



**ENVIRONMENTAL MONITORING REPORT FOR THE CONSTRUCTION AND OPERATION OF
THE ROSH PINAH WIND MAST, // KARAS REGION**

PERIOD: 2020 - 2023



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1. INTRODUCTION

NamPower constructed and commissioned a wind resource measurement station utilizing a 100 m high steel tower. The erection of the wind mast covers 1.4 ha on portion 1, Farm Sud Witputs, Karas Region, approximately 37km from Rosh Pinah along C13 National Road, to accommodate the guy wire anchors that hold the mast in position and for stability. The mast has been in operation since February 2021, NamPower received the Environmental Clearance Certificate (No: 00573) for the operation of the Rosh Pinah wind mast, from the MEFT on 31 March 2020 which expired on 31 March 2023. The wind resource measurement station as a meteorological mast is required to enable the development of a commercial wind farm in the future. This project is not for power generation but only for data collection mast to aid in quantifying the wind resource in the area.

The site is approximately 37 km north of Rosh Pinah along the C 13 national road on portion 1 of Farm "Sud Witputs" No 31, Karas Region, Namibia. Approximately 2.8 km east of C13 National Road via the private access road. The site falls within the Succulent Karoo biome (Biodiversity hotspot) and falls outside Tsau//Khaeb (Sperrgebiet) National Park.

The construction phase lasted for 10 days, and the operational phase include quarterly access to the site for maintenance. Though the activities undertaken are not specifically listed in the Environmental Management Act (no 7 of 2007), this project does share elements with the following listed activities land use and transformation, resource removal including natural living resources, television and radio transmission masts, and alternate energy programs.

As per the Environmental Impact Assessment (EIA) Regulations, construction of this nature and some of the operational activities NamPower undertook at the site fall within a sensitive environment and therefore clearance from the Ministry of Environment and Tourism (MET) was obtained.

The purpose of this document, therefore, is to indicate the anticipated impacts because of the construction, operational, and maintenance activities that took place at the envisaged Wind Mast site. A land lease agreement between NamPower and the landowner is in place. Approval from Namibia Civil Aviation Authority was received in

writing about the Skorpion Aerodrome.

Table 1: Site details

Site location	Portion 1, Farm Sud Witputs, Karas Region, approximately 37km from Rosh Pinah along C13 National Road.
Footprint area of the Mast including guy wire/ropes	1.4 Hectare
Wind Mast Height	100m Wind Mast

2. SCOPE OF WORK

a. Construction activities

General Identifiers	Description
Location	<ul style="list-style-type: none">• Latitude: -27,674137°• Longitude: 16,676597°
Site elevation	<ul style="list-style-type: none">• ±1089 m
Wind Mast Footprint (Land Size)	<ul style="list-style-type: none">• 1.4 ha (Mast and Guy wire anchors included)
Type of Infrastructure	<ul style="list-style-type: none">• Electronic and mechanical sensors mounted on a steel tower with steel. wire supports in concrete anchors.
Duration of project	<ul style="list-style-type: none">• Site works and commissioning were done within 10 Days.

Number of people involved.	<ul style="list-style-type: none"> • 15 including NamPower and contractor employees.
Activities carried out on site	<ul style="list-style-type: none"> • Existing access track was used. • Minor excavations for guy wire anchors. • Concrete pouring into excavations. • Assembly of the mast tower. • Installation of sensors. • Commissioning and testing of the measurement station. • No crane was used for the erection of the tower.
Needs and desirability of the project.	<ul style="list-style-type: none"> • The wind resource measurement station is required to enable the development of a commercial wind farm.
Site Rehabilitation	The site was left tidy, and the area was reinstated where necessary as per the Environmental Management Plan.

Table 2: The main equipment installed for the wind resource measurement station is as follows:

Mast Components	Description
The following mast was installed	100m Met Mast
Anemometer 1	Thies make at 100m

Anemometer 2	Thies make at 100m
Anemometer 3	Thies make at 80m
Anemometer 4	Thies make at 60m
Anemometer 5	Thies make at 40m
Anemometer 6	Thies make at 80m
Anemometer 7	Thies make at 60m
Anemometer 8	Thies make at 40m
Pressure Probe 1	Kintech make at 98m
Pressure Probe 2	Kintech make at 8m
Wind Vane 1	Thies make at 90m
Wind Vane 2	Thies make at 90m
Wind Vane 3	Thies make at 70m
Wind Vane 4	Thies make at 50m
Temperature and Humidity Sensor	Galltec make at 98m
Temperature and Humidity Sensor	Galltec make at 10m
Pyrometer	Hukseflux make at 10m
Data Logger	Kintech Orbit 360
Symphonie iPackACCESS \ BGAN M2M Satellite	Data Transmission (at the base of the mast tower)

Camera Surveillance System	Visual Surveillance (at the base of the mast tower)
Solar Module SD030	Battery charging (at the base of the mast tower)
Charging Regulator 12V	Battery charging control (at the base of the mast tower)
Batteries, 12 V 33Ah Sealed Lead Acid	Electricity storage and supply (at the base of the mast tower)



Fig 1: Show Rosh Pinah Wind Mast as installed on-site during quarterly maintenance.

b. Operational Activities

The following **operational activities** were carried out on-site and have also been considered for this document:

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- (a) Data collection and download.
 - (b) Maintenance of the Wind Mast, NamPower will maintain the Wind Mast Station to ensure the reliability of the data collected.
 - (c) General site inspection carried out by the technical and Safety, Health, Environment, and Wellness Departments in line with the Environmental Management Plan quarterly to an annual basis.

It is important to note that all environmental issues were considered from the onset of the project to ensure environmental best practices are incorporated during the construction, operational, and maintenance phases.

3. ENVIRONMENTAL IMPACT MANAGEMENT

NamPower 's environmentalist was involved in ensuring the full implementation of the Environmental Management Plan. Deviations identified during site inspections were communicated to the project manager and contractor for corrective action.

3.1. Training and Induction

Before construction induction sessions were conducted for all Employees and contractors onsite (see appendices). Toolbox talks were/are conducted before the start of a new activity on site.

3.2. Waste Management

Waste generated during the project was disposed of at approved dump sites.

3.3. Monitoring

Monitoring was conducted by NamPower 's Environmentalist during the construction, operational, and maintenance phases, and all deviations from the EMP were communicated to the project manager and contractor for corrective action.

4. VEHICLE AND EARTHMOVING EQUIPMENT

Construction vehicles were inspected to see whether they were road-worthy and operator certificate verification was conducted during the site inspection.

5. PROTECTION OF FLORA AND FAUNA

The Rosh Pinah area is situated between the Ai-Ais / Richtersveld Transfrontier Park in the East, and the Spergebiet National Park in the West. The landscape is in the hyper-arid zone. It falls within the transition belt between summer and winter rainfall and consequently has elements of both succulent winter rainfall and woody summer rainfall vegetation. The high mountains, deep valleys, perennial Orange River, and effects of coastal fog (in the extreme west) contribute to adding further habitat diversity to the area. The landscape extends across two biomes, the Nama Karoo and the Succulent Karoo, and the transition zone between them.

The succulent Karoo ecosystem is the most diverse desert system in the world. Environmentally sensitive sites include but are not limited to areas with high conservation value due to the presence of important plant specimens, pristine habitats, and high biodiversity. To minimize impacts precautions must be taken and only existing tracks were utilized.

6. HERITAGE OBJECTS

There are no heritage sites and objects observed on-site.

7. RELATION WITH NEIGHBOURS, OFFICIALS, AND GENERAL PUBLICS

Relations with the community and stakeholders remain cordial. No stakeholder complaints were lodged during the period under review.

8. CONCLUSION AND RECOMMENDATIONS

The overall environmental management on site is good. Inspections are conducted and environmental concerns and improvement opportunities will be discussed during project progress meetings if any.

9. LIST OF APPENDICES

- Proof of payment
- Practitioner CV
- Lease agreement 1.4ha Wind Mast
- Lease agreement portion 1 farm
- Expired ECC
- Induction records
- NCAA approval letter
- Site map

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