

Environmental Impact Assessment (EIA) Study

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)



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Namibia Power Corporation (Pty) Ltd





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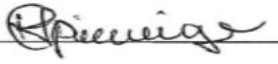
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STATEMENT OF INDEPENDENCE

As the Appointed Environmental Consultant to undertake the Environmental Impact Assessment (EIA) Study 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 HGE Consultants cc and SRK Consulting South Africa (Pty) Ltd declare that we:

- do not have, to our knowledge, any information or relationship with Namibia Power Corporation (Pty) Ltd (NamPower, the Proponent), 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: The 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 on behalf of Serja and SRK Consulting

Date: September 2025

EXECUTIVE SUMMARY

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 (1) unmanned Light Detection and Ranging (LiDAR) in the Tsau //Khaeb National Park (TKNP). The 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 Wind Energy Facility (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#Nûs (Naminus) Constituency.

Brief Description of Proposed Project Activities

Planning and design

- The project will comprise four (4) WRA measurement sites, labelled PML01, PML02, PML03, and PML04 (see Table 1 below for details). Each 120m mast will be equipped with both Bat Monitoring Equipment (BME) and Wind Resource monitoring equipment. The installation of such equipment shall be undertaken to ensure easy maintenance of all equipment and avoid any potential interference between the monitoring equipment. LiDAR systems typically have a limited footprint area and are usually mobile and solar-powered, thus minimizing disturbance to the landscape.

Table 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 ground 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	-27.871933 16.114881 27° 52' 18.9552" S	120	286	Met mast

Name	GPS coordinates (Latitude, Longitude)	Equipment Height above ground level (magl)	Elevation (meters above ground level (masl))	Measurement system
	16° 6' 53.5644" E			
PML04	27° 56' 21.1740" S 16° 11' 40.3116" E	2	221	LiDAR

Site Preparation and Construction

- 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 met 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 possible.
- The duration of the construction work is anticipated to be three (3) to four (4) weeks per 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 or consultant (and any others using the site) will be required to adhere to health, safety, and environmental requirements as set out in national law and by NamPower for construction and operation (as well as maintenance) to be presented in the Draft EMP for the project. The met masts will be fully earthed once construction is completed.

Operational and Maintenance Phase

During this phase, the met masts will be operational and provide the data required for the wind resource assessment. The met masts will also be used to affix the bat monitoring equipment required for one year of pre-construction bat monitoring at different heights within the rotor swept area, 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 system will be carried out by the WRA consultant team according to maintenance schedules. All contractors on the site will be required to adhere to environmental, health, and safety measures to be provided in the Draft EMP.

Project Alternatives considered

The "No-Go" Alternative

The “no action” alternative implies that the status quo remains, and nothing happens. Should the proposal of the project be discontinued, none of the potential impacts (positive and negative) identified would occur. If the proposed project is not developed, the current land use for the proposed site will remain unchanged. The data that the WRA met masts and LiDAR are intended to gather relating to the site-specific wind resource quality and bat activity in the vicinity would also not be collected, and therefore would not be available to inform the design and EIA for the WEF (or any other projects in the area that may require this data).

This option was considered, and a comparative assessment of the environmental and socio-economic impacts of the “no action” alternative was undertaken to establish what benefits might be lost if the project is not implemented.

Considering the above, the “no-action/go” alternative would result in the loss of the opportunity for potential WEF (or other) development in the area, as the required information for responsible planning of such developments would not be available.

Site Location

The site locations were selected based on their ability to closely represent the wind conditions of the proposed wind farm location. The key considered factors include similar elevation, surface roughness, and exposure to prevailing wind conditions. The site areas are free from obstructions like buildings or tall vegetation that could distort wind flow and are ideally positioned upwind of the project area to capture undisturbed wind data (freestream wind speed). They are also free of environmentally sensitive features such as watercourses or rocky outcrops. These characteristics are found at the planned sites for the WRA met masts in the TKNP. Therefore, the site is suitable for the project development.

Services Infrastructure

Alternatives were considered for different supporting infrastructures to ensure that the most feasible options were selected. The technological, economic, and environmental limitations were considered to select the most feasible option. The alternatives considered in this regard are presented in Table 2 below.

Table 2: The presentation of service infrastructure alternatives considered for the project activities

Category of Infrastructure	Alternatives Considered	Justification for the selected option
Ablution facilities	Install a fixed facility with a septic tank -Portable chemical toilet facilities	-To minimize rehabilitation costs, portable chemical toilet facilities were selected as the best option.

Category of Infrastructure	Alternatives Considered	Justification for the selected option
Water supply	-Bring water from elsewhere -Abstract from local existing or new boreholes	-The project water will be sourced from Rosh Pinah.
Fuel storage	-Trailer-mounted diesel tank -Fixed the bunded fuel tank	-A trailer-mounted diesel tank for fuel storage due to the great mobility requirements during construction.
Power supply	-Diesel generator set, and if considered, solar power. -Powerline (grid) supply	-Diesel and /or solar power are the most practical and economically viable options for the construction and operational phase for the met masts and LiDAR system.
Accommodation	-Setting up campsites, tented campsites onsite -Commuting from Rosh Pinah, which is about 50km from the site.	-On-site camping is recommended compared to commuting from Rosh Pinah. This is because, despite the relatively short distance of 50km, the sandy terrain and absence of a road between Rosh Pinah and the site result in significant travel time between the two. Therefore, to ensure that the construction works are commenced and completed on time, on-site accommodation will be ideal.

Applicable National Legal Framework

- Environmental Management Act No. 7 of 2007 and its 2012 EIA (Listed activity 10.1 - the construction of- (j) Masts of any material or type and any height, including those used for telecommunication, broadcasting, and radio transmission, but excluding - (i) flag poles and (ii) lightning conductor poles)
- The Constitution of the Republic of Namibia, 1990, as amended
- The Aviation Act No. 74 of 1962 (height implications in aerodrome areas)
- Civil Aviation Act No. 6 of 2016
- Nature Conservation Amendment Act No. 3 of 2017
- The Parks and Wildlife Management Bill of 2008
- Petroleum Products and Energy Act No. 13 of 1990; Regulations (2001)
- The Regional Councils Act No. 22 of 1992
- Water Resources Management Act No. 11 of 2013 and 2023 Water Regulations
- National Heritage Act No. 27 of 2004
- The National Monuments Act No. 28 of 1969
- Soil Conservation Act No. 76 of 1969
- Forestry Act No. 12 of 2001

- Public and Environmental Health Act No. 1 of 2015
- Health and Safety Regulations GN 156/1997 (Government Gazette 1617)
- Atmospheric Pollution Prevention Ordinance (1976)
- Hazardous Substance Ordinance No. 14 of 1974
- Road Traffic and Transport Act No. 22 of 1999
- Labour Act No. 6 of 1992.

International standards and guidelines

In addition to the above-mentioned national legislative requirements, international standards and guidelines such as the International Finance Corporation (IFC) Performance Standards (PS), and the World Bank Group Environmental Health and Safety Guidelines (WBG EHS), are also applicable to the project.

Biophysical and Social Environmental Baseline

The proposed met masts and associated activities will be undertaken in specific environmental and social conditions. Therefore, understanding the pre-project conditions of the environment will aid in describing the status quo versus future projections of environmental conditions once the project is implemented. The baseline information also aids in identifying the sensitive environmental features and how the best suitable management and mitigation measures can be recommended for implementation.

The baseline information (biological, physical, and social) of the site area has been described and presented in the Scoping Report.

Communication with I&APs and Means of Consultation Employed

Communication with I&APs on the proposed project activities was facilitated as follows:

- A Background Information Document (BID) containing brief information about the proposed project was compiled and uploaded onto the ECC Portal for project registration. The BID was shared with (distributed to) registered stakeholders.
- A Stakeholders List was developed and updated throughout the EIA process.
- Project Environmental Assessment notices were published in *The Namibian* and *Windhoek Observer* newspapers on the 1st & 8th of July 2025 and *New Era* on the 17th and 24th of July 2025. The consultation period ran from the 1st of July 2025 to the 04th of August 2025.
- EIA posters were pasted at two strategic places in Rosh Pinah on the 3rd of June 2025 and at the !Nami#Nûs (Naminus) Constituency office and Lüderitz Town Council notice boards (in Lüderitz), as well as the //Kharas Regional Council office notice board (in Keetmanshoop) in July 2025.
- A consultation meeting was scheduled and held with the key stakeholder (MEFT: Parks Directorate in Rosh Pinah) on the 3rd of June 2025. The meeting was attended by six (6) people (three (3) Environmental Assessment Practitioners and three (3) officials from the MEFT's Park Directorate

Office in Rosh Pinah. The consultation meeting minutes were taken and incorporated into the Report. Another engagement was held with the Oranjemund Town Council's General Manager for Technical Services (which houses the Environmental Health Department) on the 06th of June 2025. The engagement was more of a project briefing session, and a BID copy was handed out and explained to the General Manager. An attendance register was signed and attached hereto.

- The draft Scoping Report and the EMP were circulated to the registered stakeholders/I&APs via the provided emails for review and further comments. The review and comments period was from the 18th of August 2025 to the 02nd of September 2024, i.e., for ten (10) working days, (considering that the 26th of August 2025 was a public holiday (Heroes' Day) in Namibia).

Summary of key comments noted in the consultation meeting

- Night operations are allowed in the TKNP; however, consent for such operations needs to be obtained from the MEFT: Parks Directorate before operations can commence. The Consent is issued with certain conditions that must be complied with at all times.

Feedback on the Review of the Draft Scoping and EMP by Stakeholders (I&APs)

There were no comments received on the draft Scoping Report and EMP during and after the review period, nor during the finalization of the Scoping Report and updating of the EMP by the 05th of September 2025.

Potential impacts associated with the Project activities

Positive impacts

- Creation of about twenty (20) temporary jobs for some local people during the installation phase.
- 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 equipment to be installed.
- The met masts and LiDAR will provide precise, site-specific wind data (speed, direction, turbulence, and meteorological parameters, among other wind 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 installation of the bat monitoring equipment to record bat activity in the area, to facilitate the bat impact assessment for the WEF EIA.
- The accurate data collected by the installed met masts and LiDAR system will support reliable energy yield estimates, which can attract investors and developers (bankability of the project).

- 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 and penetration of renewable energy generation projects.

Potential negative (adverse) impacts

- Soil disturbance resulting in compaction and erosion of desert soils, as well as wind-blown dust.
- Environmental pollution (littering) from construction workers on-site.
- Biodiversity and habitat disruption: Installation of met masts may disturb fragile 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.
- Avian collision risk: High met masts with guy wires can pose a threat to vulnerable birds, especially during migration or low-visibility conditions.
- Visual impact (nuisance): The met masts are over 100m in height above ground level and can disrupt the visual integrity of pristine wilderness areas, thus resulting in landscape intrusion and compromising the native aesthetic of the National Park. It is noted, however, that there are no known visually sensitive receptors (tourist areas, residences, etc.) in the vicinity of the 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.
- 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.
- 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.
- 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 assessment, thus limiting long-term impact on the environment.
- 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.

Impact Assessment: The key impacts were described and assessed. The potential negative impacts indicated a medium rating of significance, and positive impacts indicated a medium to high significance. To

minimize the significance of negative impacts, appropriate management and mitigation recommendations are made for implementation by the Proponent and their contractors to avoid and/or minimize their significance on the environmental and social components. The effective implementation of the recommended management and mitigation measures, accompanied by monitoring, will particularly see a reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low).

Recommendations and Conclusions

The EIA Scoping assessment was carried out for the proposed construction and operation of Wind Resource Assessment (WRA) Meteorological Masts and Associated Activities in the Tsau //Khaeb National Park (TKNP). Some key potential positive and negative impacts were identified. The key negative impacts were described and assessed, and appropriate management and mitigation measures were recommended for implementation by the Proponent and their contractors and/or consultants.

The public was notified as required by Sections 21 to 24 of the EIA Regulations by placing adverts in two (2) newspapers, namely *The Namibian* and *Windhoek Observer* newspapers on the 1st and 8th of July 2025, and then *New Era* on the 17th and 24th of July 2025. The consultation period ran from the 1st of July 2025 to the 04th of August 2025. No comments were received from the public during this period.

A consultation meeting was held, and comments on the proposed project activities were recorded for consideration.

Impact identification: Some key potential positive and negative impacts were identified by the Environmental Consultant and based on comments provided by the key stakeholder (MEFT: Parks) during the consultation period. The comments were addressed and incorporated into this Report, and mitigation measures have been provided in the Draft Environmental Management Plan (Draft EMP) (in the form of action measures) for implementation to avoid and/or minimize their significance.

Impact Assessment: The negative impacts were described and assessed. The potential negative impacts indicated a medium rating of significance, and positive impacts indicated a medium to high significance. To minimize the significance of negative impacts, appropriate management and mitigation recommendations are made for implementation by the Proponent and their contractors to avoid and/or minimize their significance on the environmental and social components. The effective implementation of the recommended management and mitigation measures, accompanied by monitoring, will particularly see a reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low).

The Scoping Assessment Study was deemed sufficient and concluded that no further detailed assessments at this stage are required for the WRA met masts' ECC application. Therefore, the Environmental

Consultants are confident that the potential negative impacts associated with the proposed project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures, and with appropriate commitment put into monitoring the implementation of recommended measures.

It is, therefore, recommended that the proposed project and associated activities be granted an Environmental Clearance Certificate (ECC), provided that:

- All the management and mitigation measures provided in the EMP are effectively and progressively implemented as reasonably practicable.
- All required permits, licenses, and approvals for the proposed activities (as presented in the EMP) should be obtained as required, and ensure compliance with the specific legal requirements of such permits/approvals.
- Transparency in communication and continued engagement with the land custodian (MEFT: Wildlife and National Parks Directorate) and other stakeholders should be maintained before and throughout the project.
- The Proponent and their contractors comply with the legal requirements governing the project and its associated activities and ensure that project permits and or approvals required to undertake specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where activities have ceased are rehabilitated, as far as practicable, to the pre-disturbance state and the satisfaction of the MEFT: Parks Directorate. This includes the leveling of stockpiled topsoil, backfilling of construction trenches, and closing/capping of associated holes.
- The EMP implementation on site must be monitored and recorded by the responsible team member on site (Environmental Control Officer - ECO) and audited by an Independent Environmental Consultant both at the start of and after completion of construction at each site. Environmental Monitoring (Audit) Reports must be compiled, confirming that all environmental management measures have been complied with and any findings closed out post-construction. These reports are to be submitted to the Environmental Commissioner at the DEAF. This will be required by the Environmental Commissioner (as part of the ECC conditions).

In conclusion, to ensure that the potential impacts are appropriately managed, the implementation of management and mitigation measures should be monitored by the Environmental Control Officer (ECO) and audited by an Independent Environmental Consultant during the construction phase of the project. The monitoring of this implementation will not only be done to maintain the reduced impact significance rating (with mitigation) or maintain a low rating, but also to ensure that all potential impacts that might arise during construction are properly identified in time and addressed immediately

TABLE OF CONTENTS

DOCUMENT INFORMATION	i
EXECUTIVE SUMMARY	iv
TABLE OF CONTENTS	xiii
LIST OF FIGURES.....	xiv
LIST OF TABLES.....	xvi
LIST OF APPENDICES	xvi
LIST OF ABBREVIATIONS.....	xvi
GLOSSARY (KEY TERMS).....	xvii
1 INTRODUCTION.....	1
1.1 Project Background and Location	1
1.2 The Need and Desirability of the Proposed Project	2
1.3 The Need for an EIA and Environmental Clearance Certificate (ECC)	3
1.4 Appointed Independent Environmental Consultant.....	3
1.5 Application for the Environmental Clearance Certificate (ECC)	4
1.6 Scope of Work and Report Contents	5
2 DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES	6
2.1 Planning and Design	6
2.2 Site Preparation and Construction Phase.....	10
2.2.1 Required Resources and Services.....	10
2.3 Decommissioning and Rehabilitation of Disturbed Sites	12
2.4 Operational and Maintenance Phase.....	13
3 PROJECT ALTERNATIVES	14
3.1 The "No-Go" Alternative	14
3.2 Site Locations.....	15
3.3 Services Infrastructure	16
4 APPLICABLE LEGAL FRAMEWORK.....	17
4.1 Environmental Management Act No. 7 of 2007	17
4.2 International Policies, Principles, Standards, Treaties, and Conventions.....	22
4.2.1 International Finance Corporation (IFC) Standards	22
4.2.2 World Bank Environmental and Social Framework.....	23
4.2.3 World Bank Environmental and Social Framework.....	24
4.2.4 Other Applicable International Statutes (Treaties and Conventions) and Policies	25
5 BIOPHYSICAL AND SOCIAL ENVIRONMENTAL BASELINE	27
5.1 Biological Environment.....	27
5.1.1 Fauna	27

5.1.2 Flora 30

5.2 Physical Environment..... 33

5.2.1 Climate 33

5.2.2 Elevation (Topography) and Landscape 36

5.2.3 Geology 38

5.2.4 Project Site Soils 40

5.2.5 Water Resources: Groundwater (Hydrogeology)..... 41

5.3 The Tsau //Khaeb National Park 42

5.4 Social and Economic Environment 43

5.4.1 Demography..... 43

5.4.2 Economic Activities and Employment 43

5.5 Infrastructure and Services 46

5.6 Archaeology and Cultural Heritage Aspect 46

6 PUBLIC CONSULTATION AND PARTICIPATION PROCESS 51

6.1 Pre-identified and Registered Interested and Affected Parties (I&APs) 51

6.2 Communication with I&APs and Means of Consultation Employed..... 51

6.3 Feedback and Issues Raised by the Stakeholders (I&APs) during consultations 54

6.4 Feedback on the Review of the Draft Scoping and EMP by Stakeholders (I&APs) 55

6.5 Reviewing and Comment on the Scoping Report and EMP on the MEFT ECC Portal
(Comments to be submitted directly to the Environmental Commissioner) 56

7 IMPACTS IDENTIFICATION, METHODOLOGY, AND ASSESSMENT..... 57

7.1 Identification of Potential Impacts 57

7.1.1 Positive impacts (benefits) 57

7.1.2 Negative (adverse) impacts 57

7.2 Impact Assessment Methodology 58

7.3 Impact Significance 60

7.4 Description and Assessment of Potential Impacts..... 61

7.5 Cumulative Impacts Associated with the Proposed Project..... 77

8 RECOMMENDATIONS AND CONCLUSIONS..... 78

9 LIST OF REFERENCES 80

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)	7
Figure 2-2: Photo of typical LiDAR Installation (Option 1) for PML04 (source: GEO-NET, 2025).....	8
Figure 2-3: Example of LiDAR Installation (Option 1) for PML04 (source: GEO-NET, 2025)	9
Figure 2-4: Typical LiDAR Temporary Installation (Option 2) for PML04 (source: GEO-NET, 2025).....	9
Figure 3-1: The wind ripple marks seen throughout the proposed wind resource measurement locations (PML sites)	16
Figure 5-1: Photos of the site visiting team (Environmental Consultant and TKNP Parks Rangers)	27
Figure 5-2: Ostriches and egg shells were encountered onsite near PML03 and PML01, respectively	28
Figure 5-3: Oryx hoof prints and small mammal burrow onsite near PML03	28
Figure 5-4: Observed bird flight paths confirmed during the 1st Monitoring survey during June 2025 – Ludwig’s bustard (white arrow), Cape crow (yellow arrow), southern pale chanting goshawk (orange arrow) and Burchell’s courser (green arrows) (Cunningham, 2025).....	30
Figure 5-5: The vegetation structure map within and around the project	31
Figure 5-6: Some of the vegetation observed within and around the site area	33
Figure 5-7: The average annual temperature and frost days per year in Namibia, with the approximate project area (Mendelsohn et al., 2002)	34
Figure 5-8: The maximum and minimum temperatures in Namibia with the approximate project area (Mendelsohn et al., 2002)	35
Figure 5-9: The average annual rainfall in Namibia with the approximate project area (Mendelsohn et al., 2002)	36
Figure 5-10: The elevation map of the area	37
Figure 5-11: The topographical view of some parts of the site area (distant hills and mountains).....	38
Figure 5-12: The landscape of the project site area	38
Figure 5-13: The geology of the project site and the surrounding area	39
Figure 5-14: Rock units (A - quartzite and basalt, and B – protruding quartzite outcrop scattered afar) near the PML04 site	40
Figure 5-15: The brown sand, gravel, and calcrete observed within the project site.....	40
Figure 5-16: The dominant soil types found onsite	41
Figure 5-17: The groundwater (geohydrology) map of the area overlain by the project site	42
Figure 5-18: Sources of Household Income within the //Kharas Region, Namibia	44
Figure 5-19: The Labour Force Participation Rate (LFPR) for //Kharas Region in relation to the other regions in Namibia	45
Figure 5-20: Fossil invertebrate dwelling burrow in poorly consolidated Cenozoic (possible Tsondab Formation (Kinahan and Kinahan, 2025a)	47
Figure 5-21: Archaeological setting of the NamPower Wind Energy Facility located in the TKNP, indicating areas of high sensitivity requiring further research (Kinahan and Kinahan, 2025a).....	48
Figure 5-22: The distribution of archaeological and palaeontological sites (numbered red dots) associated with the NamPower WEF project area (Kinahan and Kinahan, 2025b).....	49
Figure 5-23: The mapped archaeological and palaeontological sites (numbered red dots) associated with the NamPower WEF project area (sourced from Kinahan and Kinahan, 2025b).....	50
Figure 6-1: EIA Poster in Rosh Pinah at the A - Post Office, and B-Choppies Market with C - Close-up photos of the poster at the two places it was pasted	52
Figure 6-2: EIA Poster in Keetmanshoop at the //Kharas Regional Council (A), in Lüderitz at the Lüderitz Town Council Office (B), and Naminus Constituency Office (C) notice boards.....	53
Figure 6-3: EIA Consultation meeting at the MEFT: Parks’ office in Rosh Pinah on the 03 rd of June 2025	54

LIST OF TABLES

Table 2-1: Details for the proposed WRA measurement sites (GEO-NET, 2025)..... 6
 Table 3-1: The presentation of service infrastructure alternatives considered for the project activities 16
 Table 4-1: List of applicable legislation for the proposed project and associated activities 17
 Table 4-2: The IFC Performance Standards (PSs) analysis against the EIA Study for the project..... 22
 Table 4-3: Other international treaties and conventions governing the proposed activities 25
 Table 5-1: The CITES-listed plant species in the Tsau //Khaeb National Park (TKNP) (MEFT, 2025)..... 32
 Table 5-2: The Labor Force Participation rate (LFPR) for population (age 15 years and above) by area and gender in the 14 regions (source: Namibia Statistics Agency (2024c) 45
 Table 6-1: Summary of main comments raised in the consultation meeting with the MEFT: Parks officials in Rosh Pinah 55
 Table 7-1: Criteria used for impact assessment (extent, duration, intensity, and probability) 59
 Table 7-2: Impact significance rating scale and colour coding 60
 Table 7-3: The Description and Assessment of the impacts of the met masts on the biophysical and social environment 62

LIST OF APPENDICES

- Appendix A: Draft Environmental Management Plan (EMP)
- Appendix B: Curricula Vitae (CVs) of the responsible Environmental Assessment Practitioners (EAPs)
- Appendix C: Background Information Document (BID)
- Appendix D: EIA Notification in the newspapers (The Namibian, New Era, and Windhoek Observer)
- Appendix E: Original copy of the EIA poster pasted in Rosh Pinah, Lüderitz, and Keetmanshoop
- Appendix F: Minutes from the Consultation Meeting with stakeholders in Rosh Pinah (Appendix F1) and Oranjemund (Appendix F2)
- Appendix G: The letter of support for the project issued to NamPower by the MEFT in May 2024

LIST OF ABBREVIATIONS

Abbreviation	Meaning
BID	Background Information Document
BME	Bat Monitoring Equipment
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DEAF	Department of Environmental Affairs and Forestry
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate

Abbreviation	Meaning
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EIA	Environmental Impact Assessment
GG	Government Gazette
GN	Government Notice
I&APs	Interested and Affected Parties
IFC	International Finance Corporation
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
TKNP	Tsau //Khaeb National Park
TLB	Tractor-Loader (front bucket)-backhoe
WEF	Wind Energy Facility
WRA	Wind Resource Assessment

GLOSSARY (KEY TERMS)

Term	Definition
Alternative	A possible course of action, in place of another, would meet the same purpose and need of the proposal.
Baseline	Work done to collect and interpret information on the condition/trends of the existing environment.
Biophysical	The part of the environment that does not originate with human activities (e.g., biological, physical, and chemical processes).

Term	Definition
Cumulative Impacts / Effects Assessment	With an activity, it means the impact of an activity that may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Decision-maker	The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal
Ecological Processes	Processes that play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy, and biological diversity (as an expression of evolution).
Environment	As defined in the Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water, and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.
Environmental Management Plan (Draft EMP)	As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environmental effects are to be mitigated, controlled, and monitored.
Interested and Affected Party (I&AP)	Concerning the assessment of a listed activity includes - (a) any person, group of persons, or organization interested in or affected by an activity; and (b) any organ of the state that may have jurisdiction over any aspect of the activity. Mitigate - practical measures to reduce adverse impacts. Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity. Significant impact - means an impact that, by its magnitude, duration, intensity, or probability of occurrence, may have a notable effect on one or more aspects of the environment.
Fauna and Flora	The animals and plants found in an area.
Meteorological mast (Met Mast)	Tall, slender tower (either guyed or free-standing structure) equipped with instruments that measure weather and atmospheric conditions, especially wind characteristics, at various heights. They are a critical part of Wind Resource Assessments (WRAs) for wind energy projects. A met mast is usually 40 to 120 meters high above ground level, aimed at matching potential turbine hub heights.
Mitigation	The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment
Monitoring	Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).
Light Detection and Ranging (LiDAR)	A remote sensing technology that uses laser light to measure distances and create high-resolution 3D maps of objects, surfaces, or the atmosphere. In wind energy, LiDAR is used to measure wind speed, direction, and turbulence without needing a tall physical structure like a meteorological mast.
Proponent	Organization (private or public sector) or individual intending to implement a development proposal. In this case, Namibia Power Corporation (Pty) Ltd (NamPower) is the Proponent.

Term	Definition
Public Consultation/Involvement	A range of techniques can be used to inform, consult, or interact with stakeholders affected by the proposed activities.
Protected Area	Refers to a protected area that is proclaimed in the Government Gazette according to the Nature Conservation Ordinance number 4 of 1975, as amended.
Scoping	An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. It can also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of the site and surroundings, and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into the full EIA.
Wind Resource Assessment	A process of measuring, analysing, and modelling wind conditions at a specific location to determine its suitability for a wind energy project.

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#Nûs (Naminus) Constituency - Figure 1-2.

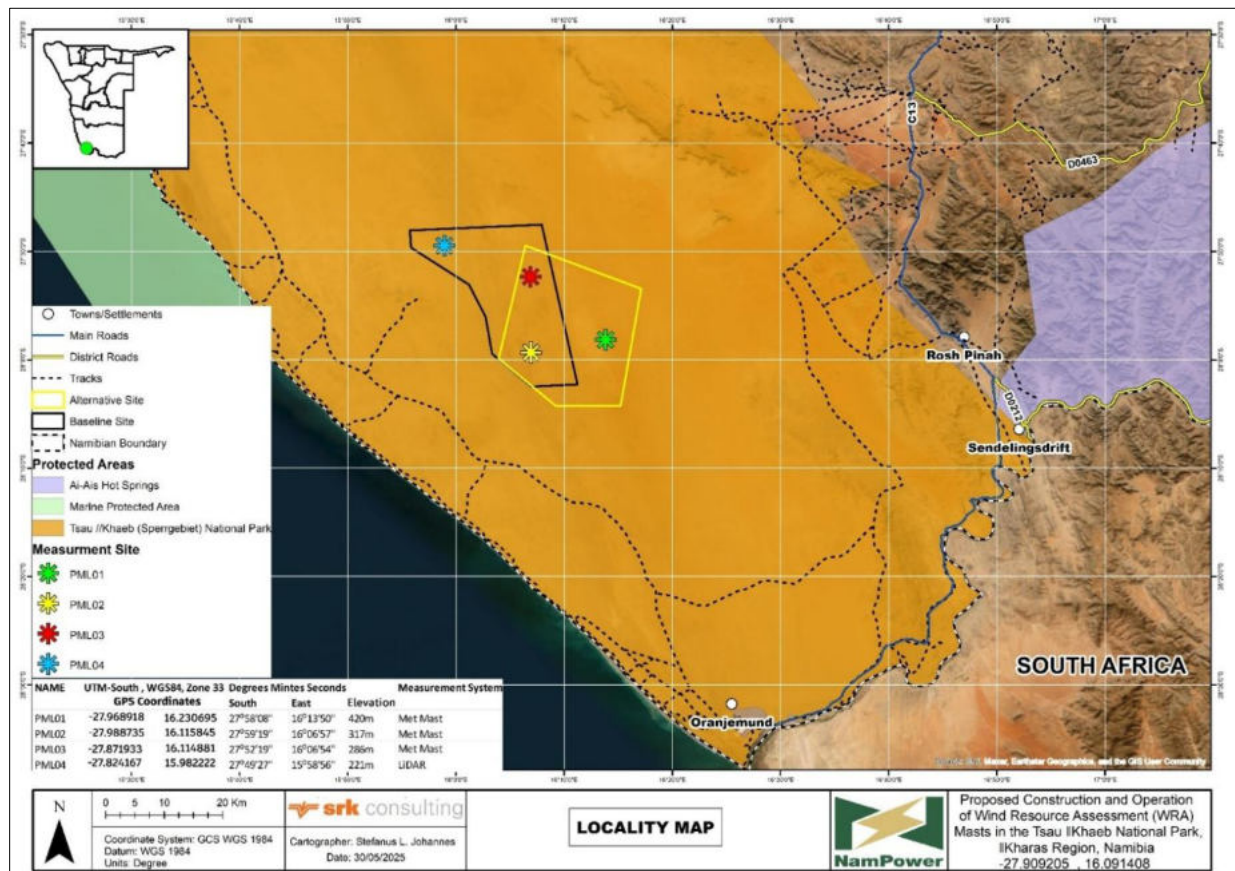


Figure 1-1: Locality map of the proposed WRA met masts and LiDAR instruments in the Tsau //Khaeb National Park, //Kharas Region

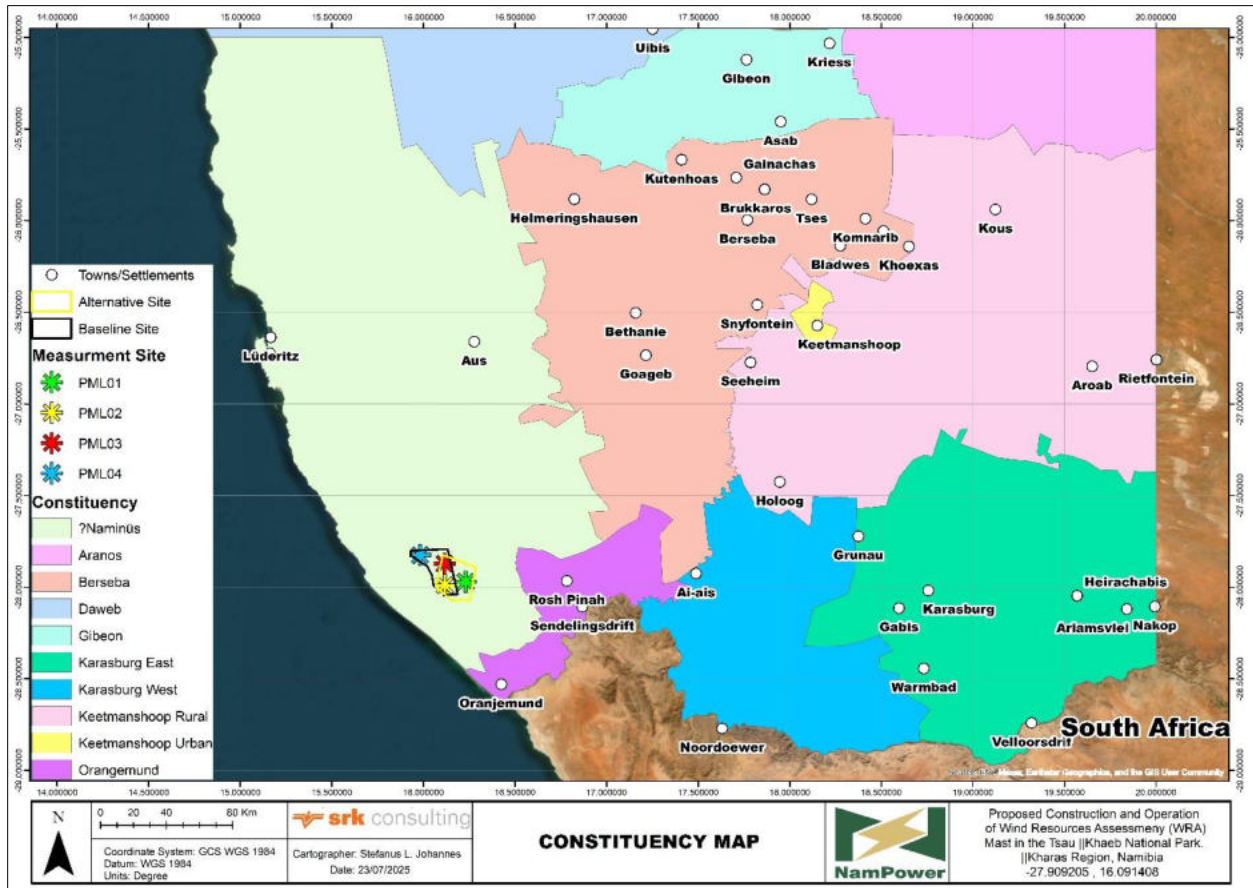


Figure 1-2: The locality of the project site within the hosting (!Nami#Nús) constituency in the Region

1.2 The Need and Desirability of the Proposed Project

The Wind Resource Assessment (WRA) meteorological masts (met masts) are essential for developing a Wind Energy Facility (WEF) to provide accurate, site-specific wind data, which is critical for the technical, financial, and environmental success of the planned wind farm project in the area. This presents a prime opportunity for renewable energy development, such as the planned NamPower WEF.

The met masts are needed to measure wind speed and direction data, which will be used to calculate average wind speeds, which directly influence energy yield estimates. Moreover, the met masts are needed to predict annual energy production, refine the turbine layout within the site, select optimal turbine model and hub height, as well as feed into wind flow models for the project. Without reliable data, you risk either overestimating energy yield (which can mislead investors) or underestimating the site's potential.

In addition to that, the project (WRA met masts) is needed to validate remote sensing (LiDAR). Thus, the met masts are needed for calibration and validation. This helps ensure that the remote data matches real atmospheric conditions and corrects for deviations in terrain or atmospheric stability.

Given the //Kharas Region's sparse infrastructure and increasing demand for sustainable energy, reliable wind measurements will support informed investment decisions (such as justifying return on investment models), minimize project risks, and contribute to Namibia's broader goals of energy security and decarbonization. Therefore, to harness the WEF project's potential effectively, the deployment of WRA met masts is essential.

1.3 The Need for an EIA and Environmental Clearance Certificate (ECC)

Met mast structures and related infrastructure are among the listed activities that may not be undertaken without an ECC under the National Environmental Management Act (EMA) (2007) and its 2012 Environmental Impact Assessment (EIA) Regulations. The listed activities relevant to this project, as per EIA regulations, are:

Listed Activity 10: Infrastructure

- 10.1 The construction of-
 - (j) Masts of any material or type and any height, including those used for telecommunication, broadcasting, and radio transmission, but excluding - (i) flag poles and (ii) lightning conductor poles.

The purpose of the EIA Scoping Study and subsequent issuance of the ECC is therefore to ensure that the proposed project activities are undertaken in an environmentally and socially sustainable manner, through the effective implementation of recommended environmental management measures to minimize the adverse identified impacts while maximizing the positive impacts.

1.4 Appointed Independent Environmental Consultant

To comply with the EMA and its EIA Regulations and ensure environmental management and sustainability, NamPower appointed Serja Hydrogeo-Environmental Consultants CC (Serja HGE Consultants) in association with SRK Consulting South Africa (Pty) Ltd (SRK Consulting), as Independent Environmental Consultants, to apply for the ECC and conduct the required Environmental Impact Assessment (EIA) process.

The EIA process entailed a baseline assessment of the biophysical & social environment and public consultation. The findings of the EIA process are then incorporated into an EIA Scoping Report (this report), and a Draft Environmental Management Plan (EMP) – provided as Appendix A, will also be compiled for the proposed project activities. The ECC application is submitted to and registered with the Ministry of Environment, Forestry and Tourism (MEFT)'s Department of Environmental Affairs & Forestry (DEAF).

Should the ECC be issued by the Environmental Commissioner, the Proponent will plan for the activities and subsequently commence the met mast construction/installation activities, followed by its operations and maintenance.

The EIA Scoping Report, EMP, and associated documents were compiled by Ms. Fredrika Shagama. Ms. Shagama is a qualified and experienced Hydrogeologist and Environmental Assessment Practitioner by training and experienced with over 10 years of experience in Groundwater and Environmental Management Consulting. The EIA process (stakeholder / public consultation and engagement, including consultation meeting facilitation) and environmental mapping were conducted and done by Ms Shagama and Mr. Stefanus Johannes, respectively. Mr. Johannes is an experienced Environmental Assessment Practitioner (EAP) and qualified and experienced GIS Specialist/Cartographer with over 4 years of experience in Natural Resources Management Consulting and Mapping (Geospatial Analysis).

The overall EIA process was managed, and document reviews were done by Ms. Nicola Rump, who has over 16 years of working experience in EIAs. The Curricula Vitae (CVs) of the responsible Environmental Assessment Practitioners (EAPs) are attached hereto as Appendix B.

1.5 Application for the Environmental Clearance Certificate (ECC)

The application for the ECC process was done as follows:

- Preparation of the Background Information Document (BID) for the proposed project (Appendix C).
- Launching of the ECC application on the ECC Portal of the Ministry of Environment, Forestry and Tourism (MEFT) with the Proponent details (accompanied by the BID) for project registration purposes and obtaining a MEFT application/reference number (APP-005972).
- Completion of Form 1 (Section 32) of the EIA Regulations with the required project and Proponent information.
- Submission of the printed hard copy of the ECC application (with affixed NAD300 revenue stamps as application fees attached hereto) is submitted to the MEFT. The MEFT's date-stamped copy of the ECC application is uploaded on the ECC Portal as proof of application and payment.
- Conducting the EIA process, which entails a Baseline Assessment of the biophysical and social environments as well as public consultation and engagement. The findings of the EIA process are then incorporated into an EIA Scoping Report, and a Draft EMP is also developed for the mitigation of potential adverse impacts anticipated from the proposed project activities.

The Scoping Report and EMP, including the necessary associated documents (appendices) are then made available to stakeholders for review and submitted to the Environmental Commissioner at MEFT's Department of Environmental Affairs and Forestry (DEAF) for evaluation and consideration of issuing the ECC. During this period, DEAF will also make the documents available for a 14-day comment period on its website.

1.6 Scope of Work and Report Contents

This EIA Study has been conducted according to the EMA No. 7 of 2007, and its 2012 EIA Regulations as mentioned in the preceding subsections, i.e., the proposed project may not be undertaken without an ECC. Therefore, the process has been undertaken as required and guided by the Regulations.

This Report has been compiled as a required output of an environmental assessment process after the ECC application has been submitted to and registered with the DEAF. The Scoping Report, together with the EMP and all its appendices, will be submitted to the DEAF. The document (this Report) covers the following chapters or sections, in addition to the introductory chapter:

- Project description and associated activities - Chapter 2.
- Project alternatives considered - Chapter 3.
- The Legal requirements governing the proposed project and its related activities, i.e., the legislation that the proposed project must comply with - Chapter 4.
- The Environmental and Social Baseline of the project area - Chapter 5.
- The Public Consultation & Engagement Process undertaken to inform, invite, and engage the public (stakeholders and interested & affected parties) on the proposed project- Chapter 6.
- The assessment of identified potential impacts associated with the proposed project - Chapter 7. This chapter presents both the positive and negative (adverse) as well as cumulative impacts, assessment methodology, and the assessment of the negative impacts. The mitigation measures in the form of management action plans and implementation responsibilities are given in the EMP.
- The recommendations and conclusions of the environmental assessment are presented in Chapter 8. The data sources (references) consulted for the assessment - Chapter 9.

Based on the information provided by the Proponent and the Wind Resource Assessment (WRA) design consultant (WRA design engineers), a description of the project activities is presented in the next chapter.

2 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 mast type proposed for PML01, PML02, and PML03 sites are shown in

Figure 2-1. Each 120m 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 will allow for 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	-27.871933 16.114881 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 2-2: 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 Draft 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 Draft EMP.

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

3 PROJECT ALTERNATIVES

Alternatives are defined as the “different means of meeting the general purpose and requirements of the activity” (EMA, 2007). This section will highlight the different ways in which the project can be undertaken and identify the alternative that will be the most practical, but least damaging to the environment.

Once the alternatives have been established, these are examined by asking the following three questions:

- *What alternatives are technically and economically feasible?*
- *What are the environmental effects associated with the feasible alternatives?*
- *What is the rationale for selecting the preferred alternative?*

The alternatives considered for the proposed project are discussed in subsequent subsections below.

3.1 The "No-Go" Alternative

The “no action” alternative implies that the status quo remains, and no development happens. Should the proposal of the project be discontinued, none of the potential impacts (positive and negative) identified would occur. If the proposed project is not developed, the current land use for the proposed site will remain unchanged. The data that the WRA met masts and LiDAR are intended to gather data relating to the site-specific wind resource quality and bat activity in the vicinity would also not be collected and therefore would not be available to inform the design and EIA for the WEF (or any other projects in the area that may require this data).

This option was considered, and a comparative assessment of the environmental and socio-economic impacts of the “no action” alternative was undertaken to establish what benefits might be lost if the project is not implemented.

Considering the above, the “no-action/go” alternative would result in the loss of the opportunity for potential WEF (or other) development in the area, as the required information for responsible planning of such developments would not be available.

3.2 Site Locations

The site locations were selected based on their ability to reliably represent the wind conditions of the proposed wind farm location. The key considered factors include similar elevation, surface roughness, and exposure to prevailing wind conditions. The site areas are free from environmentally sensitive features or obstructions like buildings or tall vegetation that could distort wind flow and are ideally positioned upwind of the project area to capture undisturbed wind data (freestream wind speed). The areas are also free of environmentally sensitive features such as watercourses or rocky outcrops. These characteristics are found at the planned sites for the WRA met masts in the TKNP. Therefore, the site is suitable for the proposed project development. The suitability of the project site for the WRA measurement campaign can also be pre-confirmed by the appearance of the wind ripple marks seen onsite during the site visit in June 2025 (Figure 3-1).





Figure 3-1: The wind ripple marks seen throughout the proposed wind resource measurement locations (PML sites)

3.3 Services Infrastructure

Alternatives were considered for different supporting infrastructures to ensure that the most feasible options were selected. The technological, economic, and environmental limitations were considered to select the most feasible option. The alternatives considered in this regard are presented in Table 3-1.

Table 3-1: The presentation of service infrastructure alternatives considered for the project activities

Category of Infrastructure	Alternatives Considered	Justification for the selected option
Ablution facilities	<ul style="list-style-type: none"> -Install a fixed facility with a septic tank -Portable chemical toilet facilities 	-To minimize rehabilitation costs, portable chemical toilet facilities were selected as the best option.
Water supply	<ul style="list-style-type: none"> -Bring water from elsewhere -Abstract from local existing or new boreholes 	-The project water will be sourced from Rosh Pinah.
Fuel storage	<ul style="list-style-type: none"> -Trailer-mounted diesel tank -Fixed bunded fuel tank 	-A trailer-mounted diesel tank for fuel storage due to the great mobility requirements during construction.
Power supply	<ul style="list-style-type: none"> -Diesel generator set, and if considered, solar power. -Powerline (grid) supply 	-Diesel and/or solar power are the most practical and economically viable options for the construction and operational phase for the masts and LiDAR system.
Accommodation	<ul style="list-style-type: none"> -Setting up campsites, tented campsites onsite -Commuting from Rosh Pinah, which is about 50km from the site. 	-On-site camping is recommended compared to commuting from Rosh Pinah. This is because, despite the relatively short distance of about 50km, the sandy terrain and absence of a road between Rosh Pinah and the site result in significant travel time between the two. Therefore, to ensure that the construction works are commenced and completed on time, on-site accommodation will be ideal.

Chapter 4 presents the applicable and relevant national and international legal requirements for the project.

4 APPLICABLE LEGAL FRAMEWORK

All or some of the project's development activities may be regulated and governed by certain legal policies. Therefore, it is necessary to review and consider these regulations and legal requirements. These legal requirements are either local (institutional), national (Namibian), or international legislation, policies, guidelines, etc. This review serves to inform the project Proponent, Interested and Affected Parties (I&APs), and the decision-makers at the DEAF of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to establish the proposed project and associated development activities.

4.1 Environmental Management Act No. 7 of 2007

The Environmental Management Act No.7 of 2007 and its 2012 EIA Regulations aim to ensure that the potential impacts of the development on the environment are considered carefully and in good time; and that all I&APs have been afforded a fair chance to participate in the environmental assessments and that the findings of the environmental assessments are fully considered before any decisions are made about activities which might affect the receiving environment.

The Act aims to promote sustainable management of the environment and the use of natural resources. The Environmental Management Act (EMA) is broad; it regulates land use development through environmental clearance certification and/or Environmental Impact Assessments. The Act provides for the clearance certification for "The construction of- (j) Masts of any material or type and any height, including those used for telecommunication, broadcasting, and radio transmission, but excluding - (i) flag poles and (ii) lightning conductor poles." – Listed activity 10.1.

Other applicable legal frameworks and policies relevant to the proposed project are presented in Table 4-1.

Table 4-1: List of applicable legislation for the proposed project and associated activities

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
The Constitution of the Republic of Namibia, 1990, as amended	The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include: "...the duty to investigate complaints concerning the over-utilization of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia..."	By implementing the environmental management plan, the establishment will be compliant with the constitution in terms of environmental management and sustainability. Ecological sustainability will be the main priority for the proposed development.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
	<p>Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at:</p> <p>"...Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State."</p>	
<p>The Aviation Act, Act 74 of 1962 (height implications in aerodrome areas)</p>	<p>The Aviation Act gives effect to certain International Aviation Conventions and makes provision for the control, regulation, and encouragement of flying within the Republic of Namibia and for other matters incidental thereto.</p>	<p>Provides the regulations for setting up cellular as well as other mast structures in Namibia.</p>
<p>Civil Aviation Act No. 6 of 2016</p>	<p>".....; to establish the Air Navigation Services in the Authority; to provide for a civil aviation regulatory and control framework for maintaining, enhancing and promoting the safety and security of civil aviation for ensuring the implementation of international aviation agreements; to establish the Directorate of Aircraft Accident and Incident Investigations. Section 6(1) The Minister may, by issuing a directive, <u>require the removal of any building structure, tree or other object whatsoever on any land or water which, in the opinion of the Minister on the advice of the Executive Director, may constitute a danger to aircraft flying</u> following normal aviation practice.</p> <p>In terms of tower heights, the Civil Aviation Authority (Namibia Civil Aviation Authority (NCAA)) and Civil Aviation Standards of the ICAO dictate that all obstructions to be erected within 15km and 8km from an airport/aerodrome reference point, respectively, should be authorized.</p>	<p>The applicable part of the Act is the establishment of the Directorate of Aircraft Accident and Incident Investigations which provides for its powers and functions.</p> <p>The height of the proposed masts would trigger the requirements of the Namibia Civil Aviation Regulations (NAMCARS), which specifies a height of more than 45m as the threshold. The recommended international restriction distance from aerodromes is 15km. The masts will be 120m but over 50km from any Aerodrome (in Rosh Pinah). Therefore, the approval from the Namibia Airports Company (NAC) will not be required.</p>
<p>Nature Conservation Amendment Act, No. 3 of 2017</p>	<p>National Parks are established and gazetted per the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework concerning the permission to enter a state-protected area, as well as requirements for individuals damaging objects (geological, ethnological, archaeological, and historical) within a protected area.</p>	<p>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 on activities within the park will need to be adhered to.</p>

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
	Although the Ordinance does not specifically refer to mining as an activity within a Protected Area (PA) or Recreational Area (RA), it does restrict access to PAs and prohibit certain acts therein, as well as the purposes for which permission to enter game parks and nature reserves may be granted.	
The Parks and Wildlife Management Bill of 2008	The Parks and Wildlife Management Bill 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.	
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	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”	Given the road/travelling challenges between the site and Rosh Pinah, taking longer, the contractor may consider storing fuel onsite during the construction period. Therefore, should this be considered and the fuel volume is 600 litres or more, the Proponent should obtain the necessary authorization (consumer installation certificate) from the Petroleum Affairs Directorate at the MIME. It is, however, it is expected that such volumes of fuel storage on site will be required.
The Regional Councils Act (No. 22 of 1992)	This Regional Councils Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 “to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanization patterns, natural resources, economic development potential, infrastructure, land utilization pattern and sensitivity of the natural environment.	The relevant Regional Councils are I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the //Kharas Region; therefore, the //Kharas Regional Council (and the !Nami#Nûs (Naminus) Constituency should be consulted and informed of the project during the EIA process.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Water Resources Management Act (No 11 of 2013) and 2023 Water Regulations	<p>The Water Resources Management Act provides for the management, protection, development, use, and conservation of water resources; provides for the regulation and monitoring of water services and provides for incidental matters.</p> <p>The fundamental principles set out in Part 6: Section 59: Protection of aquifers states that the operator of an artificial recharge scheme must ensure that at all times the aquifer is protected against any form of pollution, including pollution caused due to operational activities during aquifer recharge.</p> <p>-Part 8: water pollution control, specifically Section 66: Application for license to discharge effluent or construct or operate wastewater treatment facility or waste disposal site.</p>	<p>The protection (both quality and quantity/abstraction) of water resources should be a priority.</p> <p>No effluent relating to the project will be discharged, and pollution control measures will be in place to prevent pollution of any water resources. No permits in terms of the WRMA are therefore required.</p>
National Heritage Act No. 27 of 2004	<p>The National Heritage Act aims to provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.</p>	<p>The Proponent should ensure compliance with these Acts' requirements.</p> <p>The necessary management measures and related permitting requirements must be taken and complied with, respectively. This is done by consulting with the National Heritage Council of Namibia. At this stage, no heritage resources requiring permits have been identified at the site. Should any such items (archaeological and heritage resources) be discovered during construction, the necessary permit applications will be undertaken.</p>
The National Monuments Act (No. 28 of 1969)	<p>The National Monuments Act enables the proclamation of national monuments and protects archaeological sites.</p>	<p>A Chance Finds Procedure provided to the Draft EMP should be implemented upon discovery of archaeological and heritage resources.</p>
Soil Conservation Act (No 76 of 1969)	<p>The Soil Conservation Act makes provision for the prevention and control of soil erosion and the protection, improvement, and conservation of soil, vegetation, and water supply sources and resources, through directives declared by the Minister.</p>	<p>Duty of care must be applied to soil conservation, and management measures must be included in the EMP.</p>

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Public and Environmental Health Act No. 1 of 2015	The Public and Environmental Health Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.	The Proponent and all its employees must ensure compliance with the provisions of these legal instruments.
Health and Safety Regulations GN 156/1997 (GG 1617)	The Health and Safety Regulations serve to provide details on various requirements regarding the health and safety of labourers.	
Atmospheric Pollution Prevention Ordinance (1976)	The Atmospheric Pollution Prevention Ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from the East Zambezi, is proclaimed as a controlled area for section 4(1) (a) of the ordinance.	The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented.
Hazardous Substance Ordinance, No. 14 of 1974	The Hazardous Substance Ordinance provides for the control of toxic substances. It covers manufacture, sale, usage, disposal, and dumping, as well as import and export. Although the environmental aspects are not explicitly stated within the specific ordinance, the ordinance provides for the importing, storage, and handling of hazardous substances.	The Proponent must handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment.
Road Traffic and Transport Act, No. 22 of 1999	The Road Traffic and Transport Act provide for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto.	All drivers and vehicles involved with the project must have the relevant licenses and operate in accordance with the Act.
Labour Act (No. 6 of 1992)	The Ministry of Labour, Industrial Relations and Employment Creation is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety, and enhanced labour market services for the benefit of all Namibians. This ministry ensures the effective implementation of the Labour Act No. 6 of 1992.	The Proponent must ensure that the project activities do not compromise the safety and welfare of workers, and that the relevant regulations are followed.

4.2 International Policies, Principles, Standards, Treaties, and Conventions

4.2.1 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 PSs, and these are listed in Table 4-2.

Table 4-2: The IFC Performance Standards (PSs) analysis against the EIA Study for the project

IFC PS	Relevant Provisions of the IFC PS	Implications for the Project / Actions Taken
PS1	Assessment and Management of Environmental and Social Risks and Impacts:	The potential impacts associated with the proposed project activities have been identified, described, and assessed. Measures to manage and mitigate environmental and social impacts are provided in the EMP for the project.
PS2	Labour and Working Conditions	The EIA Study assessed the potential impacts of the project activities on health and safety per the Namibian Labour Act (No. 6 of 1992) and fair labour and working conditions, including compensation, i.e., no compromising of the labour and working welfare of workers as required in the EMP, and provision of a safe and healthy working environment.
PS3	Resource Efficiency and Pollution Prevention and Management	The EIA Study assessed the usage of resources such as water, soil, and power resources required during the met mast installation and operation. The appropriate measures to manage and mitigate the impacts associated with the project activities on resources have been provided in the EMP for implementation.
PS4	Community Health and Safety	Although there is no community near or on the site, the general assessment of the impact of the project activities on the community's health and safety has been assessed, and mitigation measures have been provided accordingly in the EMP.

IFC PS	Relevant Provisions of the IFC PS	Implications for the Project / Actions Taken
PS5	Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement	The proposed development area is state land with no existing human settlement within the site boundaries or near the site. There will be no relocation or resettlement required during the implementation of the proposed project activities. The state, through the MEFT: Parks, will provide consent for the project development. Therefore, PS5 is not considered applicable to the project.
PS6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	The EIA Scoping Study has considered the baseline assessment of the fauna and flora in the project area by the faunal specialist (Peter Cunningham). Relevant management and mitigation measures have been provided thereto in the EMP.
PS7	Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	There is no presence of indigenous people (Himba and San communities) within the site boundaries or in the broader area of the TKNP. This was also confirmed by MEFT officials managing the park. Therefore, the PS7 is not applicable.
PS8	Cultural Heritage	A Heritage Impact Assessment has been undertaken by the heritage specialists (John Kinahan and Jill Kinahan) as part of the EIA Scoping assessment.

4.2.2 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:

- **ESS1:** Assessment and Management of Environmental and Social Risks and Impacts
- **ESS2:** Labor and Working Conditions
- **ESS3:** Resource Efficiency and Pollution Prevention
- **ESS4:** Community Health and Safety
- **ESS5:** Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement
- **ESS6:** Biodiversity Conservation and Sustainable Management of Living Natural Resources
- **ESS7:** Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities
- **ESS8:** Cultural Heritage

- **ESS9:** Financial Intermediaries
- **ESS10:** Stakeholder Engagement and Information Disclosure

4.2.3 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.

The guidelines are divided into two main sets:

1. **General EHS Guidelines:** Applicable to all industry sectors.
2. **Industry-Specific EHS Guidelines:** Tailored to the needs of particular industries (e.g., mining, agriculture, power generation).

In the case of this project, the general EHS guidelines would be relevant, as there are no industry-specific guidelines applicable to this project. The general EHS guidelines include the following:

1. Environmental Guidelines:

- **Air Emissions and Ambient Air Quality:** Standards and prevention/control techniques for pollutants from project operations.
- **Energy Conservation:** Guidance on using energy efficiently.
- **Wastewater and Water Quality:** Approaches for managing water use, wastewater discharges, and protecting water resources.
- **Waste Management:** Procedures for minimizing, recycling, treating, and disposing of solid and hazardous wastes.
- **Noise:** Methods for controlling noise levels to protect communities and workers.
- **Contaminated Land:** Guidance on management, remediation, and prevention of land contamination.

2. Occupational Health and Safety (OHS):

- **General Facility Design and Operation:** Recommendations for safe facility design and processes.
- **Communication and Training:** Worker training and awareness programs.
- **Physical, Chemical, and Biological Hazards:** Minimizing and managing exposure.

- **Personal Protective Equipment (PPE):** Selection and use.
- **Accident Prevention and Emergency Response:** Measures for incident mitigation and worker protection.

3. Community Health and Safety:

- **Infrastructure Safety:** Safe design and management of physical project infrastructure (e.g., dams, roads).
- **Traffic Safety:** Managing transport risks to local communities.
- **Emergency Preparedness:** Plans to protect local populations from project hazards.
- **Disease Prevention:** Controlling exposure to vector- and water-borne diseases.

4. Construction and Decommissioning Activities:

Special considerations during construction and phasing out of facilities, including noise, dust, and hazardous materials management.

4.2.4 Other Applicable International Statutes (Treaties and Conventions) and Policies

The other international statutes, such as policies, standards, and conventions that may govern the project activities, are provided under Table 4-3.

Table 4-3: Other international treaties and conventions governing the proposed activities

Statute	Relevant Provisions	Implications for the Project / Requirements
The United Nations Convention to Combat Desertification (UNCCD) 1992	The UNCCD addresses land degradation in arid regions to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change. The convention's objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and environmental sustainability.	The project activities should not be undertaken in such a way that they contribute to desertification.
Convention on Biological Diversity 1992	Regulate or manage biological resources important for the conservation of biological diversity, whether within or outside protected areas, to ensure their conservation and sustainable use. Promote the protection of ecosystems, natural habitats, and the maintenance of viable populations of species in natural surroundings.	The removal of vegetation cover and destruction of natural habitats should be avoided and, where not possible, minimized.

Statute	Relevant Provisions	Implications for the Project / Requirements
Stockholm Declaration on the Human Environment, Stockholm (1972)	It recognizes the need for: "a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	Protection of natural resources and prevention of any form of pollution.
Equator Principles	A financial industry benchmark for determining, assessing, and managing environmental and social risk in projects (August 2013). The Equator Principles have been developed in conjunction with the International Finance Corporation (IFC) to establish an International Standard with which companies must comply to apply for approved funding by Equator Principles Financial Institutions (EPFIs). The principles apply to all new project financings globally across all sectors.	These principles are an attempt to: '...encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental management practices with a minimum negative impact on project-affected ecosystems and community-based upliftment and empowering interactions.'
Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES), 1973.	CITES is an international agreement that regulates the trade of endangered and threatened species of animals and plants. It aims to ensure that international trade in these species does not threaten their survival in the wild. CITES seeks to protect endangered and threatened species by regulating international trade in their specimens.	If the met masts could potentially disturb or harm species listed under CITES, particularly Appendix I or II species, the national permitting process would need to account for this. In many countries, Environmental Impact Assessments (EIAs) are required and must evaluate potential impacts on CITES-listed species. These species, in the case of the TKNP, are provided in Error! Reference source not found. , and Table 5-1 of the baseline chapter.

In addition to the project description, alternatives, and legal framework, it is also important to note that the proposed project activities will be undertaken in a specific environment, in terms of biophysical and social conditions. Therefore, understanding these existing environmental features before the project activities is crucial for the assessment of the potential impacts stemming from the project activities on the features, and is provided in the following chapter.

5 BIOPHYSICAL AND SOCIAL ENVIRONMENTAL BASELINE

The proposed met masts and associated activities will be undertaken in specific environmental and social conditions. Therefore, understanding the pre-project conditions of the environment (baseline environmental conditions) will aid in describing the status quo versus future projections of environmental conditions once the project is implemented. The baseline information also aids in identifying the sensitive environmental features and how the best suitable management and mitigation measures can be recommended for effective implementation. The summary of selected biophysical and social baseline information about the project area is given below, in subsequent subsections.

The baseline information is sourced from a visit done to the project site area from the 03rd to the 05th of June 2025 by the Environmental Consultants, accompanied by the MEFT: TKNP Rangers (Figure 5-1). Other sources of information for the baseline included previous reports, books, publications, as well as other relevant research information on the broader area.



Figure 5-1: Photos of the site visiting team (Environmental Consultant and TKNP Parks Rangers)

The project baseline description that is deemed necessary for the project is provided in subsequent subsections (subsection 5.1 through to the subsection 5.6).

5.1 Biological Environment

The description of the biological environment (faunal and floral) of the area is presented below (under the subsection 5.1.1 through to the subsection 5.1.2).

5.1.1 Fauna

The faunal species of the Tsau //Khaeb National Park are characterized by the Brown hyaena, Oryx, Springbok, Cape fur seal, grey rhebok, Heaviside's dolphin, and Southern right Whale. According to the MEFT (2025), almost sixty (60) wetland birds along the Orange River and 120 terrestrial bird species have been recorded in the TKNP, including African Penguin, Cape Gannet, Bank Cormorant, Purple Heron, Lappet-faced Vulture, Karoo Korhaan, Ludwig's Bustard, and Cape Francolin. There are almost 100 reptile species, 16 frog species, and a great number of insects and other invertebrates identified for the area, and it is thought that 90% or more of the invertebrates found in the park have not been described by science (MEFT, 2025). Based on the site information provided by the MEFT Parks officials, the TKNP is home to

animals such as oryx (very common), springbok, leopard, hyena, ostriches (see some distant ostriches and egg shells encountered on site during the site visit - Figure 5-2), among others, etc. Figure 5-3 shows hoof prints of oryx that were also seen from afar in the project area (opportunistic observation), as well as some small mammals' burrows.



Figure 5-2: Ostriches and egg shells were encountered onsite near PML03 and PML01, respectively



Figure 5-3: Oryx hoof prints and small mammal burrow onsite near PML03

A faunal study of the broader area for the future proposed WEF, within which the proposed mast sites are situated, was undertaken by a faunal specialist (Peter Cunningham of Environment and Wildlife Consulting, Namibia), and the following summary of important fauna potentially found in the project area is extracted from the faunal baseline report.

(a) Reptiles

Tortoises are viewed as the group of reptiles most under threat in Namibia (Griffin 1998a), with the second-highest tortoise diversity in Africa (Jarvis et al. 2022). The IUCN (2025) classifies one (1) species as vulnerable (*Chersobius (Homopus) solus*) and two (2) species as near threatened (*Psammobates tentorius trimeni*, *Psammobates tentorius veroxii*), making the tortoises probably the most important reptiles expected in the general area (Cunningham and Simang 2008). Although the *P. t. trimeni* is on record as present in southwestern Namibia (Griffin 2003), its occurrence there has not been verified despite extensive sampling

for genetic studies (IUCN 2024). The most important species is viewed as the little-known *Chersobius (Homopus) solus* (Nama padloper) (Cunningham and Simang 2007), although it probably does not occur in the proposed development area, as they favour specific geology, mostly rocky areas with suitable crevices.

(b) Amphibians

The most important amphibious species known from the general area is *Breviceps macrops* (Desert rain frog) classified as near threatened by the IUCN (2025), and the endemic *Phrynomantis annectens*. However, *B. macrops* is only known and/ expected to occur along the coastal dune hummock areas and probably not in the proposed development areas while *P. annectens* is widespread in Namibia and not exclusively associated with the project area.

(c) Mammals

The most important species from the general area are probably those classified as vulnerable (leopard, cheetah, black-footed cat) and near threatened (African straw-coloured fruit bat, brown hyena, African clawless otter) by the IUCN (2025) as well as species classified as rare (Angolan wing-gland bat, black-footed cat, Cape grey mongoose) and vulnerable (aardwolf, brown hyena, cheetah, African wild cat, bat-eared fox, Cape fox, African clawless otter), under Namibian legislation.

(d) Birds

The most important bird species expected to occur in the general area are the species classified as endangered (Ludwig's bustard, white-backed vulture, black harrier, tawny eagle, booted eagle, martial eagle, and black stork), vulnerable (lappet-faced vulture, African fish-eagle, and secretary bird) and near threatened (Cape eagle owl, kori bustard, Verreaux's eagle, peregrine falcon, and marabou stork) from Namibia (Simmons et al. 2015) as well as those classified by the IUCN (2025) as critically endangered (white-backed vulture), endangered (Ludwig's bustard, lappet-faced vulture, black harrier, martial eagle, secretary bird), vulnerable (tawny eagle) and near threatened (kori bustard). Ludwig's bustard is probably the bird species most likely to be negatively affected by wind turbines and overhead transmission line infrastructures in the proposed development area (Kemper 2019, Ralston-Paton et al. 2017, Silva et al. 2022). Pre-construction bird monitoring on the site, by local faunal expert Peter Cunningham, has recently commenced for the WEF EIA. The monitoring has thus far confirmed that while the proposed development area is located within an Important Birding Area (IBA) in Namibia – i.e., Sperrgebiet – with a Global IBA status (Simmons 1998b), species diversity in the area is low (only 10 species were observed in the June 2025 monitoring visit).

The most important species confirmed from the general area, and which may be negatively affected by the proposed WEF (and met masts) (e.g., IUCN 2025, Perold et al. 2020), is the Ludwig's bustard, classified as endangered by the IUCN (2025) and from Namibia (Simmons et al. 2015). Observed flight patterns

during the June 2025 bird monitoring visit however did not show this species to be active in the vicinity of the proposed met masts (refer to Figure 5-4 below).

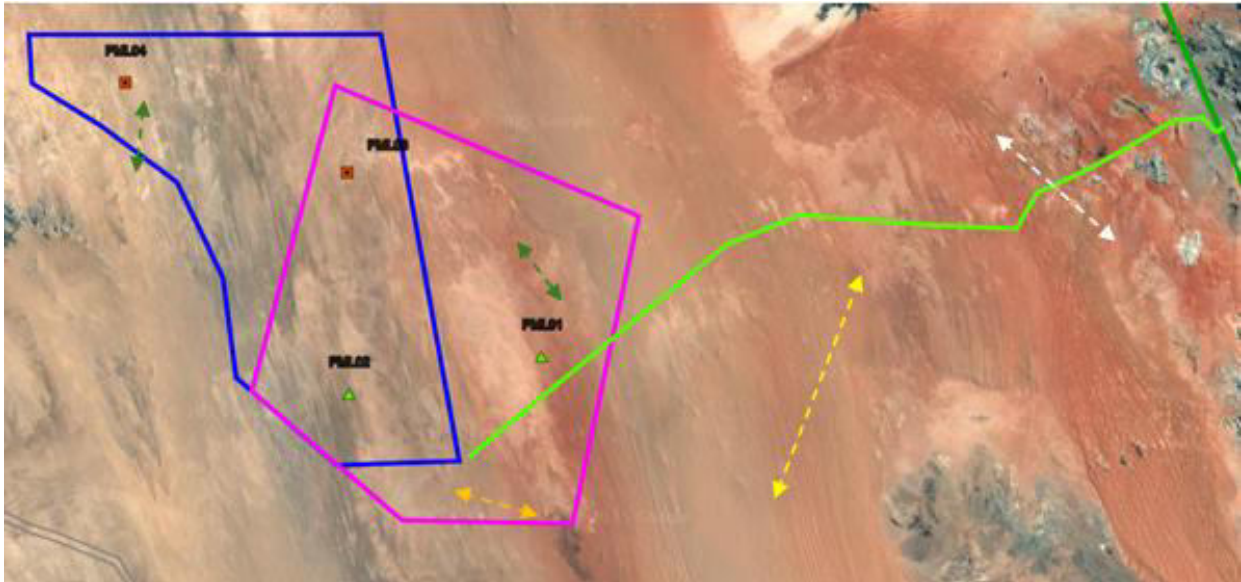


Figure 5-4: Observed bird flight paths confirmed during the 1st Monitoring survey during June 2025 – Ludwig's bustard (white arrow), Cape crow (yellow arrow), southern pale chanting goshawk (orange arrow) and Burchell's courser (green arrows) (Cunningham, 2025)

5.1.2 Flora

In terms of flora, the vegetation structure of the project area is mainly characterized by dwarf shrubland (low shrubs and grasslands), as shown on the vegetation map in Figure 5-5. The biome and vegetation type of the project site area are Nama Karoo and Desert-Dwarf shrubland Transition, respectively (Mendelsohn et al, 2002).

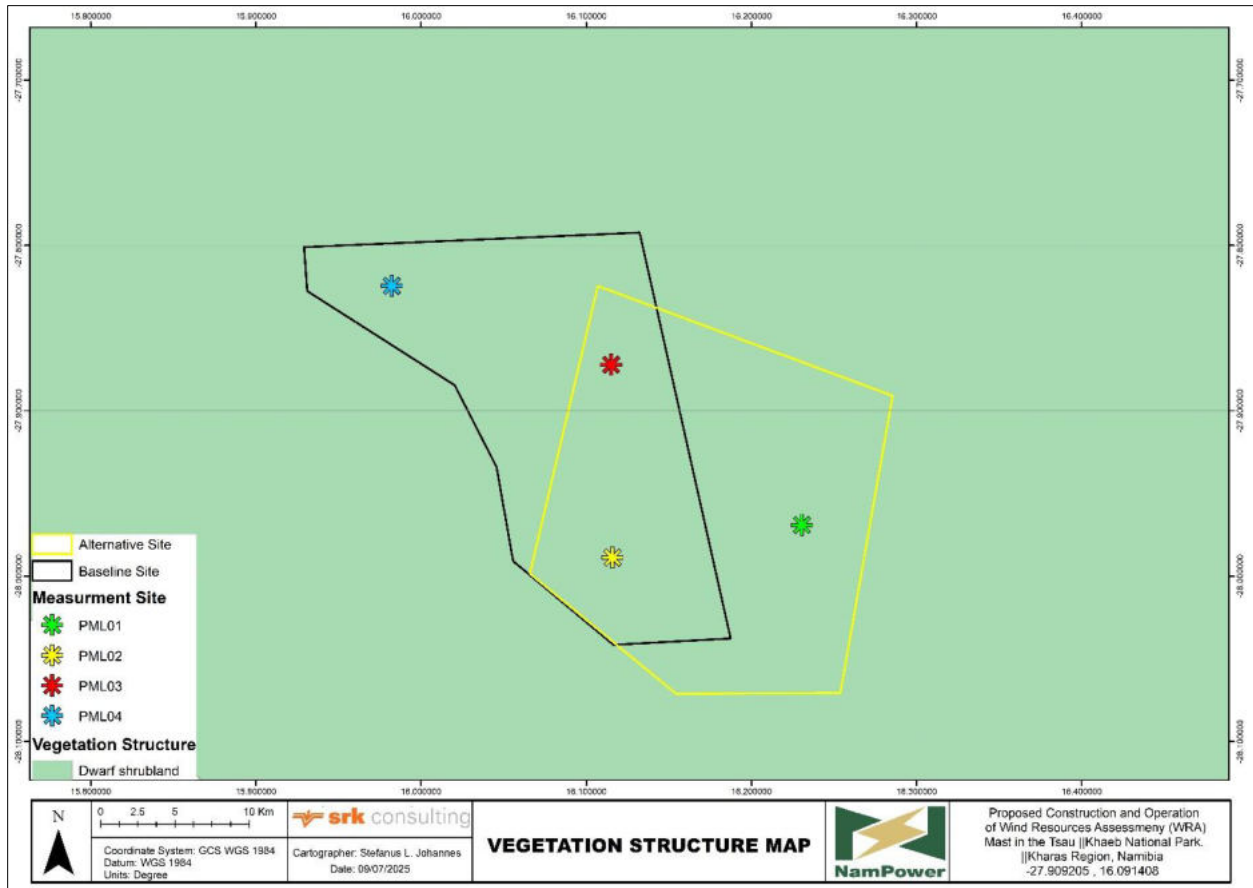


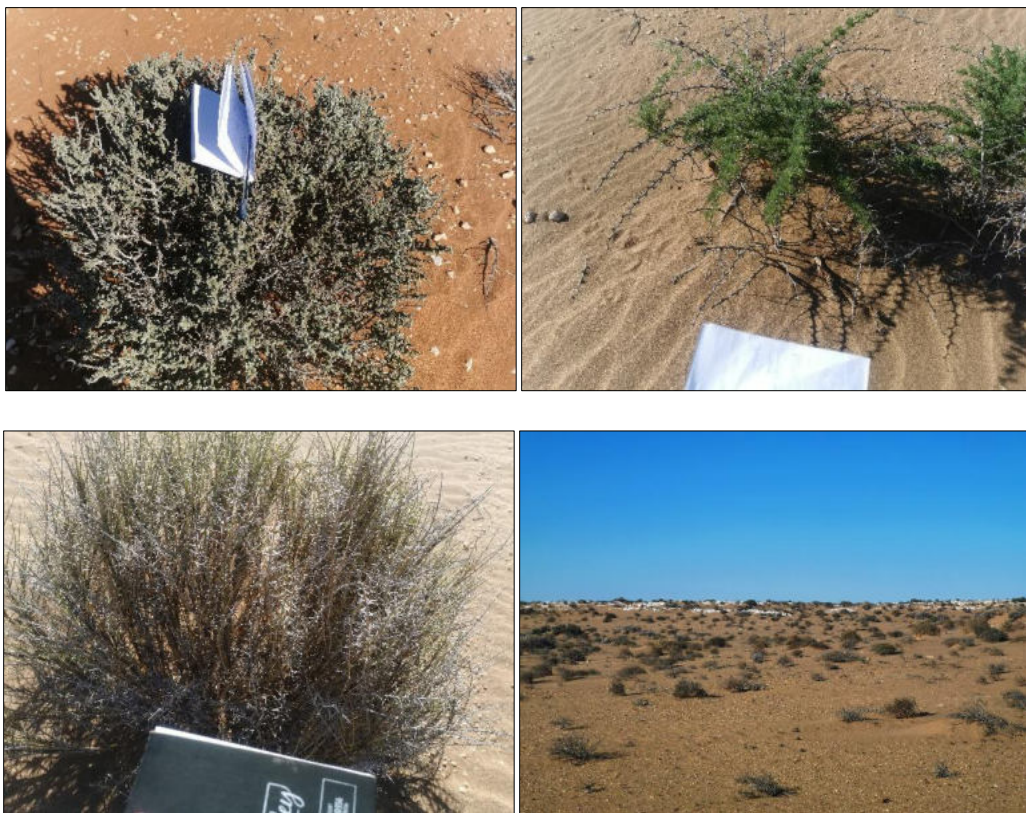
Figure 5-5: The vegetation structure map within and around the project

The floral species within the TKNP are characterized by the Succulent Karoo, Namib Desert, and Savannah biomes. The vegetation comprises the Succulent Steppe, Southern Desert, and Riverine Woodland, Quiver tree (*Aloe dichotoma*), many-stemmed quiver tree (*Aloe ramosissima*), vygies (*Mesembryanthemum* sp), *Hoodia Euphorbia* spp, Sweet-thorn (*Vachellia karoo*), and camel-thorn (*Vachellia erioloba*) along riverbeds (MEFT, 2025). Some floral (vegetation) species are locally protected and also protected internationally (CITES-listed), and these are presented in Table 5-1.

Table 5-1: The CITES-listed plant species in the Tsau //Khaeb National Park (TKNP) (MEFT, 2025)

Species	CITES Appendix ¹	Notes
Quiver Tree (<i>Aloe dichotoma</i>)	II	Permits required; wild origin restricted
Halfmens / Elephant's Trunk (<i>Pachypodium namaquanum</i>)	I & II	Strict control; wild specimens are largely prohibited
<i>Euphorbia angrae</i>	II	Trade is permitted only with proper documentation
Damara milk-bush (<i>Euphorbia damarana</i>)	II	Export requires official permits
Dinter (<i>Juttadinteria simpsonii</i>)	Not CITES-listed	Protected locally; critically endangered.

The proposed sites fall within the Succulent Karoo biome, and consist of the Succulent Steppe vegetation type, made up primarily of succulent shrubs. The site vegetation is made up of sparsely distributed grasses and different small dwarf shrubs (typical for a desert environment) – refer to some observed vegetation onsite in Figure 5-6.



¹ <https://cites.org/eng/disc/text.php>



Figure 5-6: Some of the vegetation observed within and around the site area

5.2 Physical Environment

5.2.1 Climate

(a) Average Annual Temperature

According to Mendelsohn et al (2002), the project area experiences an average annual temperature between 16°C and 20°C - Figure 5-7 (left-hand map with annual temperature heat map) and with nearly zero (0) frost days per year.

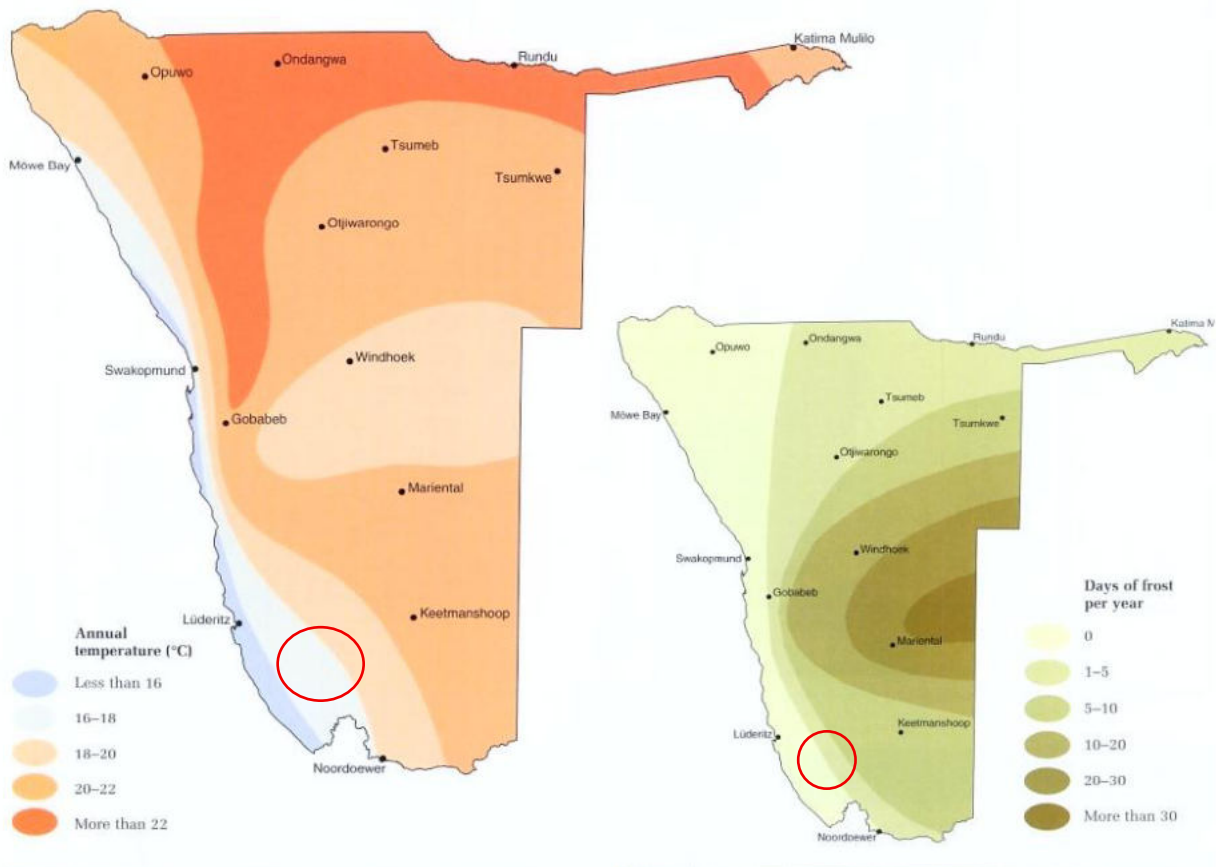


Figure 5-7: The average annual temperature and frost days per year in Namibia, with the approximate project area (Mendelsohn et al., 2002)

(b) Maximum and Minimum Temperature

The project area has a maximum temperature ranging between 24°C and 32°C and minimum temperatures between 4°C and 8°C, as shown on the maps in Figure 5-8.

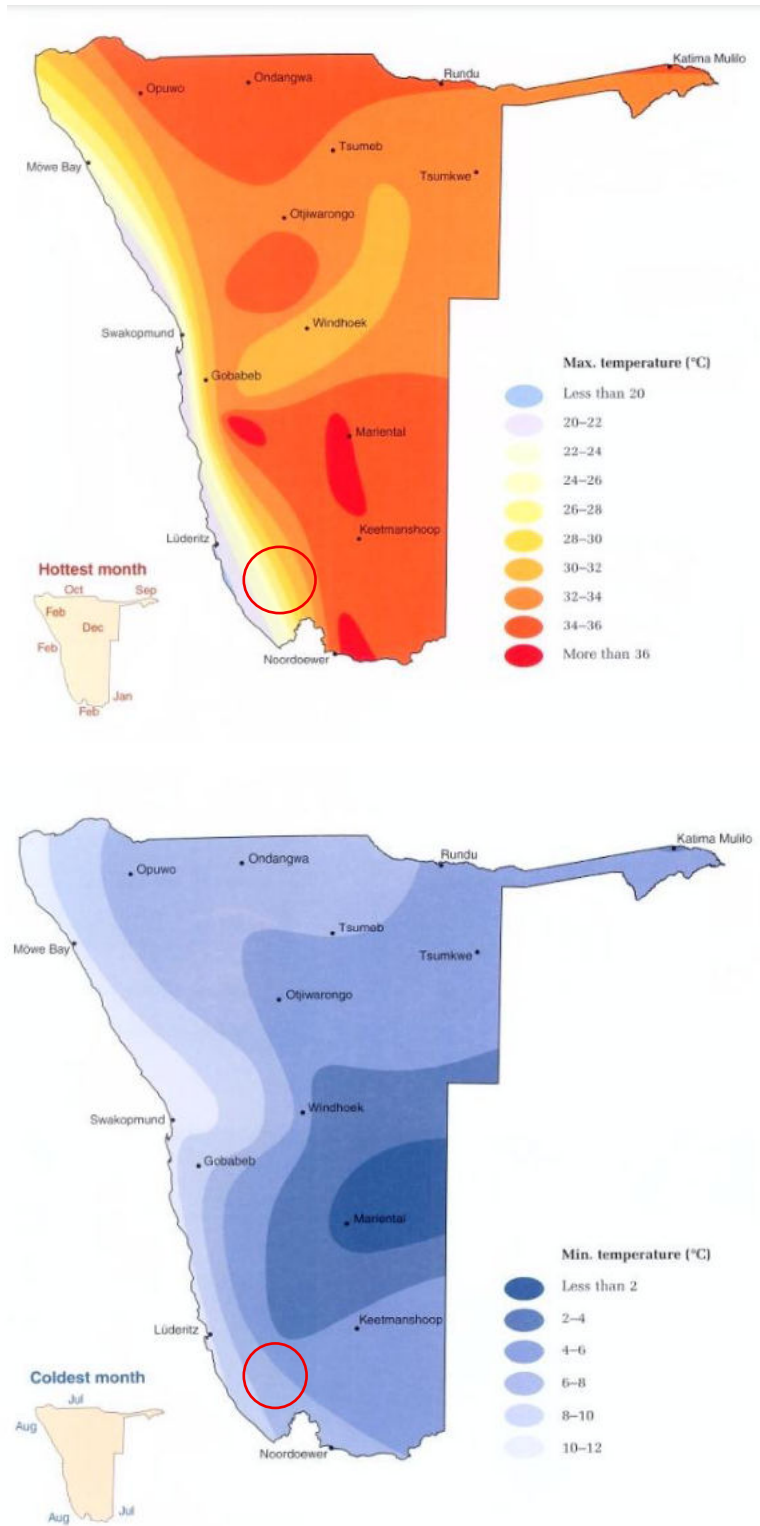


Figure 5-8: The maximum and minimum temperatures in Namibia with the approximate project area (Mendelsohn et al., 2002)

(c) Average Annual Rainfall

The project area is in a desert environment that receives very little rainfall for prolonged periods, with the average annual rainfall in the range of 50mm to 150mm – see Figure 5-9. The project area receives mainly winter rainfall.

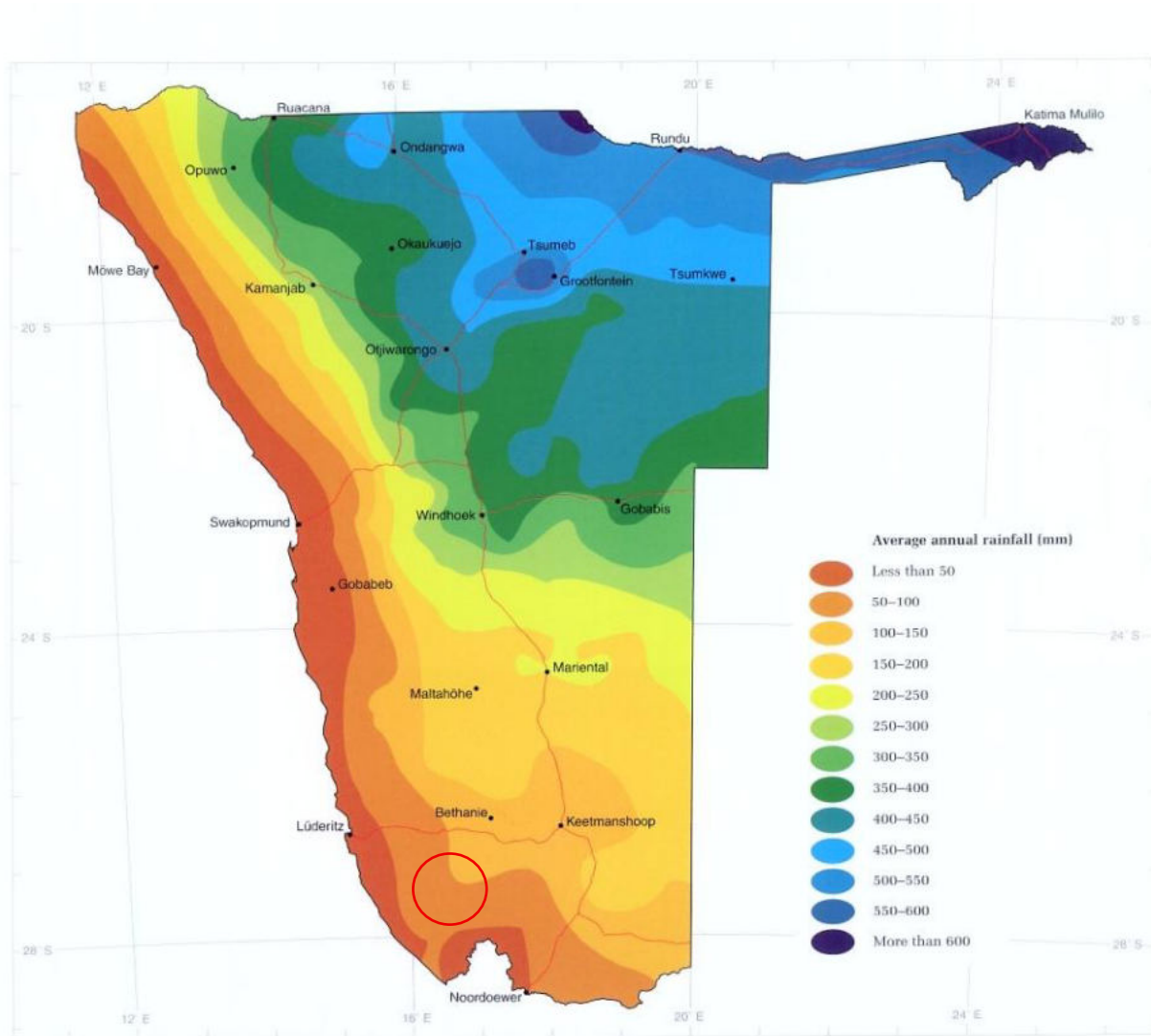


Figure 5-9: The average annual rainfall in Namibia with the approximate project area (Mendelsohn et al., 2002)

5.2.2 Elevation (Topography) and Landscape

The project area is relatively flat with some hills and mountains in the distance to the northeastern side of the site (Figure 5-10). The elevation of the site area ranges between 0m and 547m above sea level (MASL) as shown on the map in Figure 5-10.

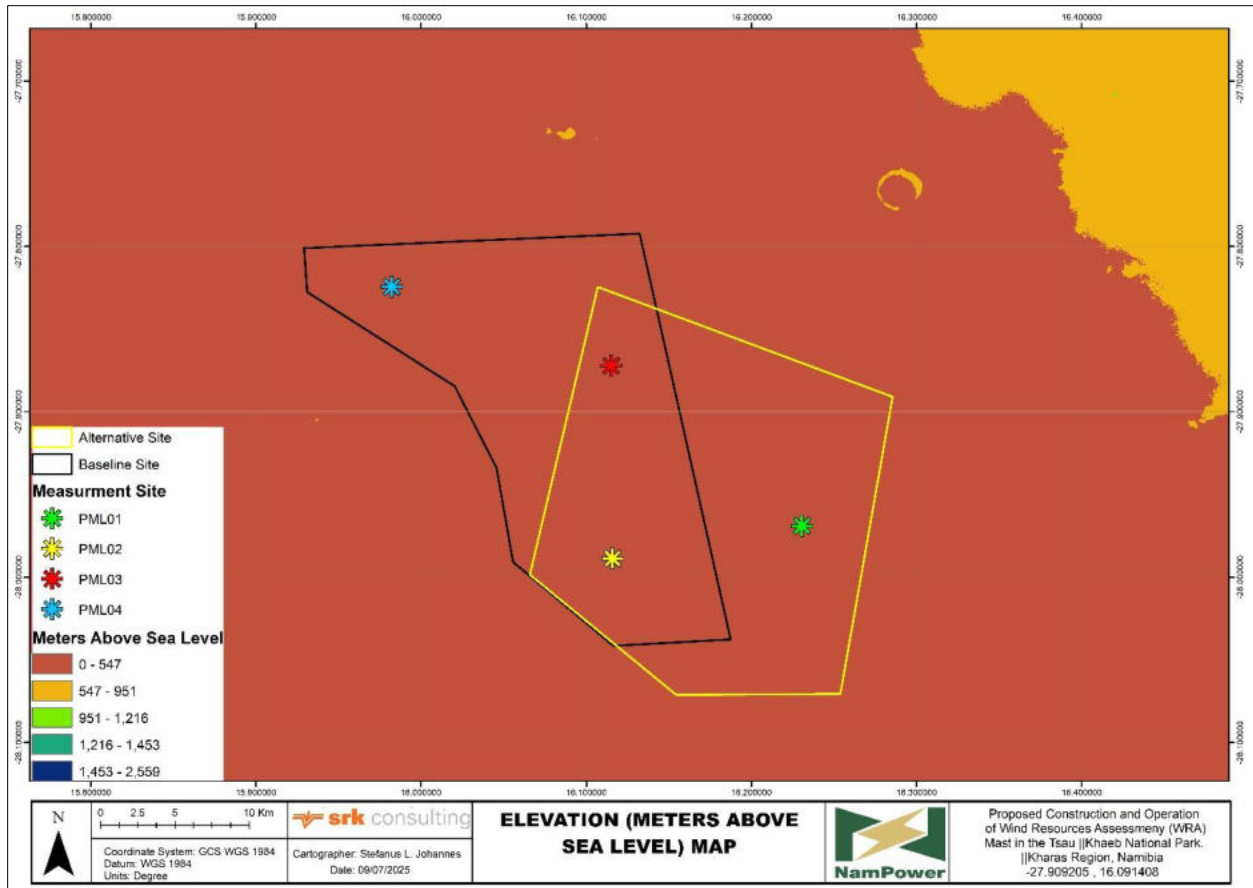


Figure 5-10: The elevation map of the area

The baseline site (covering a land area of about 35,000ha) mainly falls within the Coastal Plain Landscape and slightly within the Namib Dunes, while the alternative site (covering a land area of about 40,000ha) mainly falls within the Namib Dunes Landscape - see Figure 5-12. On the met mast siting level, the PML01 met mast site is located within the Namib Dunes, and the remaining two (2) met masts (PML02 and PML03,) and LiDAR site (PML04) are located in the Coastal Plain. According to Mendelsohn et al (2002), the Namib Dunes landscape is characterized by gravel and thin layers of sand that cover most of the Namib Plains, out of which many rocky outcrops and hills protrude (Figure 5-11). Some of these landscapes are large hills or mountains that are included under the ‘inselberg’ category of landscapes, but there are also many smaller outcrops of granite, as well as dykes and sills.



Figure 5-11: The topographical view of some parts of the site area (distant hills and mountains)

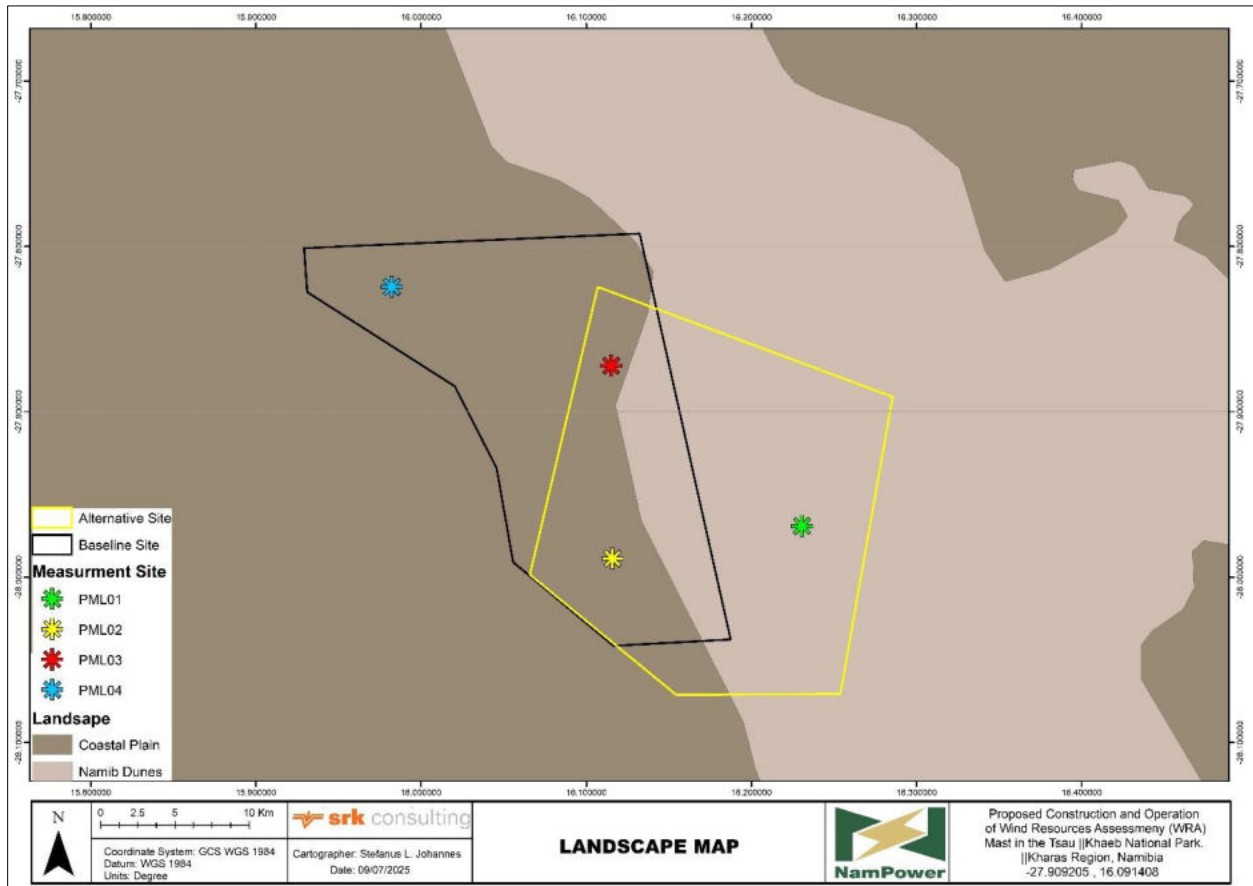


Figure 5-12: The landscape of the project site area

The Coastal Plains Landscape is a flat, low-lying piece of land adjacent to the ocean. Coastal plains are separated from the rest of the interior by nearby landforms, such as mountains.²

5.2.3 Geology

The geology of the project area is characterized by the Kalahari and Namib Sands (Mendelsohn et al., 2002). The surface is largely overlain by alluvium, sand, gravel, and calcrete with protruding bedrock in some sparse areas. The bedrocks underlying the project site comprise dolomite, shale, schist, amphibolite, basalt, quartzite, among others, as shown on the project site geology map in Figure 5-13.

²National Geographic. (2023). Education - Coastal plain <https://education.nationalgeographic.org/resource/coastal-plain/>

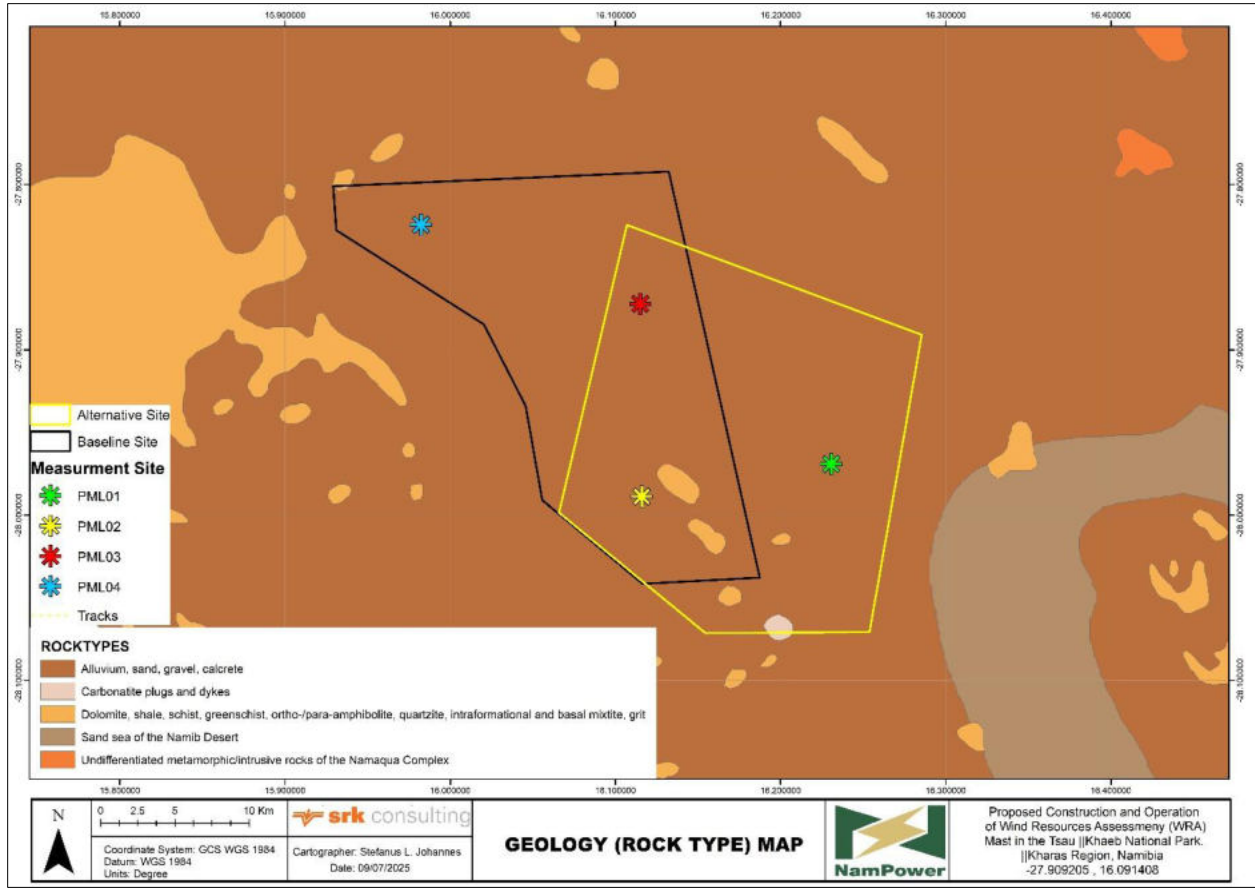


Figure 5-13: The geology of the project site and the surrounding area

Some of the rock units observed on the visited parts of the project site are shown in Figure 5-14.





Figure 5-14: Rock units (A - quartzite and basalt, and B – protruding quartzite outcrop scattered afar) near the PML04 site

5.2.4 Project Site Soils

The project site soils are characterized by light brown and reddish sand with gravel pebbles, as shown in Figure 5-15, The dominant soils overlying the project site are alluvium, sand, gravel, and calcrete plains. The soil type map is shown in Figure 5-16.



Figure 5-15: The brown sand, gravel, and calcrete observed within the project site

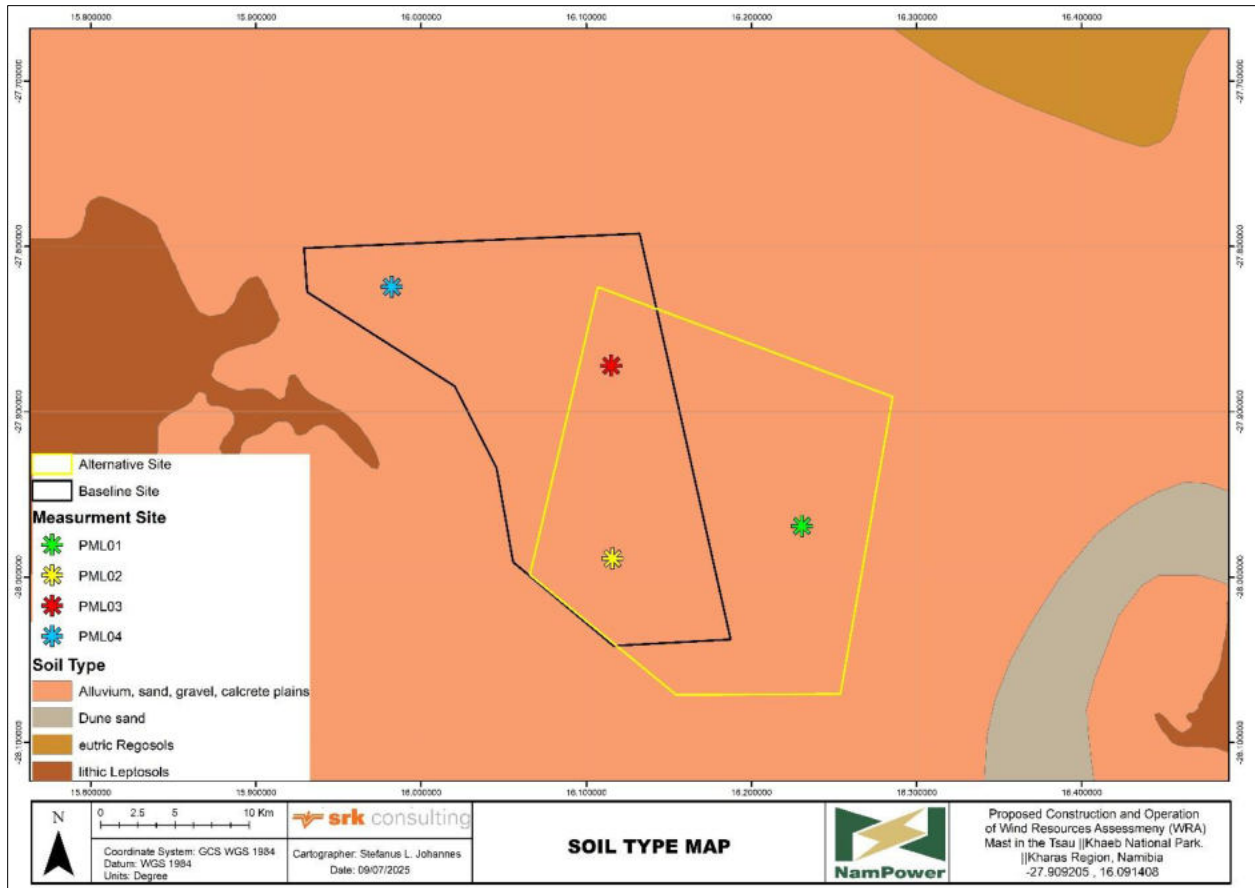


Figure 5-16: The dominant soil types found onsite

5.2.5 Water Resources: Groundwater (Hydrogeology)

The project site and general surrounding area are characterized by aquifers with little groundwater potential, as shown in Figure 5-17. Boreholes in this kind of environment have a yield of less than 1m³/hr (Mendelson et al., 2002). The low potential of groundwater could be attributed to the type of rock units underlying these site areas and their non-fractured/faulted nature that limits the storage, transmission, and flow of groundwater.

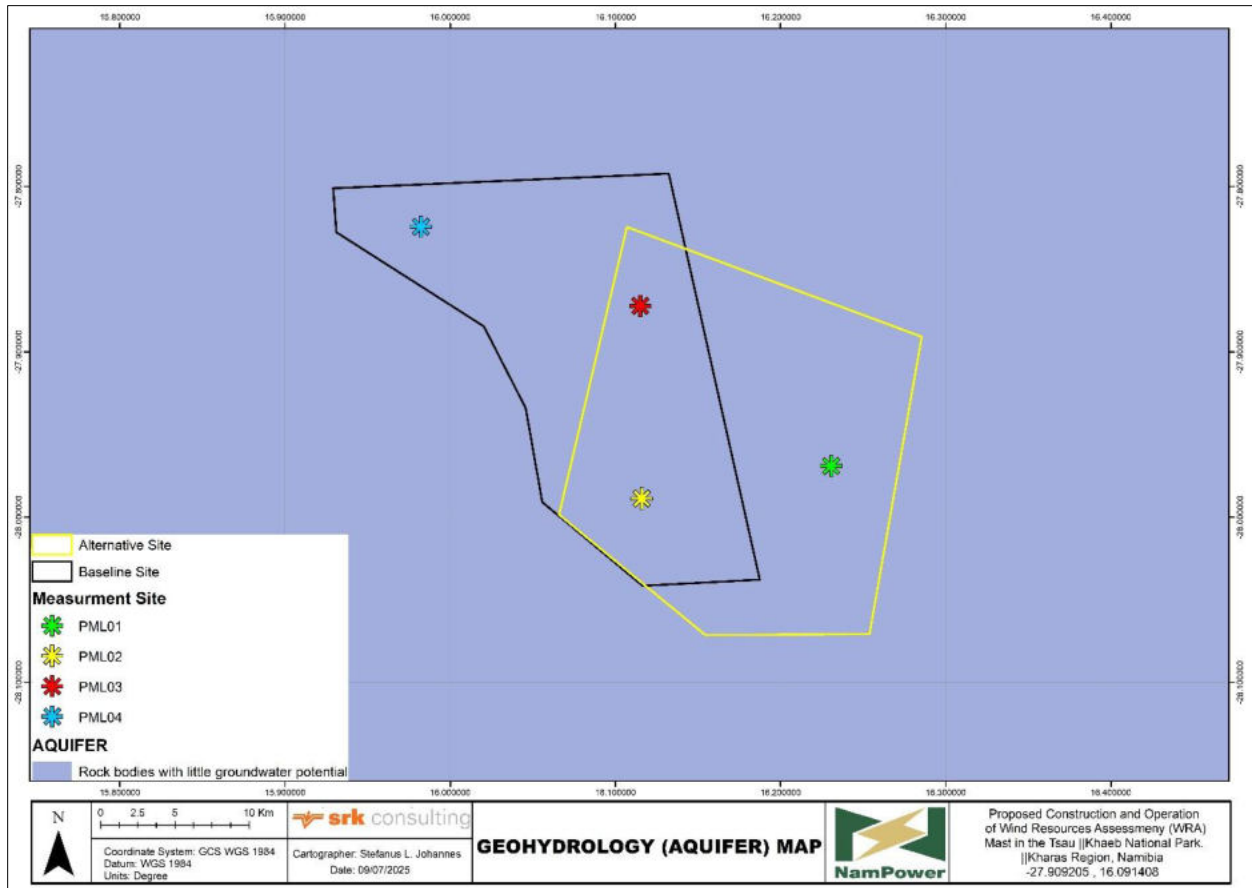


Figure 5-17: The groundwater (geohydrology) map of the area overlain by the project site

5.3 The Tsau //Khaeb National Park³

Formerly known as the Sperrgebiet National Park, the Tsau //Khaeb National Park (*Tsau* meaning Soft and //Khaeb meaning Sand) is a newly proclaimed jewel in Namibia’s protected area network. Since 1908, the largest part of the Tsau //Khaeb National Park (TKNP) was left undisturbed and closed to the public for nearly a century following the discovery of a diamond at Kolmanskop near Lüderitz by the railway worker, Zacharias Lewala. Although these access restrictions were intended to protect the mineral wealth of the area, it also contributed to safeguarding the Succulent Karoo ecosystem (which covers large areas of the TKNP), which has the highest diversity of succulent flora globally.

The TKNP has giant rock arches, meteor craters, fossil and archaeological sites, including Africa’s most important shipwreck discovery, and some of the most pristine and wild landscapes on the planet. Some 1,050 plant species are known to occur in the park (TKNP), nearly 25% of the entire flora of Namibia, on less than three per cent (3%) of the land area of the country. This led to the listing of the Succulent Karoo as one of the world’s top 34 biodiversity hotspots.

³<https://www.meft.gov.na/national-parks/tsau-khaeb-sperrgebiet-national-park/229/>

The TKNP is one of a 'new era' of protected areas, proclaimed to protect biodiversity while contributing to the local and national economy through tourism development and concessioning.

5.4 Social and Economic Environment

5.4.1 Demography

Based on the 2023 Population and Housing Census results, the //Kharas Region has a population of 109,893 people (55,670 males and 54,223 females) and a population density of 0.7 people/km² (Namibia Statistics Agency, 2024a). The project site falls within the !Nami#Nûs Constituency with a population of 17,243 (23,217 males and 25,805 females) and a population density of 0.4 people/km² (Namibia Statistics Agency, 2024b). The actual TKNP (and area surrounding the site), however, is uninhabited.

5.4.2 Economic Activities and Employment

The economy of the //Kharas Region depends on mining, energy, agriculture, and the tourism industry. The mining industry has been centered around lead-zinc by Rosh Pinah Mines and Skorpion Zinc, which created employment for people (estimated to be about 2,000 jobs). In terms of energy, there is a rise in the use of renewable energy, where solar (photovoltaic (PV)) and wind farm projects are being developed in the area by NamPower.

Although the southern parts of Namibia, including Rosh Pinah, do not receive good rains for large-scale agriculture, there is an emerging potential for larger-scale farming on government land, as well as market gardens and training programs.

One of the most important economic activities in the Region and area is centered around tourism, whereby camping, hiking, mining/geo heritage centre, lodges, sports, and planned ecotourism are undertaken in the area. Moreover, tourism in the TKNP is centered around the Museum at Kolmanskop Ghost Town, which is open to the public. Another tourism attraction site in //Kharas the area is the Bogenfels Rock arch (a 55-metre-high rock in the Tsau //Khaeb National Park). Furthermore, according to the MEFT Parks in Rosh Pinah (personal communication), tourists go to the plains and the 2.5km wide Roter Kamm crater located north-northeast of the site. There is a viewpoint overlooking this crater from Aurus Mountain, to the north-east of the project site. the area of the part surrounding the project site, however, does not appear to be frequented by tourists and does not have any tourism or camping facilities.

Furthermore, according to the Namibia Statistics Agency (2024a), the main sources of household income within the //Kharas Region are wages and salaries (68.5%), old age pension (8.9%), business (non-farming) is 3.9%, and farming is 2.3%. The presentation of the household income within the //Kharas Region is shown in Figure 5-18.

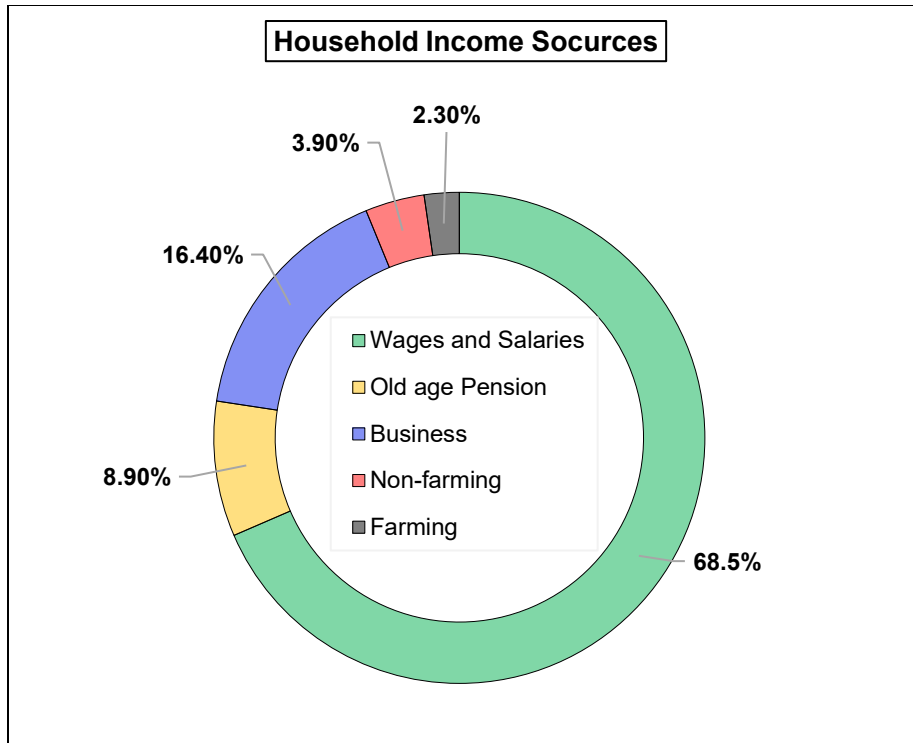


Figure 5-18: Sources of Household Income within the //Kharas Region, Namibia

According to the 2023 Labour Force Report, only 48,044 people (63.3% of the working age population) are working in the //Kharas Region (Namibia Statistics Agency, 2024c), as shown in Table 5-2 (the Labor Force Participation Rate (LFPR) for the population (age 15 years and above) by area and gender in the 14 regions). According to Table 5-2, this total LRPR value is at the higher end of the scale relative to other regions in Namibia, as evident from Figure 5-19.

Table 5-2: The Labor Force Participation rate (LFPR) for population (age 15 years and above) by area and gender in the 14 regions (source: Namibia Statistics Agency (2024c))

Area	Total			Male			Female		
	Labour Force	Working Age	LFPR %	Labour Force	Working Age	LFPR %	Labour Force	Working Age	LFPR %
Namibia	867,247	1,876,122	46.2	459,723	899,589	51.1	407,524	976,533	41.7
Urban	578,102	1,026,484	56.3	289,953	486,007	59.7	288,149	540,477	53.3
Rural	289,145	876,544	33.0	169,770	431,584	39.3	119,375	444,960	26.8
//Kharas	48,044	75,940	63.3	26,356	38,517	68.4	21,688	37,423	58.0
Erongo	106,518	165,450	64.4	58,560	84,697	69.1	47,958	80,753	59.4
Hardap	35,748	69,422	51.5	20,535	35,240	58.3	15,213	34,182	44.5
Kavango East	41,860	122,475	34.2	20,139	54,045	37.3	21,721	68,430	31.7
Kavango West	16,571	66,633	24.9	8,940	30,735	29.1	7,631	35,898	21.3
Khomas	225,223	352,147	64.0	114,866	170,855	67.2	110,357	181,292	60.9
Kunene	24,343	69,245	35.2	14,570	34,763	41.9	9,773	34,482	28.3
Ohangwena	55,052	183,391	30.0	26,637	82,833	32.2	28,415	100,558	28.3
Omaheke	31,436	64,355	48.8	19,735	34,735	56.8	11,701	29,620	39.5
Omusati	54,829	182,247	30.1	26,758	80,332	33.3	28,071	101,915	27.5
Oshana	65,430	147,794	44.3	30,988	65,153	47.6	34,442	82,641	41.7
Oshikoto	54,166	152,807	35.4	29,443	74,689	39.4	24,723	78,118	31.6
Otjozondjupa	76,583	139,623	54.8	44,716	72,317	61.8	31,867	67,306	47.3
Zambezi	31,444	84,593	37.2	17,480	40,678	43.0	13,964	43,915	31.8

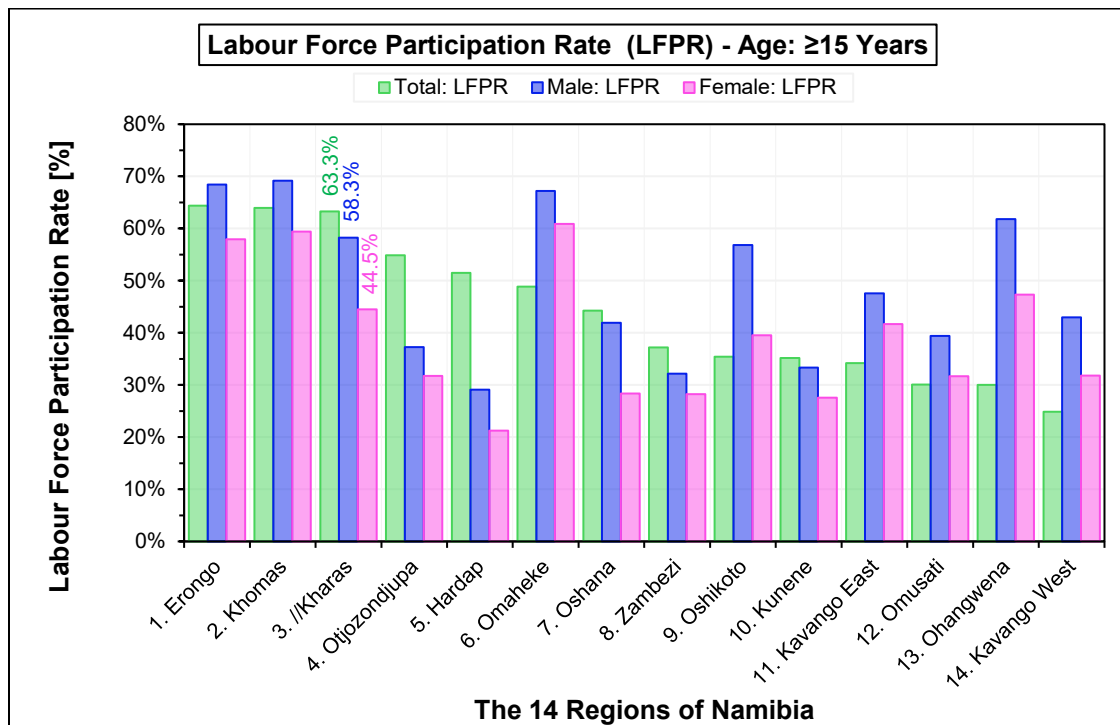


Figure 5-19: The Labour Force Participation Rate (LFPR) for //Kharas Region in relation to the other regions in Namibia

5.5 Infrastructure and Services

The //Kharas Region has good coverage of services and infrastructure. This includes a good road network from the central areas of the country and many access roads, tarred and untarred. This situation however, differs vastly from the project site itself, which has no infrastructure or services (including access roads) present in the vicinity. The summary of services and infrastructure for the closest town to the project site, being Rosh Pinah Town, is as follows:

- Water supply: The area has low groundwater potential for supplying activities. Therefore, this part of the Region relies on surface water supplied to the Towns via a pipeline from the Orange River. The water is then distributed to residential areas, offices, and businesses in the town. There is a booster pump in Rosh Pinah to pump water to the Skorpion Zinc Mine.
- Sewage: Most of the town's formal homes and businesses are connected to the municipal sewer system.
- Solid waste: The solid waste in the Towns and settlements in the Regions is managed through the local authorities' solid waste management systems. For Rosh Pinah, being managed by RoshSkor, the waste is managed the same way and is disposed of at an existing local solid waste dump site.
- Electricity: Rosh Pinah Town and mine are supplied with electricity by NamPower, with 30% of the mine power supplied by Rosh Pinah Solar Park (RPSP) via solar (photovoltaic (PV) Power Purchase Agreement (PPA). According to the MEFT, Parks officials in Rosh Pinah, there is currently ongoing construction of a 100MW solar PV project for NamPower in the TKNP.
- Telecommunication services: The Region and Rosh Pinah Town have good network coverage; thus, the project site area is well covered. The main providers of this service in the area are Telecom Namibia and MTC Namibia. The proposed project site is in a very remote area of the TKNP with very little to no network signal.
- Roads (accessibility): The Rosh Pinah area is connected from inland (Aus Settlement) by the tarred road (C13). However, on the way to the proposed project site area, accessibility is a challenge as the area is very sandy and vehicle tracks only last a few days and then disappear due to the constant desert winds.

5.6 Archaeology and Cultural Heritage Aspect

An Archaeological & Cultural Heritage Assessment was carried out for the project site by the Archaeological Specialist team (Jill & John Kinahan (2025a) based on the field reconnaissance survey carried out from the 28th of May to the 4th of June 2025.

The field survey of the WEF sites (which include the proposed met mast sites) and the proposed overhead powerline line route linking the sites with the Skorpion substation yielded a total of 27 palaeontological and archaeological sites over the whole area. These included several minor Pliocene-Pleistocene occurrences as well as examples of key chronostratigraphic elements in the Pleistocene and Holocene archaeological sequence. The general distribution of the sites is shown in Figure 5-21, most of which are not located in the area of the proposed met mast sites.

Kinahan and Kinahan (2025a) further stated that Palaeontological sites included sub-fossil, probably late Pliocene occurrences of *Trigonephrus* spp land snails in calcrete deposits in the area of the existing Obib powerline and the central part of the survey area. Also found as palaeontological occurrences were fossil invertebrate dwelling burrows in poorly consolidated Cenozoic (possibly Tsondab Formation) sandstones - Figure 5-20, and well-developed spring tufa deposits, probably of the same age.



Figure 5-20: Fossil invertebrate dwelling burrow in poorly consolidated Cenozoic (possible Tsondab Formation (Kinahan and Kinahan, 2025a))

According to Kinahan and Kinahan (2025a), the suspected Cenozoic tufa deposits are located in the northwestern part of the survey area, south of the Chamnaub hills. This area is labelled “A” in Figure 5-21 and provisionally identified as a sensitive fossil locality.

The tufa deposits have two obvious characteristics: one being a possible artesian “eye” with a calcareous concretion surrounding it, and the other being a laminated deposit possibly representing an accumulation of algal mats. These characteristics are indicative of weak, highly brackish groundwater and may therefore not be associated with mammalian fossil material. The area labelled “B” in Figure 5-21, includes some temporary hunting camps characterized by Mode 5 stone tool assemblages, mainly on hydrothermal vein quartz. The camps are small surface accumulations of tool debris, ostrich eggshell, burnt bone, and pottery, and are dated to within the last 1000 years. These sites are complementary to the rock shelter site Skorpion Cave 3 and are considered to have high potential for further research (Kinahan and Kinahan, 2025a).

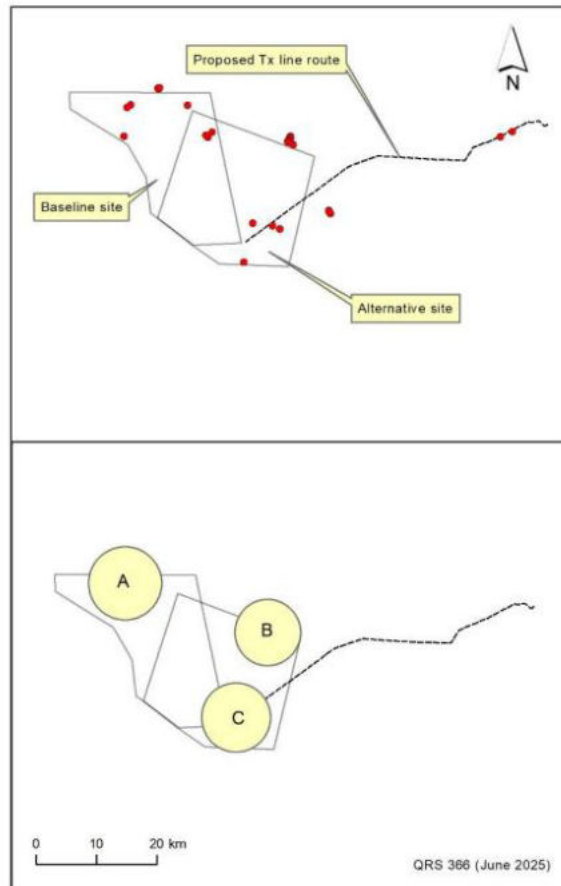


Figure 5-21: Archaeological setting of the NamPower Wind Energy Facility located in the TKNP, indicating areas of high sensitivity requiring further research (Kinahan and Kinahan, 2025a)

The area labelled “C” in Figure 5-21 contains several minor stone artefact occurrences of Mode 1, 2, and 3, all dating to the late and terminal Pleistocene. These sites shed new light on the mobility of Mode 1 hunting groups previously thought to be limited to a radius of about 30km from permanent water.

Furthermore, archaeological sites dating to the last few thousand years provide the most detailed insights into human occupation of this environment. The group of sites shown in the Figure 5-22 (insert map) represents a series of hunting bivouacs in the sheltered hollows of a dune field south of the Roterkamm Mountain. These sites have evidence of tool fabrication in hydrothermal vein quartz and food remains in the form of burnt bone fragments. There is also ostrich eggshell, which may indicate bead manufacture, as well as fragments of pottery. The latter evidence suggests that family groups rather than specialized hunting parties were present in the area (Kinahan and Kinahan, 2025b).

Kinahan and Kinahan (2025b) further state that the evidence from other sites documented in the course of the survey includes a fragment of the aperture from an ostrich eggshell water flask. These would have been essential to support long-distance traverses of the southern desert. It is possible that in the last few thousand years, people moved back and forth between the coast and the eastern escarpment, a distance of almost 100km without water and requiring the use of ostrich eggshell flasks. In support of this suggested movement are at least two suspected burial sites found in the course of the survey (Kinahan and Kinahan, 2025b). The distribution of archaeological and paleontological sites found by the Archaeological consultants is shown in Figure 5-22.

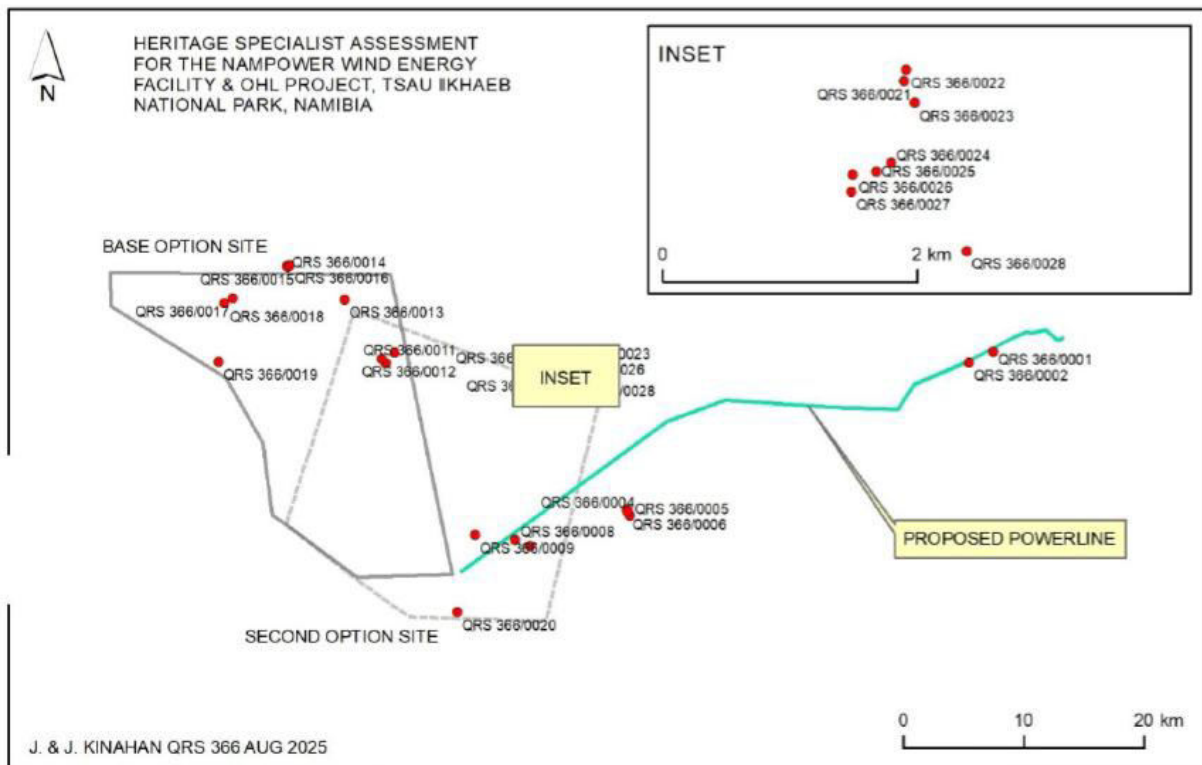


Figure 5-22: The distribution of archaeological and palaeontological sites (numbered red dots) associated with the NamPower WEF project area (Kinahan and Kinahan, 2025b)

The distribution of archaeological and paleontological sites (numbered red dots) in Figure 5-22 above is shown relative to the proposed met mast and LiDAR locations on the archaeological sensitivity map in Figure 5-23.

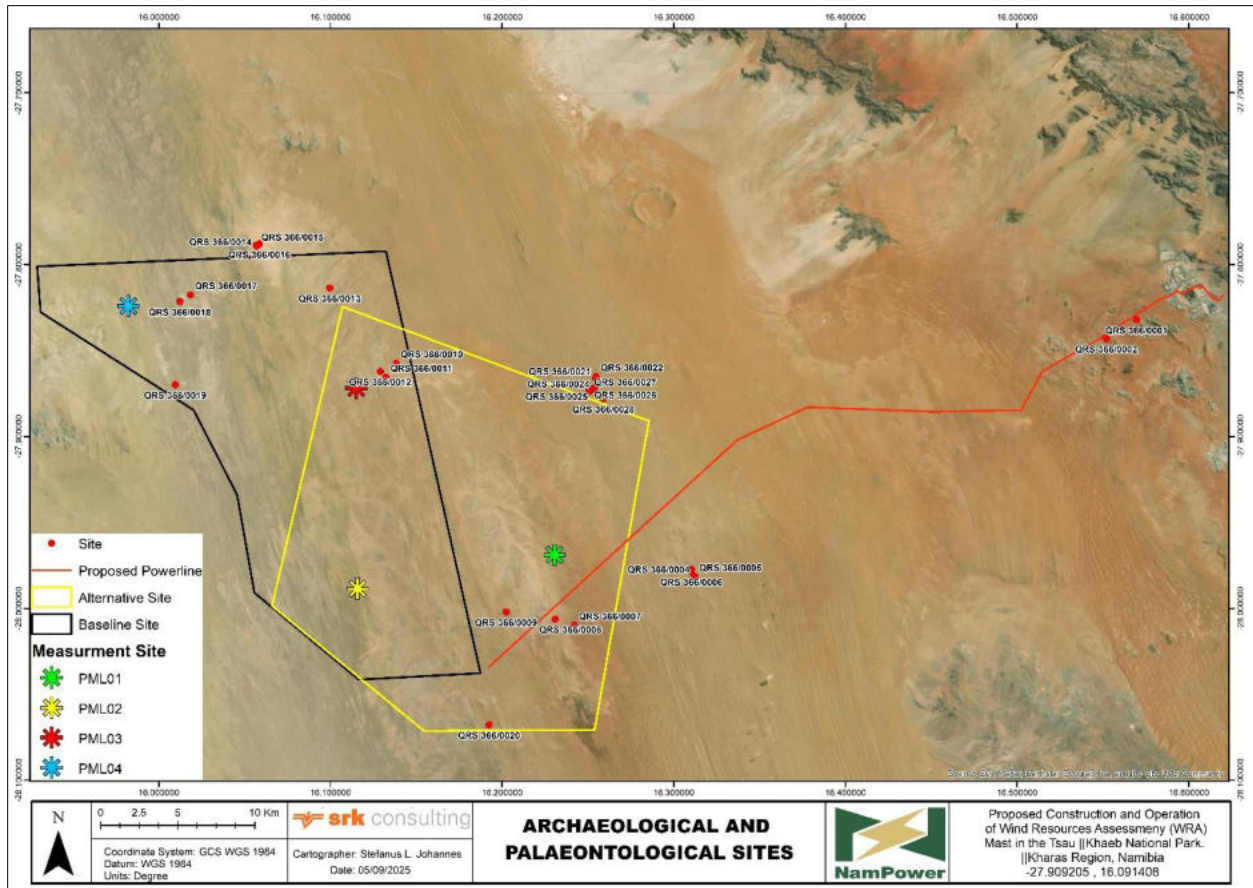


Figure 5-23: The mapped archaeological and palaeontological sites (numbered red dots) associated with the NamPower WEF project area (sourced from Kinahan and Kinahan, 2025b)

According to Kinahan and Kinahan (2025b), out of the 28 sites documented (recorded and assessed) in the course of the survey, 12 had a significance value of 2, i.e. isolated minor finds in undisturbed primary context, with diagnostic material, while 14 had a significance value of 3, i.e. archaeological site forming part of an identifiable local distribution or group. Kinahan and Kinahan (2025b) stated that this indicates that the archaeology of the area is relatively well preserved in that it is possible to discern relationships between sites of approximately similar age and affinity.

Based on the survey and assessment presented, Kinahan and Kinahan (2025) recommended that the NamPower WEF project be approved to continue, subject to mitigation measures when the project design reaches a more advanced stage.

The public consultation and engagement process and means employed for the EIA Study are presented in Chapter 6.

6 PUBLIC CONSULTATION AND PARTICIPATION PROCESS

Public consultation and participation form an important component of an EIA process. It provides potential Interested and Affected Parties (I&APs) and stakeholders with an opportunity to comment on and raise any issues relevant to the project for consideration as part of the assessment process. This greatly assists the Environmental Consultant in thoroughly identifying and recording potential impacts, and to whether further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. The consultation for this project has been done under the EMA and its EIA Regulations, and as per the following subsections.

6.1 Pre-identified and Registered Interested and Affected Parties (I&APs)

Relevant and applicable national, regional, and local authorities and other interested members of the public were identified. Pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after project advertisement notices in the newspapers were registered as I&APs upon request.

6.2 Communication with I&APs and Means of Consultation Employed

Regulation 21 of the EIA Regulations details the steps to be taken during a public consultation process, and these have been used in guiding this process. Communication with I&APs about the proposed activities was facilitated through the following means and in this order:

- (a) A Background Information Document (BID) containing brief information about the proposed project was compiled and uploaded onto the ECC Portal for project registration. The BID was shared with (distributed to) registered stakeholders.
- (b) A Stakeholders List was developed and updated throughout the EIA process.
- (c) Project Environmental Assessment notices were published in *The Namibian* and *Windhoek Observer* newspapers on the 1st & 8th of July 2025 and *New Era* on the 17th and 24th of July 2025 – Appendix D. The consultation period ran from the 1st of July 2025 to the 04th of August 2025.
- (d) EIA posters were pasted at two (2) strategic places in Rosh Pinah (see Figure 6-1), on the 3rd of June 2025 and at the Naminus Constituency office and Lüderitz Town Council notice boards (in Lüderitz), as well as the //Kharas Regional Council office notice board (in Keetmanshoop) in July 2025 (Figure 6-2). The original copy of the poster is appended to the report as Appendix E.



Figure 6-1: EIA Poster in Rosh Pinah at the A - Post Office, and B-Choppies Market with C - Close-up photos of the poster at the two places it was pasted

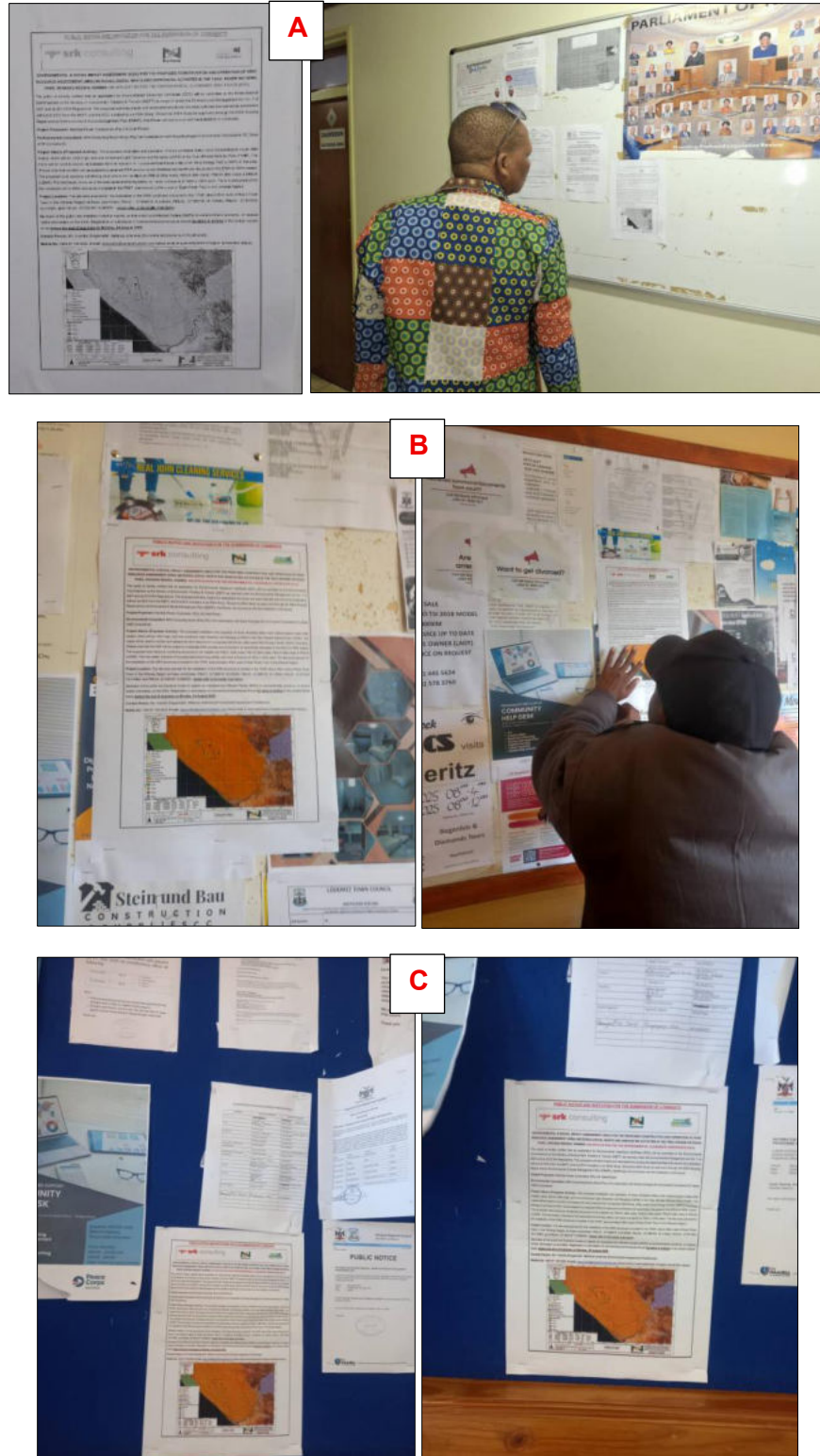


Figure 6-2: EIA Poster in Keetmanshoop at the //Kharas Regional Council (A), in Lüderitz at the Lüderitz Town Council Office (B), and Naminus Constituency Office (C) notice boards

- (e) A consultation meeting was scheduled and held with the key stakeholder (MEFT: Parks Directorate in Rosh Pinah) on the 3rd of June 2025 - Figure 6-3. The meeting was attended by six (6) people (three (3) Environmental Assessment Practitioners and three (3) officials from the MEFT's Park Directorate Office in Rosh Pinah. The consultation meeting minutes were taken, alongside the signed attendance register (Appendix F1). Another engagement was held with the Oranjemund Town Council's General Manager for Technical Services (which houses the Environmental Health Department) on the 06th of June 2025. The engagement was primarily a project briefing session, and a BID copy was handed over and explained to the General Manager. There were no comments or issues raised. An attendance register was signed and recorded (Appendix F2).



Figure 6-3: EIA Consultation meeting at the MEFT: Parks' office in Rosh Pinah on the 03rd of June 2025

- (f) After engagements and project site visits were done, the information and findings gathered and obtained from the two components (engagement and site visits), respectively, were consolidated into the draft Scoping Report, and the EMP that were compiled as the key documents for the WRA EIA Study. The two documents were circulated to the registered stakeholders/I&APs via the provided emails for review and further comments from the 18th of August 2025 to the 02nd of September 2024, i.e., for ten (10) working days, (considering that the 26th of August 2025 was a public holiday (Heroes' Day) in Namibia).

6.3 Feedback and Issues Raised by the Stakeholders (I&APs) during consultations

Some comments were made in the consultation meeting by key stakeholders (MEFT's Park Directorate in Rosh Pinah), and these have been recorded and incorporated in the Scoping Report and EMP. The summarized key issues are presented in **Error! Reference source not found.**

Table 6-1: Summary of main comments raised in the consultation meeting with the MEFT: Parks officials in Rosh Pinah

Key aspect	Summary of key issues or concerns/comments	Response
Comments and issues raised in the consultation meeting		
Visual	The impact on and near the project site is low because tourists only go near the Beach (Bogenfels). Tourists also go to the Roker Kamm crater east of the proposed project site.	Environmental Consultants: This is well noted. These areas are not close to the project site and it is unlikely that the masts and LiDAR will be visible to tourists.
Occupancy in the TKNP	The TKNP (at the time Sperrgebiet National Park) was demarcated in 1908, and since the 1960s, no one has been allowed to settle or live in the area/Park. Therefore, there are no indigenous people currently occupying the area/National Park. Thus, it is entirely state land.	Environmental Consultants: This is well noted and good to know that there is no issue of resettlement or displacement of people from or near the site.
Night operations in the TKNP	Night operations are allowed in the TKNP; however, consent for such needs to be formally obtained from the MEFT: Parks Directorate before operations can commence. The Consent is issued with certain conditions that must be complied with at all times.	Environmental Consultants: This is well noted and will be incorporated into the EMP.
Overall, the MEFT Parks officials do not have major concerns or objections to the project. They only require that management and mitigation measures of operations while on-site should be implemented, and compliance with legal requirements and TKNP management requirements. The letter of support for the project was issued to NamPower by the MEFT on the 07 th of May 2024 – Appendix G		

The EIA consultation with the key stakeholders started from the 03rd of June 2025, and EIA adverts were placed on the 01st of July 2025 and 08th of July 2025. The comments period for the BID ran from the 01st of July to the 04th of August 2025.

6.4 Feedback on the Review of the Draft Scoping and EMP by Stakeholders (I&APs)

As per point (f) of subsection 6.2, the draft Scoping Report and the EMP were circulated to the registered stakeholders/I&APs via the provided emails for review and further comments. However, there were no comments received on the draft Scoping Report and EMP during and after the review period, nor during the finalization of the Scoping Report and updating of the EMP by the 05th of September 2025. These reports have therefore been finalized on this basis.

6.5 Reviewing and Comment on the Scoping Report and EMP on the MEFT ECC Portal (Comments to be submitted directly to the Environmental Commissioner)

Upon finalization of the Scoping Report, and EMP as well as associated required documents (such as the project site map, locality map, CVs of environmental assessment practitioners, consent letter from the MEFT: DWNP), meeting minutes, etc.) will be uploaded on the MEFT ECC Portal, under the provided platform for this ECC application, for evaluation and consideration of the ECC. As per standard procedure, the MEFT will publish the Scoping Report, EMP, and required documents on the EIA website here <https://eia.meft.gov.na/> (under "comments") for fourteen (14) days. The public will be afforded these 14 days to view the documents and submit comments (if any). However, the comments on the Portal will be submitted directly to the Environmental Commissioner at the MEFT via the platform assigned for the project. Furthermore, as part of the requirements, the Scoping Report, ECC application Form, EMP, and appendices will be printed for submission to the MEFT for archiving purposes.

The next chapter is the presentation of the potential impacts identified, the assessment methodology, the impact description, and their assessment.

7 IMPACTS IDENTIFICATION, METHODOLOGY, AND ASSESSMENT

This chapter presents the potential impacts identified, the assessment methodology, the impact description, and the assessment.

7.1 Identification of Potential Impacts

The proposed project and its associated activities are usually associated with different potential positive and negative impacts. For an environmental assessment, the focus is on impacts that are likely to affect the hosting environmental and social features. The assessment is done to ensure that these impacts are sufficiently addressed, and adequate mitigation measures are recommended thereto for implementation so that the impact's significance is brought to acceptable levels while maximizing the positive impacts. The potential positive and negative impacts that have been identified from the proposed activities are listed below, under subsequent subsections.

7.1.1 Positive impacts (benefits)

- (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.

7.1.2 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.
- (i) 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.

7.2 Impact Assessment Methodology

The Environmental Assessment process primarily ensures that potential impacts that may occur from project activity are identified and addressed with environmentally cautious approaches and legal compliance. The impact assessment method used for this project follows Namibia's Environmental Management Act (No. 7 of 2007) and its Regulations of 2012, as well as the International Finance Corporation (IFC) Performance Standards and World Bank Environmental and Social Framework (WB ESF). The identified impacts were assessed in terms of scale/extent (spatial scale), duration (temporal scale), magnitude (severity), and probability (likelihood of occurring), as presented in Table 7-1.

To enable a scientific approach to the determination of the environmental significance, a numerical value is linked to each rating scale. This methodology ensures uniformity and that potential impacts can be

addressed in a standard manner so that a wide range of impacts are comparable. It is assumed that an assessment of the significance of a potential impact is a good indicator of the risk associated with such an impact. The following process will be applied to each potential impact:

- Provision of a brief explanation of the impact,
- Assessment of the pre-mitigation significance of the impact, as well as its post-mitigation significance; and
- Description of recommended mitigation measures.

The recommended mitigation measures prescribed for each of the potential impacts contribute towards the attainment of environmentally sustainable conditions of the project for various features of the biophysical and social environment. The criteria shown in Table 7-1 were applied in this impact assessment.

Table 7-1: Criteria used for impact assessment (extent, duration, intensity, and probability)

The Criteria used to assess the potential negative impacts.				
The extent or (spatial scale) - extent is an indication of the physical and spatial scale of the impact.				
Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
The impact is localized within the project site boundary: project site only	The impact is beyond the site boundary: Local	Impacts felt within adjacent biophysical and social environments: Regional	Impact widespread far beyond the project site boundary: Regional	Impact extends to the National or international boundaries
Duration- Duration refers to the timeframe over which the impact is expected to occur, measured over the lifetime of the project				
Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
Immediate mitigating measures, immediate progress	The impact is quickly reversible, and short-term impacts (0-5 years)	Reversible over time; medium-term (5-15 years)	Impact is long-term	Long-term, beyond closure, permanent, irreplaceable, or irretrievable commitment of resources
Intensity, Magnitude/severity - Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. This is a qualitative type of criterion.				
H-(10)	M/H-(8)	M-(6)	M/L-(4)	L-(2)
Very high deterioration, high quantity of deaths, injury or illness / total loss of habitat, total alteration of ecological processes, extinction of rare species	Substantial deterioration, death, illness or injury, loss of habitat/diversity or resource, severe alteration, or disturbance of important processes	Moderate deterioration, discomfort, partial loss of habitat/biodiversity or resource, moderate alteration	Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers	Minor deterioration, nuisance or irritation, minor change in species/habitat/diversity or resource, no or very little quality deterioration.
Probability of occurrence - Probability describes the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment.				

The Criteria used to assess the potential negative impacts.				
Low (1)	Medium/Low (2)	Medium (3)	Medium/High (4)	High (5)
Improbable; low likelihood; seldom. No known risk or vulnerability to natural or induced hazards.	Likely to occur from time to time. Low risk or vulnerability to natural or induced hazards	Possible, distinct possibility, frequent. Low to medium risk or vulnerability to natural or induced hazards.	Probable if mitigating measures are not implemented. Medium risk of vulnerability to natural or induced hazards.	Definite (regardless of preventative measures), highly likely, continuous. High risk or vulnerability to natural or induced hazards.

7.3 Impact Significance

Impact significance is determined through a synthesis of the above impact characteristics. The significance of the impact “without mitigation” is the main determinant of the nature and degree of mitigation required. As stated in the introduction to this chapter, for this assessment, the significance of the impact without prescribed mitigation actions was calculated. Once the above factors (Table 7-1) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

$$SP = (magnitude + duration + scale) \times probability$$

The maximum value per potential impact is 100 significance points (SP). Potential impacts were rated as high, moderate, or low significance, based on the following significance rating scale (Table 7-2).

Table 7-2: Impact significance rating scale and colour coding

Significance	Environmental Significance Points	Colour Code
High (positive)	>60	H
Medium (positive)	30 to 60	M
Low (positive)	<30	L
Neutral	0	N
Low (negative)	>-30	L
Medium (negative)	-30 to -60	M
High (negative)	>-60	H

For an impact with a high significance rating, mitigation measures are recommended to reduce the impact to a low or medium significance rating, provided that the impact with a medium significance rating can be sufficiently controlled with the recommended mitigation measures. To maintain a low or medium significance rating, monitoring is recommended for a specific period to enable the confirmation of the significance of the impact as low or medium and under control. The assessment of the project phases is done for both pre-mitigation (before implementing any mitigation) and post-mitigation (after mitigations are implemented).

7.4 Description and Assessment of Potential Impacts

The potential impacts of the proposed project activities are described and assessed in Table 7-3 (refer to Table 7-2 for colour coding for impact significance ratings). The management and mitigation measures in the form of management action plans referred to under the impact assessment table below are provided in the Draft EMP.

Table 7-3: The Description and Assessment of the impacts of the met masts on the biophysical and social environment

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
Positive Impacts (no enhancement necessary for these impacts)												
Employment creation	Although temporary, the project activities will create employment opportunities (about 20 jobs). This will include casual laborers, site work team, supervisors, climbers, and TLB operators, etc.	M - 3	M / H - 4	L / M - 4	M / H - 4	M - 44	None	M - 3	M / H - 4	L / M - 4	M / H - 4	M - 44
The presence and operation of the installed met masts and LiDAR	The met masts and LiDAR will provide precise, site-specific wind data (speed, direction, turbulence), 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. On a broader and long-term perspective, 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.	M / H - 4	H - 5	M - 6	H - 5	H - 75	None	M / H - 4	H - 5	M - 6	H - 5	H - 75

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
Data collection accuracy	The accurate data collected by the installed masts and LiDAR structures will support reliable energy yield estimates, which can attract investors and developers (bankability of the project).	M / H - 4	H - 5	M - 6	H - 5	H - 75	None	M - 3	M / H - 4	L / M - 4	M / H - 4	H - 75
Negative (Adverse) Impacts												
Physical disturbance to the project site soils	The excavations and land clearing to enable the siting of project structures and equipment will potentially result in soil disturbance through site establishment, access road creation, and unnecessary off-road driving. These would leave the project site soils exposed to erosion (areas with no to little vegetation cover on the soils in place). The movement of heavy vehicles and equipment may lead to compaction of the soils during construction. This will, however, be a short-term and localized impact.	M - 3	M / H - 4	L / M - 4	M / H - 4	M - 44	-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.	L / M - 2	L / M - 2	L / M - 4	L / M - 2	L - 16

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
							-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.					
Environmental pollution (littering) from construction workers on-site.	Waste types such as solid waste will be produced onsite during construction. If the generated waste is not disposed of responsibly, land pollution may occur on or around the site. If solid waste, such as paper and plastics, is not properly stored or just thrown into the environment (littering), these may be consumed by wild animals in the area, which could be detrimental to their health.	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	-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.	L - 1	L - 1	L - 2	L / M - 2	L - 8
Wastewater is generated by workers on-site.	Waste types such as wastewater and possibly hazardous waste will be produced onsite during construction. If the generated waste is not disposed of responsibly, land pollution may occur on or around the site. Improper handling, storage, and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater	M - 3	M / H - 4	L / M - 4	M / H - 4	M - 44	-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.	L - 1	L - 1	L - 2	L / M - 2	L - 8

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
	contamination in the case of spills and leakages.						-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). <u>Soil pollution measures</u> -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.					

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
							-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 construction machines and equipment should be equipped with drip trays to contain possible oil spills when operated or refueled 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).					
Impact on the sensitive Biodiversity: Wild Fauna	Biodiversity and habitat disruption: Installation of met masts may disturb fragile desert ecosystems or rare/endemic species (CITES-listed species). <u>Fauna:</u> If activities such as trenching and drilling are not carefully conducted, this would result in land degradation. The	M: -3	M: -3	M: -6	M / H: 4	M: -48	-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.	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
Illegal hunting (poaching)	<p>degradation would lead to habitat loss for a diversity of fauna and flora on-site. However, construction activities will be limited to specific areas only within the project site.</p> <p>The presence and movement of the workforce and the operation of machinery and equipment, and heavy vehicles would disturb wildlife in the area. There is also a potential for illegal hunting (poaching) of local wildlife by project-related workers. This could lead to a loss or a reduction of specific faunal species, which also impacts tourism in the community (area).</p>						<p>-Minimise the footprint of construction. Workers must be limited to the construction and site camp areas only so as not to unnecessarily disturb wildlife.</p> <p>-Refrain from disturbing, snaring, killing, or stealing (illegal hunting) wildlife on and around the project site and anywhere in the area.</p> <p>-Avoid the killing or harming of any wildlife found on site.</p> <p>-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.</p> <p>-Incorporate environmental awareness and biodiversity preservation into the employment contracts of all workers.</p> <p>-Breeding sites for faunal species that are found within the project site and nearby should not be disturbed.</p> <p>-Illegal hunting (poaching) and disturbance of wild animals are strictly prohibited.</p>					

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
							-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).					
Impact on the sensitive Biodiversity: Wild Flora	<p><u>Flora:</u> The vegetation in the area would be impacted through land clearing to create access roads, set up project equipment, and infrastructure. The clearing of vegetation, where deemed necessary, will be limited to the specific route and will be minimal and avoiding already scarce desert vegetation. The impact will be localized, site-specific, and therefore manageable.</p>	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	-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 unnecessary damage to the surrounding vegetation.	L - 1	L - 1	L - 2	L / M - 2	L - 8

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
							-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:	High met masts with guy wires can pose a threat to vulnerable birds, especially during migration or low-visibility conditions. The high sensitivity is associated with et mast site PML03 and between PML01 and PML02, and stretches from PML01 towards its southern side (Error! Reference source not found.). Without the implementation of any mitigation measures, the impact significance can be rated as medium to slightly high. However, upon the effective implementation and monitoring of the mitigation measures provided in the EMP, the significance will be reduced to low.	M - 3	M - 3	M/H - 8	M/H - 4	M - 56	-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.	L - 1	L/M - 2	L/M - 4	M - 3	L - 21

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
Visual impact (nuisance):	The met masts are over 100m in height above natural ground level 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 has been confirmed that tourists do not generally visit or travel through this area of the park. However, there are no known sensitive visual receptors (tourist areas, residences, etc.) in the vicinity of the met mast locations (project site). The LiDAR instruments are much lower on the ground (approximately 2m high above ground level) and therefore are often not expected to be visible from a distance.	L/M - 2	L/M - 2	M - 6	L/M - 2	L - 20	-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.	L - 1	L - 1	L - 2	L/M - 1	L - 4
Air Quality: Dust Generation	There is a potential impact of dust emanating from excavation activities such as trenching and drilling to install the foundation for the met mast structures. There is also a potential dust issue from site access roads when transporting equipment and supplies to and from the project site. The impact is considered short-term and localized as project activities are carried out over specified durations at selected sites only. Hence, the impact is manageable with mitigation measures.	L/M -2	L/M -2	L/M -4	L / M - 2	L -16	-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.	LM - 1	L - 1	L - 2	L - 1	L - 4

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
							-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.					
Occupational health and safety	Potential health and safety risks to workers on site are associated with the mishandling of the installation (and maintenance) of met masts and LiDAR equipment due to a lack of training, the provision of adequate and appropriate Personal Protective Equipment (PPE), as well as negligence (handling equipment and machinery on the ground and working at heights). Other potential risks to both people and wildlife are excavated trenches that are not backfilled or secured. The use of heavy equipment, especially during drilling, and the presence of hydrocarbons on sites may result in accidental fire outbreaks. This could pose a safety risk to the project personnel.	M - 3	M - 3	M/H - 8	M/H - 4	M - 56	-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. Postpone (reschedule) site 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.	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
							-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.					

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
Civil aviation concerns	Impact on civil aviation based on the height of the met mast and the position and stability of transmitters concerning any nearby civil aviation facilities in the area. Two (2) aerodrome points in Rosh Pinah (Skorpion Mine Aerodrome and Rosh Pinah Airport) are about 50km from the project site. Furthermore, the temporary LiDAR structures will be removed after the wind resource assessment, thus limiting long-term impact on the environment. Therefore, the impact significance is very low to negligible.	M - 3	L/M - 2	M - 6	L - 0	L - 0 (Improbable)	-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.	L / M - 2	L / M - 2	L - 2	L / M - 0	L - 0
Water Resources Demand and Use	There will be a need for water, mainly for drinking and ablution. This water will not be abstracted onsite owing to the low groundwater yield potential of the area. Thus, water will be supplied from Rosh Pinah. Therefore, the impact of the project activities on the local vulnerable water resources will be very low to none.	L/M: -2	L/M: -2	L/M: -4	L / M: 2	L -16	-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 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.	LM - 1	L - 1	L - 2	L - 1	L - 4

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
							-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					
Archaeological and Heritage Resources	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). According to the project site assessment by Kinahan and Kinahan (2025), out of the 28 sites, 22 had a vulnerability value of 4, i.e. high likelihood of partial disturbance or destruction due to the proximity of development.	M / H - 4	M - 3	M - 6	M - 3	M – 39	-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. The implementation of the Chande Finds Procedure (Annexure 1) is crucial.	L - 1	L / M - 2	L - 2	L / M -2	L - 10

Impact	Impact Description	Impact Assessment										
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance
Risks of sexual exploitation, abuse, or harassment (SEA/SH),	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	M - 3	M - 3	M - 6	M / H - 4	M - 48	-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 actions. It should cover behavior both during and outside of working hours. -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.	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Impact	Impact Description	Impact Assessment											
		Pre-mitigation Rating					Mitigation / Enhancement Measures	Post-mitigation Rating					
		Extent	Duration	Intensity	Probability	Significance		Extent	Duration	Intensity	Probability	Significance	
							-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.						

The objective of the mitigation measures is to first avoid the impact, and if the impact cannot be avoided, the mitigation measures to minimize the impact. Once the mitigation measures have been applied, the identified impact will be of low significance.

7.5 Cumulative Impacts Associated with the Proposed Project

According to the International Finance Corporation (2013), cumulative impacts are defined as “those that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as “developments”) when added to other existing, planned, and/or reasonably anticipated future ones”. As there are currently no other existing or proposed developments (apart from the proposed WEF, the planning of which the met masts and LiDAR system will contribute to), no cumulative impacts that may result from or impact on surrounding developments have been identified. Similarly to many other projects in conservation or national parks, a cumulative impact that is anticipated to stem from the proposed project and associated activities as potentially contributing include the following:

- Illegal hunting (poaching of wild animals) and harvesting of protected wild flora (plants) in the TKNP: Some wild animals are and will still roam on or near the project site during construction. The poaching would be currently linked to existing poachers and would likely continue with the introduction of additional people in the area (related to the mast construction). In addition to that, there is also a probability of illegal harvesting of wild protected plants in the area by project-related workers and visitors (project site users) alike. However, the implementation of biodiversity mitigation measures as listed in the Draft EMP, combined with conservation awareness to the project team, would reduce the project-related impact significance to low, and eventually negligible.

The recommendations and conclusions made for the environmental assessment are presented in the next chapter.

8 RECOMMENDATIONS AND CONCLUSIONS

The EIA Scoping assessment was carried out for the proposed construction and operation of Wind Resource Assessment (WRA) Meteorological Masts and Associated Activities in the Tsau //Khaeb National Park (TKNP). Some key potential positive and negative impacts were identified. The key negative impacts were described and assessed, and appropriate management and mitigation measures were made for implementation by the Proponent and their contractors.

The public was notified as required by Sections 21 to 24 of the EIA Regulations by placing adverts in two (2) newspapers, namely *The Namibian* and *Windhoek Observer* newspapers on the 1st and 8th of July 2025, and then *New Era* on the 17th and 24th of July 2025. The consultation period ran from the 1st of July 2025 to the 04th of August 2025. No comments were received from the public during this period. A consultation meeting was held, and comments on the proposed project activities were recorded for consideration. The draft Scoping Report and the EMP were circulated to the registered stakeholders/I&APs for ten working (10) days, i.e., from the 18th August to the 02nd of September 2025. No comments were received from stakeholders / I&APs on the draft Scoping Report and EMP, and these reports have therefore been finalized on this basis for submission to DEAF for decision making.

Impact identification: Some key potential positive and negative impacts were identified by the Environmental Consultant and based on comments provided by the key stakeholder (MEFT: Parks) during the consultation period. The comments were addressed and incorporated into this Report, and mitigation measures have been provided in the Draft Environmental Management Plan (Draft EMP) (in the form of action measures) for implementation to avoid and/or minimize their significance.

Impact Assessment: The negative impacts were described and assessed. The potential negative impacts indicated a medium rating of significance, and positive impacts indicated a medium to high significance. To minimize the significance of negative impacts, appropriate management and mitigation recommendations are made for implementation by the Proponent and their contractors to avoid and/or minimize their significance on the environmental and social components. The effective implementation of the recommended management and mitigation measures, accompanied by monitoring, will particularly see a reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low).

The Scoping Assessment Study was deemed sufficient and concluded that no further detailed assessments at this stage are required for the WRA met masts' ECC application. Therefore, the Environmental Consultants are confident that the potential negative impacts associated with the proposed project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures, and with appropriate commitment put into monitoring the implementation of recommended measures.

It is, therefore, recommended that the proposed project and associated activities be granted an Environmental Clearance Certificate (ECC), provided that:

- (a) All the management and mitigation measures provided in the EMP are effectively and progressively implemented as reasonably practicable.
- (b) All required permits, licenses, and approvals for the proposed activities (as presented in the EMP) should be obtained as required, and ensure compliance with the specific legal requirements of such permits/approvals.
- (c) Transparency in communication and continued engagement with the land custodian (MEFT: Wildlife and National Parks Directorate) and other stakeholders should be maintained before and throughout the project.
- (d) The Proponent and their contractors comply with the legal requirements governing the project and its associated activities and ensure that project permits and or approvals required to undertake specific site activities are obtained and renewed as stipulated by the issuing authorities.
- (e) Site areas where activities have ceased are rehabilitated, as far as practicable, to the pre-disturbance state and the satisfaction of the MEFT: Parks Directorate. This includes the leveling of stockpiled topsoil, backfilling of construction trenches, and closing/capping of associated holes.
- (f) The EMP implementation on site must be monitored and recorded by the responsible team member on site (Environmental Control Officer - ECO) and audited by an Independent Environmental Consultant both at the start of and after completion of construction at each site. Environmental Monitoring (Audit) Reports must be compiled, confirming that all environmental management measures have been complied with and any findings closed out post-construction. These reports are to be submitted to the Environmental Commissioner at the DEAF. This will be required by the Environmental Commissioner (as part of the ECC conditions).

In conclusion, to ensure that the potential impacts are appropriately managed, the implementation of management and mitigation measures should be monitored by the Environmental Control Officer (ECO) and audited by an Independent Environmental Consultant during the construction phase of the project. The monitoring of this implementation will not only be done to maintain the reduced impact significance rating (with mitigation) or maintain a low rating, but also to ensure that all potential impacts that might arise during construction are properly identified in time and addressed immediately.

9 LIST OF REFERENCES

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