"> • During construction 	<ul style="list-style-type: none"> • No complaints from MEFT about vehicle emissions and dust generation. • Visible dust suppression during works • Low levels of visible dust emissions • Equipment maintenance logs updated
Road use and safety	Vehicular traffic safety	<ul style="list-style-type: none"> • Drivers of all project phases' vehicles should have valid and appropriate driving licenses and adhere to the road safety rules. 	<ul style="list-style-type: none"> • Contractor (Logistics Manager) • NamPower HSE Officer 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • All personnel operating the project vehicles and machinery are appropriately licensed and possess valid driving licenses.

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when?	Key Performance Indicator (KPI)
		<ul style="list-style-type: none"> • Drivers should drive slowly (40km/h or less) and be on the lookout for wildlife. • Project vehicles should be in a roadworthy condition and serviced regularly to avoid accidents owing to mechanical faults. • Vehicle drivers should only make use of the designated site access roads provided and as agreed. • Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol. • Deliveries from and to the site should be done optimally between the hours of 8am (08:00) and 5pm (17:00) to avoid wildlife accidents in the dark (nights). 			<ul style="list-style-type: none"> • Incident reports submitted and resolved
Fire Management	Risk of Accidental Fire Outbreaks	<ul style="list-style-type: none"> • Ban open flames and smoking near flammable areas. • Maintain fire extinguishers on all vehicles and sites. • The site should be provided with well-serviced fire extinguishers (at least two), and basic firefighting training should be provided to some of the personnel onsite. • Keep working site areas clean and safely put away flammable materials such as papers, dry vegetation, and plastics in designated containers and areas. • Make provision for smoking areas on-site for workers who smoke. This is to ensure that the cigarette fire is completely put out and disposed of in the allocated bins in the smoking area. 	<ul style="list-style-type: none"> • Contractor • NamPower HSE Officer 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Fire extinguishers are inspected and logged • Zero (0) fire incidents • Fire response training conducted and recorded

Table 5-3: The Environmental and social management and mitigation measures for the Operational and Maintenance Phase

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
EMP implementation and training	Lack of EMP awareness and the implications thereof among personnel	<ul style="list-style-type: none"> Ensure that all personnel are aware of the necessary health, safety, and environmental considerations applicable to their respective work. Conduct mandatory EMP induction training for all staff responsible for maintenance. Distribute a summary of key EMP commitments. 	<ul style="list-style-type: none"> NamPower Project Manager Maintenance Contractor's HSE Officer/ECO 	Operational phase	<ul style="list-style-type: none"> All staff (100% of staff) trained before site access Training attendance records Post-maintenance works inspection reports Non-compliance incidents logged and resolved Audit findings reported
Physical land (soils)	Soil disturbance (compaction & erosion)	<ul style="list-style-type: none"> Restrict vehicle and machinery movement to designated tracks where possible. Use the least invasive excavation methods and hand tools where possible. Stockpiled topsoil should be used to cover disturbed site areas/spots after backfilling with subsoil. Soils that are not within the intended footprints of the site areas should be left undisturbed, and soil conservation implemented as far as possible. Project vehicles/machinery should stick to access roads/tracks and not unnecessarily create further tracks on and around the site, resulting in soil compaction. 	<ul style="list-style-type: none"> Maintenance Contractor under the supervision of NamPower ECO 	During the operational and maintenance phase	<ul style="list-style-type: none"> No unnecessary off-road tracks created Rehabilitated areas visibly stabilised No visible signs of erosion
Waste management	Environmental pollution (littering)	<ul style="list-style-type: none"> Provide scavenger-proof waste bins for different categories of solid waste (hazardous materials, general waste, recyclables, etc) for maintenance workers. Enforce anti-littering policy Project workers should be inducted 	<ul style="list-style-type: none"> Maintenance Contractor NamPower to enforce compliance 	Continuous throughout the operational and maintenance phase	<ul style="list-style-type: none"> Waste bins on-site No visible litter Attendance records of induction No visible signs of scavenger activity

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
		<ul style="list-style-type: none"> Burying or burning of waste is strictly prohibited. Use the provided waste bins and dispose of waste at registered waste sites. 			<ul style="list-style-type: none"> No burying or burning of waste onsite or in general areas of the TKNP
	Wastewater is generated by workers on-site.	<ul style="list-style-type: none"> No open defecation is allowed on-site or in the general environment. Train workers on proper hygiene and wastewater disposal. Use biodegradable cleaning and personal hygiene materials on site Prevent discharge of water that is contaminated with chemicals/oils or other pollutants into the natural environment 	<ul style="list-style-type: none"> Maintenance Contractor (Site Manager) Oversight by NamPower Environmental Officer 	<ul style="list-style-type: none"> Throughout the operational and maintenance phase 	<ul style="list-style-type: none"> Functional and clean sanitation units on-site Sewage disposal receipts from licensed providers No wastewater pooling or discharge to the environment Hygiene training records available
Biodiversity (fauna and flora)	Biodiversity and habitat disruption and destruction: Fauna (animals)	<ul style="list-style-type: none"> Manage food waste and litter so that it does not attract wildlife/scavengers to the site. Workers must be limited to the site areas only so as not to unnecessarily disturb wildlife. Refrain from disturbing, snaring, killing, or stealing wildlife on and around the site. Avoid the killing (illegal hunting) or harming of any wildlife found on site. Breeding sites for faunal species that are found within the site and nearby should not be disturbed. Illegal hunting (poaching) and disturbance of wild animals are strictly prohibited. A No Tolerance to Poaching Policy should be developed and applied to all site personnel (workers) and visitors. Incorporate a No-tolerance rule for poaching in every employment contract 	<ul style="list-style-type: none"> Contractor's ECO monitored by NamPower's ECO 	<ul style="list-style-type: none"> During maintenance and operational monitoring 	<ul style="list-style-type: none"> No maintenance activities in sensitive habitats Scavenger-proof bins and no signs of wildlife accessing site waste. There are no incident reports of illegal hunting of wildlife linked to the project workers.

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
		<p>and ensure that the workers understand the seriousness of this. In other words, there is no tolerance for poaching or wildlife crime.</p>			
Avifauna	Avian collision risk	<ul style="list-style-type: none"> • Monitor bird strikes regularly and adjust mitigation accordingly if a high number of collisions of critically endangered or endangered species are noted. 	<ul style="list-style-type: none"> • Maintenance Contractor • NamPower ECO (monitoring) 	<ul style="list-style-type: none"> • Operational and maintenance phase: Monitoring quarterly 	<ul style="list-style-type: none"> • Diverters/markers on mast guy wires are maintained • Bird strike records kept
	Biodiversity and habitat disruption and destruction: Flora (Vegetation)	<ul style="list-style-type: none"> • Avoid disturbance of areas with high biodiversity or known rare/ endemic species. • Illegal harvesting of wild flora is strictly prohibited. • Monitor for any growth of alien invasive vegetation, which must be removed before it reaches the seed-bearing stage. • Avoid unnecessary removal of onsite vegetation, thus promoting a balance between biodiversity and the project. • Vehicle movement should be restricted to existing roads and tracks to prevent unnecessary damage to the surrounding vegetation. • No onsite vegetation should be cut without a valid reason and permission from the DWNP. • Any additional access roads that may be created should be created in a manner that disturbs minimal vegetation. • Environmental awareness on faunal and floral biodiversity preservation should be provided to the workers and contractors. This should be incorporated into the workers' contracts. • No use of chemical herbicides. 	<ul style="list-style-type: none"> • NamPower with ECO & biodiversity specialist 	<ul style="list-style-type: none"> • During maintenance and operational monitoring 	<ul style="list-style-type: none"> • Survey report submitted • No maintenance in sensitive areas • No intentional disturbance and destruction of site vegetation and faunal species • Visible preservation of onsite vegetation • No signs of alien invasive vegetation growth.

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
					<ul style="list-style-type: none"> An adaptive response plan is in place if strikes are recorded
Civil aviation	Impact on civil aviation structures	<ul style="list-style-type: none"> Implement any requirements that the Namibia Civil Aviation Authority (NCAA) may have about met mast lighting, etc. 	<ul style="list-style-type: none"> NamPower (liaison) Maintenance Contractor 	<ul style="list-style-type: none"> Operational and maintenance phase 	<ul style="list-style-type: none"> NCAA requirements (if any) are implemented No complaints or incidents reported
Occupational health and safety	Health and safety risks to workers on site during installation/maintenance	<ul style="list-style-type: none"> Develop and implement a site-specific Health and Safety Plan. Consider the use of safety nets below work areas where fall protection systems cannot be used. Monitor weather conditions and avoid working at heights during adverse weather, such as extremely high winds, rain, which can increase the risk of falls. Postpone (reschedule) work until it is safe to commence or resume. Develop and implement a rescue plan to quickly and safely assist workers who may fall or become stranded at height. Provide training as well as adequate and proper Personal Protective Equipment (PPE) for all workers. Ensure proper engineering design and certified installation personnel. Conduct regular inspections and maintenance. Provide specialized training for all workers involved in tasks at height, including safe use of equipment, emergency procedures, and fall protection. 	<ul style="list-style-type: none"> Maintenance Contractor with oversight by NamPower Health & Safety Officer/ECO 	<ul style="list-style-type: none"> Operational and maintenance phase 	<ul style="list-style-type: none"> Health & Safety plan approved Zero (0) lost-time incidents PPE use compliance Inspection reports filed

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
		<ul style="list-style-type: none"> • Ensure all workers are familiar with the rescue plan and that rescue equipment is readily available. • First Aid Training should be provided to workers, focusing on injuries related to falls and other potential accidents. • The site should be provided with a fully furnished first aid kit (including anti-snake venom) and train at least 2 to 3 onsite personnel on administering first aid to others. 			
Archaeology and cultural heritage	Impact on archaeological and heritage resources	<ul style="list-style-type: none"> • Train workers on the protocol for chance finds (Chance Finds Procedure (CFP)) • Cease work immediately if artefacts or remains are uncovered. • Notify the National Heritage Council of Namibia for further direction. • Document and protect any significant finds in situ where possible. 	<ul style="list-style-type: none"> • NamPower and the Maintenance contractor 	<ul style="list-style-type: none"> • Operational and maintenance phase 	<ul style="list-style-type: none"> • Chance Finds Procedure (CFP) – Annexure 1 - in place • Heritage Council engaged when needed
Other crucial environmental components and impacts					
Water Resources Use	Over-abstraction (water demand and availability)	<ul style="list-style-type: none"> • Source water from approved/licensed providers. • Water should be used efficiently, and recycling and reusing of water for certain site activities should be encouraged. • Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water on site. • Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and become accountable. 	<ul style="list-style-type: none"> • Maintenance Contractor • Oversight by NamPower Environmental Officer 	<ul style="list-style-type: none"> • Operational and maintenance phase 	<ul style="list-style-type: none"> • Water storage tanks on site • Water sourced legally and documented • Daily usage logs maintained • Zero unlicensed water abstraction

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
Soils	Soil pollution	<ul style="list-style-type: none"> • Spill control preventive measures should be in place on-site to manage soil contamination, thus preventing and or minimizing the contamination. • -Store hazardous materials (fuels, oils) in bunded areas with impermeable floors. • All construction employees should be sensitized about the impacts of soil pollution and trained to follow appropriate fuel handling procedures. • Develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible. • Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training. • Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated or refuelled on-site. • Polluted soil should be removed immediately and put in a designated waste-type container for later disposal at a hazardous waste treatment facility in Windhoek (records of disposal must be maintained for auditing purposes). 	<ul style="list-style-type: none"> • Maintenance Contractor (HSE Officer/ECO) 	<ul style="list-style-type: none"> • Operational and maintenance phase 	<ul style="list-style-type: none"> • No complaints of pollutants in the soils. • No visible oil spills on the ground or pollution spots. • -Spill kits available on site • Zero incidents of uncontained spills • Non-permeable material to cover the ground surface in areas where hydrocarbons and potential pollutants are utilized. • Waste disposal certificates retained
Air Quality	Dust generation	<ul style="list-style-type: none"> • Project vehicles within the area should not be driven at a speed of more than 40 km/h to avoid dust generation. • Dust masks, eye protective glasses, and other respiratory personal protective 	<ul style="list-style-type: none"> • Maintenance Contractor, monitored by NamPower ECO 	<ul style="list-style-type: none"> • Operational and maintenance phase. 	<ul style="list-style-type: none"> • No complaints from MEFT about vehicle emissions and dust generation. • Visible dust suppression during works

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
		<p>equipment (PPE) such as face masks should be provided to the workers in trenching areas, where they are exposed to dust.</p> <ul style="list-style-type: none"> • Excavating equipment should be in good condition to ensure excavation efficiency and to reduce dust generation and harmful gaseous emissions. • Limit idling of machinery and vehicles to reduce emissions. • Avoid construction during high-wind events where possible. 			<ul style="list-style-type: none"> • Low levels of visible dust emissions • Equipment maintenance logs updated
Road use and safety	Vehicular traffic safety	<ul style="list-style-type: none"> • Drivers of all project phases' vehicles should have valid and appropriate driving licenses and adhere to the road safety rules. • Drivers should drive slowly (40km/h or less) and be on the lookout for wildlife. • Project vehicles should be in a roadworthy condition and serviced regularly to avoid accidents owing to mechanical faults. • Vehicle drivers should only make use of the designated site access roads provided and as agreed. • Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol. • Deliveries from and to the site should be done optimally between the hours of 8am (08:00) and 5pm (17:00) to avoid wildlife accidents in the dark (nights). 	<ul style="list-style-type: none"> • Maintenance Contractor (Logistics Manager) • NamPower HSE Officer 	<ul style="list-style-type: none"> • Operational and maintenance phase 	<ul style="list-style-type: none"> • All personnel operating the project vehicles and machinery are appropriately licensed and possess valid driving licenses. • Incident reports submitted and resolved

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
Fire Management	Risk of Accidental Fire Outbreaks	<ul style="list-style-type: none"> Ban open flames and smoking near flammable areas. Maintain fire extinguishers on all vehicles and sites. The site should be provided with well-serviced fire extinguishers (at least two), and basic firefighting training should be provided to some of the personnel onsite. Keep working site areas clean and safely put away flammable materials such as papers, dry vegetation, and plastics in designated containers and areas. Make provision for smoking areas on-site for workers who smoke. This is to ensure that the cigarette fire is completely put out and disposed of in the allocated bins in the smoking area. 	<ul style="list-style-type: none"> Maintenance Contractor NamPower HSE Officer 	<ul style="list-style-type: none"> Operational and maintenance phase 	<ul style="list-style-type: none"> Fire extinguishers are inspected and logged Zero (0) fire incidents Fire response training conducted and recorded

Table 5-4: Decommissioning Management Measures for the WRA Met masts and associated structures

Decommissioning activity	Management / Mitigation measures	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
Dismantling of mast structures and LiDAR units	<ul style="list-style-type: none"> Use certified contractors to safely dismantle all equipment. Follow the original installation method in reverse, using non-invasive techniques. Avoid soil compaction and minimise disturbance. 	<ul style="list-style-type: none"> Contractor Oversight by the NamPower Project Manager and ECO 	<ul style="list-style-type: none"> At the end of the data collection period (as per the WRA schedule) 	<ul style="list-style-type: none"> All met mast and LiDAR equipment have been removed safely No injuries or incidents during dismantling Minimal disturbance to the

Decommissioning activity	Management / Mitigation measures	Responsible person(s) / Implementation responsibility	Timeframe / when?	Key Performance Indicator (KPI)
				surrounding environment
Removal and disposal of infrastructure (foundations, cabling, anchors)	<ul style="list-style-type: none"> Remove all above- and below-ground infrastructure (e.g., guy wire anchors, concrete bases) for disposal/reuse/recycling. Backfill and level disturbed areas. Dispose of waste at licensed facilities. 	<ul style="list-style-type: none"> Contractor Verification by NamPower Environmental Officer 	<ul style="list-style-type: none"> Immediately following dismantling 	<ul style="list-style-type: none"> Zero (0) waste left on-site Waste disposal records retained Site left free of visible infrastructure with no further use on site
Site rehabilitation and restoration	<ul style="list-style-type: none"> Stabilise soil through backfilling, contouring, and erosion control. Allow natural recolonisation by native vegetation. Avoid introduction of alien materials or species. 	<ul style="list-style-type: none"> Contractor (Rehabilitation Team) Oversight by the ECO 	<ul style="list-style-type: none"> Within two (2) weeks of infrastructure removal 	<ul style="list-style-type: none"> Soil levelled and stable No signs of erosion after one (1) month Natural vegetation is starting to recover
Post-decommissioning monitoring	<ul style="list-style-type: none"> Conduct environmental site inspection to confirm restoration success. Prepare and submit a decommissioning report to MEFT. 	<ul style="list-style-type: none"> NamPower ECO Independent Environmental Auditor 	<ul style="list-style-type: none"> 1–3 months after decommissioning 	<ul style="list-style-type: none"> Final inspection report submitted No residual environmental impact detected MEFT (DWNP) compliance confirmed No alien invasive vegetation growth is visible in disturbed areas

5.3 The Environmental Monitoring

To ensure that the implementation of recommended environmental management measures is working and produces the desired results (minimizing the "medium" and maintaining the "low" significance ratings of impacts), certain key impacts will need to be monitored and reported on.

Environmental Monitoring (Audit) Reports must be compiled by the project ECO, both at the start of and after completion of construction at each site, confirming that all environmental management measures have been complied with and any findings closed out post-construction. The reports must be audited by an Independent Environmental Consultant and submitted to the Environmental Commissioner at the DEAF for archiving. This will be required by the Environmental Commissioner (as part of the ECC conditions).

Annexure 1: Heritage Chance Finds Procedure (CFP) (updated after Kinahan and Kinahan, 2025)

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

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

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

The Project Manager/Supervisor must report the findings to the following competent authorities:

- **National Heritage Council (NHC) of Namibia: +264 61 244 375**
- **NHC of Namibia (Technical Office): +264 61 301 903**
- **National Museum: +264 61 276 800**
- **National Forensic Laboratory: +264 61 240 461.**

Archaeological or palaeontological material must NOT be touched. Tampering with the materials is an offense under the Heritage Act and is punishable upon conviction under the law.

Responsibility:

Operator: To exercise due caution if archaeological remains are found

Foreman: To secure the Site and advise management timeously

Superintendent: To determine the safe working boundary and request an inspection

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

Procedure:

Action by a 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 the foreman

Action by the foreman

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

Action by the superintendent

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

Action by an archaeologist

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

In the event of discovering human remains

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