ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED HOWOBEES TELECOMMUNICATION BASE TRANSCEIVER STATION (BTS) TOWER AT HOWOBEES, KARAS REGION-NAMIBIA.

ENVIRONMENTAL SCOPING REPORT

DATE: OCT 2022
REFRENCE NUMBER: 221103000252

D&P ENGINEERS
AND ENVIRONMENTAL CONSULTANTS
"Purpose with Passion"

PowerCom
(PTY) LTD



Proposed Construction & Operation of Howobees Base Transceiver Station Tower - Karas Region: Namibia

Environmental Scoping Report (ESR)

Environmental Scoping Report Prepared for
Powercom (Pty) Ltd

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DEFINITIONS

TERMS	DEFINITION
BID	Background Information Document
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA (R)	Environmental Impact Assessment (Report)
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
EMPr	Environmental Management Plan Report
GHG	Greenhouse Gasses
ISO	International Organization for Standardization
I&Aps	Interested and Affected Parties
MET: DEA	Ministry of Environment and Tourism's Directorate of Environmental Affairs
NHC	National Heritage Council
NEMA	Namibia Environmental Management Act
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change

i. Purpose of This Environmental Impact Assessment Report

This Environmental Scoping Report (ESR) follows the Scope of Work delineated by POWERCOM Pty Ltd. Existing information and input from commenting authorities, Interested and Affected Parties (I&APs) was used to identify and evaluate potential environmental impacts (both social and biophysical) associated with the proposed project.

Environmental flaws associated with the proposed project were identified through the ESR. A conscious decision was made based on the recommendations and guidelines of the Directorate of Environmental Affairs EIA guidelines to assess both significant and less significant environmental impacts proposed by the development. The developed Environmental Management Plan (EMP) for this proposed activity will have to be effectively implemented by the client, to ensure that adverse environmental impacts are not considered.

A detailed assessment of the anticipated impacts was undertaken to highlight any areas of concern regarding the proposed project during its construction, and operation. In addition, an independent sensitivity mapping analysis was undertaken. This analysis characterised the development site on the significant environmental aspects to reflect the site's suitable and unsuitable (no-go) development footprint areas. This action guided the final footprint of the PV Plant and the transmission line.

This report will also be used to motivate and define the previously identified project alternatives (i.e. site, technology, and layout) based on the findings of the environmental baseline study and the suitability of the site to the type of development. This EIAR has been compiled in accordance with the regulatory requirements stipulated in the EIA Regulations (2012), promulgated in terms of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007))

The ESR aims to:

- Provide an overall assessment of the social, physical, and biophysical environments of the area affected by the proposed establishment of the base transceiver station tower (BTS);
- Undertake a detailed environmental assessment, in terms of environmental criteria and impacts (direct, indirect, and cumulative), and recommend a preferred location for the proposed plant (based on environmental sensitivity);

- Identify and recommend appropriate mitigation measures for potentially significant environmental impacts; and
- Undertake a fully inclusive Public Participation Process (PPP)
- GIS sensitivity mapping was conducted to identify potential impacts, propose mitigation and inform the sensitivity analysis.

ii. Assumptions And Limitations

The following assumptions and limitations underpin the approach to this EIA study:

- The information received from the stakeholders, desktop surveys, and baseline assessments are current and valid at the time of the study;
- A precautionary approach was adopted in instances where baseline information was insufficient or unavailable;
- Mandatory timeframes will apply to the review and adjudication of the reports by the competent authority and other government departments; and
- No land claims have been registered for the proposed site at the onset and registration of the study.

NB: The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process. All data from unpublished research utilised for the purposed of this project is valid and accurate. The scope of this investigation is limited to assessing the potential biophysical, social and cultural impacts associated with the proposed project.

1. CHAPTER ONE: BACKGROUND

1.1. Introduction

POWERCOM (PTY) LTD herein referred to as the proponent has identified different areas that need improved communication alternatives in Namibia due to the growth in population and economic activities. To achieve the objective of improved telecommunication connectivity, POWERCOM has been appointed by Telecom Namibia, its sister company to establish telecommunication towers across different locations countrywide and Howobees is one of the areas identified. The development is earmarked to expand connectivity, decongest connectivity and promote ICT in rural and peri-urban environments.

However, the telecommunication towers cannot be constructed without prior consent from interested and affected parties as well as obtaining an Environmental Clearance Certificate for development. In this respect, D&P Engineers and Environmental Consultants cc has been appointed as an Environmental Assessment consultant to carry out an Environmental and Social Impact Assessment study to obtain an environmental clearance certificate as per the requirements of the Environmental Management Act No. 7 of 2007 and Namibian Environmental Impact Assessment Regulations of 2012 in terms of telecommunication infrastructure.

1.2. Project Location

The proposed tower is to be erected at Howobees 51, Karas region. The site coordinates are indicated as follows:

- Latitude: 26°46'48.8"S
- Longitude: 18°33'19.5"E.

The site is located about +/- 3km from the B1 road and 0.487 km from the D1 gravel road. The site is in a settlement area, the Howobees 51, and the area is surrounded by other farms that mostly deal with cattle farming and a little crop farming.

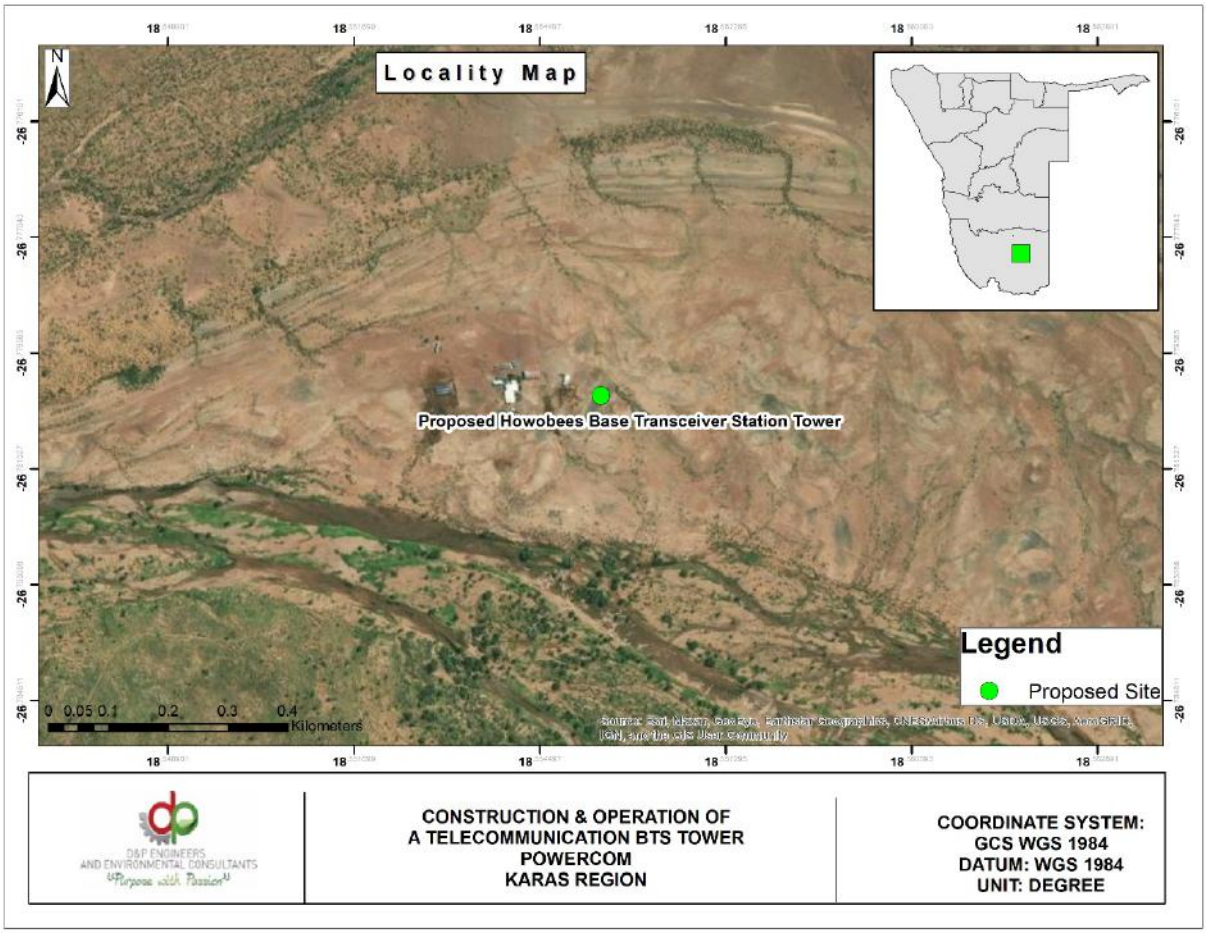

Figure 1: Site Locality

1.3. Project Overview

TELECOM Namibia's information and technology infrastructure development subsidiary, POWERCOM (Pty) Ltd is on a drive of construction network towers across the country. POWERCOM targets that, other than improving internet and voice connectivity in the regions, there is also a need to increase the company's footprint and asset base to best service ICT stakeholders and offer better connectivity in all regions of the country. POWERCOM aims at providing different telecommunication service providers in Namibia with ready-to-use infrastructure as well as expanding network coverage into the different areas where there is weak or no network connectivity at all.

Behind this backdrop, Telecom identified areas that need improved network connectivity that is currently not serviced with telecom network. The applicant, POWERCOM Pty Ltd, therefore intends to develop 22 telecommunication towers countrywide and Howobees is one of the planned sites.

The Howobees BTS development will include the following:

- The project entails the construction of a 30m lattice tower with a footprint size of a 20m x 20m area and a support container;
- The site is to accommodate TN Mobile service and other service providers.
- The structure will be fenced to limit public access to it and it will be electrified to prevent baboons from entering.
- The base station will be a secured building and sufficient precautions will be made to prevent access to the antenna support structure.
- Access to the area will be strictly controlled through a locked gate as illustrated below;

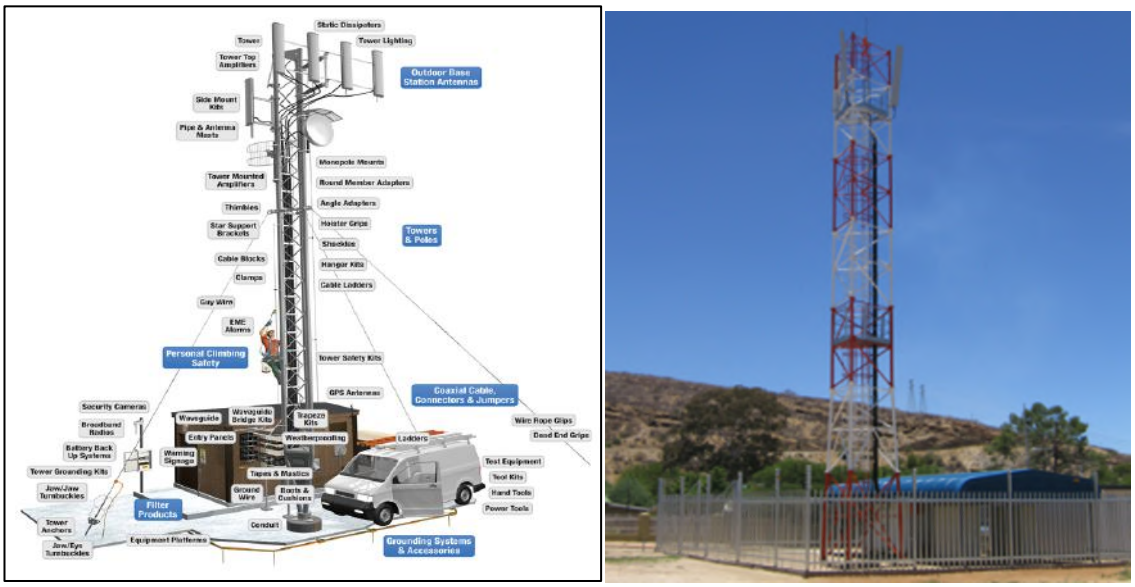

Figure 2: Typical telecommunication towers structure and form (visual puproposes only)

1.3.1. Accessibility

The site is easily accessible from the Howobees access road.

1.3.2. Infrastructure and Services

- **Water:** Water for construction will be obtained from the existing water infrastructure, (borehole).
- **Ablution:** Construction ablutions will be temporary toilets.
- **Electricity:** There is an existing electricity connection on site but it's solar which is used by the landowner.
- **Communication:** The proposed project will provide for communication in the area.

Figure 3: Solar Plant on Howobees 51

1.4. The project Environs

The project site is on a hilltop, which is 334.98m, north of the Lowen River which feeds the Naute Dam. The area is characterised by grass and bushes such as Euphobia. The proposed site is close to the land owner's farmhouse which has a cattle kraal, storeroom, workshop, greenhouse, borehole (solar) and a greenhouse. The Area is used for livestock farming and consists of small-crop farming activity.

1.5. Need and Desirability

The economic and social development goals of Namibia are embodied in (i) Vision 2030 and (ii) the National Development Plan 5 (NDP 5) 2017/2018 – 2021/2022 as well as NDPs 1, 2, 3, and 4. In addition, the Government has developed the Harambee Prosperity Plan (HPP) 2016/2017 – 2019/2020, which complements Vision 2030 and NDP 5. All of the three plans set the goals, targets, and strategy for Namibia to move on a path to economic prosperity through a concerted strategy for the development of Namibia's economic growth. These Plans also include specific growth targets, milestones, and strategies for the sustainable deployment of Namibia's resources to achieve the stated economic and social development goals. Communication is one of the major targets aimed in the NDP5 and to stimulate the development of any aspect, internet and voice connectivity is a prerequisite.

This project is a major step in addressing the objectives of the developmental plans and targets of the Namibian government and the development will ensure that there is connectivity for the Howobees community who will need to keep connected to their business and family.

1.6. Project Alternatives

1.6.1. Site Location Alternatives

An integrated site selection study was done to identify a suitable site for the proposed tower. The proposed site is considered highly desirable due to the following considerations:

- Elevation: The project location is strategic because it can allow the covering of a wider radius within the game reserve.
- Land suitability: The site is easily accessible by road and near an electrical connection to power the tower components.

It is thus, the consideration of the above criteria resulted in the selection of the preferred site. No further site location alternatives are considered in the EIA process.

1.6.2. Tower Infrastructure Alternatives

There are several types of telecommunication towers design and forms. In this respect, to cater for a 20-40m height to make sure network connectivity in Howobees is good and does not overshoot, the proponent will invest in a Lattice tower.

1.6.3. Conclusion

Based on the preceding alternative analysis and options, the project will go ahead and will ensure maximum environmental and safety performance systems are in place

2. CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1. Introduction

An important part of the EIA is identifying and reviewing the administrative, policy, and legislative frameworks concerning the proposed activity, to inform the proponent about the requirements to be fulfilled in undertaking the proposed project. This section looks at the legislative framework within which the proposed development will conform; the focus is on compliance with the legislation during the planning, construction, and operational phases. All relevant legislations, policies, and international statutes applying to the project are highlighted in the table below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012).

Table 1: Policy, Legal and Administrative Framework

LEGISLATION/POLICY/ GUIDING DOCUMENT	PROVISION	PROJECT IMPLICATION
The Constitution of the Republic of Namibia (1990)	The articles 91(c) and 95(i) commits the state to actively promote and sustain environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include: • Guarding against overutilization of biological natural resources, • Limiting over-exploitation of non-renewable resources, • Ensuring ecosystem functionality, • Maintain biological diversity.	Through the implementation of the environmental management plan, the proposed development will be conformant to the constitution in terms of environmental management and sustainability, by bringing development in an environmentally sensitive way.
Vision 2030 and National Development Plans	Namibia's overall Development ambitions are articulated in the Nations Vision 2030. At the operational level, five-yearly national development plans (NDP's) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. Currently the Government has so far launched a 4th NDP which	The proposed project is an important element in the propelling and connectivity in the country.

	pursues three overarching goals for the Namibian nation: high and sustained economic growth; increased income equality; and employment creation.	
Environmental Assessment Policy of Namibia 1994	The Environmental Assessment Policy of Namibia requires that all projects, policies, Programmes, and plans that have detrimental effect on the environment must be accompanied by an EIA. The policy provides a definition to the term "Environment" broadly interpreted to include biophysical, social, economic, cultural, historical and political components and provides reference to the inclusion of alternatives in all projects, policies, programmes and plans.	The construction and operation of the tower will only commence after being awarded an environmental clearance certificate, thus by abiding to the requirements of the Environmental Assessment Policy of Namibia. The EIA and EMP will cater for the sustainable management of biophysical environment.
Environmental Management Act No. 07 of 2007	The Act aims at • Promoting the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment; • To provide for a process of assessment and control of projects which may have significant effects on the environment; • The Act gives legislative effect to the Environmental Impact Assessment Policy. Moreover, the act also provides procedure for adequate public participation during the environmental assessment process.	This document is compiled in a nature that project implementation is in line with the objectives of the EMA. EIA guiding procedures developed by MEFT were also used in the course of this project.
Electricity Act 4 of 2007	• Requires that any generation and or distribution complies with laws relating to health, safety and environmental standards (s 18(4)(b) • In the event that exemption from acquiring a license is	Obliges Powercom to comply with all relevant provisions of the EMA and its regulations when installing electrical connections to the tower.

	granted, the Minister may impose conditions relating to public health safety or the protection of the environment.	
The Atomic Energy and Radiation Protection Act, Act 5 of 2005:	Provides for the adequate protection of the environment and of people against the harmful effects of radiation by controlling and regulating the production, processing, handling, use, holding, storage, transport and disposal of radiation sources and radioactive materials, and controlling and regulating prescribed non-ionising radiation sources according to the standards set out by the ICNIRP.	Cell phone towers and other antenna installations are usually located on rooftops, towers, and utility poles. Cell phone towers operate at a higher power than cell phones but the radiofrequency EMF they emit is much further away from your body. This means your exposure from such antennas is usually much lower than the exposure level from using a cell phone. Installation of the network transmitter will be done in accordance with the safety protocols required for non-ionizing radiation protection.
Hazardous Substances Ordinance 14 of 1974 Regulations Made In Terms Of Hazardous Substances Ordinance 14 of 1974 sections 3 and 27	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.	Powercom will have to conform to this Act and its regulations through application for relevant licenses with the relevant bodies highlighted thereto.
"Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300GHz)" (April 1998 developed by the International Commission on Non-Ionizing Radiation	Provides international standards and guidelines for limiting the adverse effects of non-ionising radiation on human health and well-being, and, where appropriate, provides scientifically based advice on non-ionising radiation protection including the provision of guidelines on limiting exposure.	Cell phone towers and other antenna installations are usually located on rooftops, towers, and utility poles. Cell phone towers operate at a higher power than cell phones but the radiofrequency EMF they emit is much further away from your body. This means your exposure from such antennas is usually much lower than the exposure level from using a cell phone.

Protection (ICNIRP))		
Soil Conservation Act 76 of 1969	The objectives of this Act are to: • Make provisions for the combating and prevention of soil erosion, • Promote the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic.	The project will have a rather localized impact on soils and the soil through clearance for the tower platform. Soil protection measures will be employed and preservation of trees as much as possible.
Protected Areas and Wildlife Management Bill	This bill, when it comes into force, will replace the Nature Conservation Ordinance 4 of 1975. The bill recognizes that biological diversity must be maintained, and where necessary, rehabilitated and that essential ecological processes and life support systems be maintained. It protects all indigenous species and control the exploitation of all plants and wildlife.	Environmental recommendations and considerations on this project have ensured that the proposed activities will not fall within the boundaries of any protected area and that the project will not affect heavily endangered vegetation and animals on its site.
Forest Act, 2001 (Act No. 12 of 2001)	The Act gives provision for the protection of various plant species through the Ministry of Agriculture, Water and Forestry (MAWF), Directorate of Forestry).	The site has a few palm trees which will not be removed to pave way for development.
National Rangeland Policy and Strategy, 2012	The policy aims at enabling resource users (farmers and managers) to manage their rangeland resources in a sustainable manner and sustainable in that they are economically viable, socially acceptable, environmentally friendly and politically conducive.	This proposed project will ensure that the local community benefits both economically and socially from the project, this in line with the recently declared Harambee Prosperity Plan and NDP 4&5.
National Biodiversity Strategy and Action Plan (NBSAP2)	The action plan was operationalised in a bid to make aware the critical importance of biodiversity conservation in Namibia putting together management of matters to do with ecosystems protection, biosafety, biosystematics protection on both terrestrial and aquatic systems.	The project proponent has been advised by DPEE and recognises the need for ecosystem protection to manage the changing climatic environment. This project is one of the drivers to reduce the rate of global environmental change given its contribution, to decreased use of burning fossil fuels for energy generation.
Wetland Policy, 2004	The policy provides a platform for the conservation and wise use of wetlands, thus promoting inter-generational equity regarding wetland	In compliance to this Policy, the development will ensure a standard environmental planning such that it does not affect any wetlands within its locale through recognition of wetlands to promote

	resource utilization. Furthermore, it facilitates the Nation's efforts to meet its commitments as a signatory to the International Convention on Wetlands (Ramsar) and other Multinational Environmental Agreements (MEA's).	the conservation and wise utilization of wetlands resources. There is an existing water channel within 500m radius of the proposed project site.
Water Resources Management Act, 2013 (Act No. 11 of 2013)	This Act provides for the management, protection, development, use and conservation of water resources. This also forms the regulation and monitoring of water resources.	The proposed development will get water from the existing water infrastructure.
National Heritage Act 27 of 2004	Heritage resources to be conserved in development.	During the project implementation as soon as objects of cultural and heritage interests are observed such as graves, artefacts and any other object believed to be order than 50 years, all measures will be taken protect these objects until the National Heritage Council of Namibia have been informed, and approval to proceed with the operations granted accordingly by the Council.
National Monuments Act of Namibia (No. 28 of 1969) as amended until 1979	"No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia: (a) any meteorite or fossil; or (b) any drawing or painting on stone or a petroglyph known or commonly believed to have been executed by any people who inhabited or visited Namibia before the year 1900 AD; or (c) any implement, ornament or structure known or commonly believed to have been used as a mace, used or erected by people referred to in paragraph (b); or (d) the anthropological or archaeological contents of graves, caves, rock shelters, middens, shell mounds or other sites used by such people; or (e) any other archaeological or palaeontological finds, material or object; except under the authority of and in accordance with a permit issued under this section.	The proposed site of development is not within any known monument site both movable or immovable as specified in the Act, however in such an instance that any material or sites or archeologic importance are identified, it will be the responsibility of the developer to take the required route and notify the relevant commission.

Pollution Control and Waste Management Bill	This bill has not come into force. Amongst others, the bill aims to "prevent and regulate the discharge of pollutants to the air, water and land" Of particular reference to the Project is: Section 21 "(1) Subject to sub-section (4) and section 22, no person shall cause or permit the discharge of pollutants or waste into any water or watercourse." Section 55 "(1) No person may produce, collect, transport, sort, recover, treat, store, dispose of or otherwise manage waste in a manner that results in or creates a significant risk of harm to human health or the environment."	To control air, water and land pollution as agitated by the Act the project proponent will ensure that the development will prevent pollution in all forms during construction and operation phases.
Communications Act, 2009 (Act No. 8 of 2009)	• (10) The Authority may impose specific obligations and requirements on a licensee regarding to masts, towers or other facilities including requirements relating to the • environmental or aesthetic impact of such facilities;	As a pre requisite, telecommunication towers would require environmental clearance certificates and, in this respect, Powercom authorised this EIA to obtain such.
Communication Bill 2009	• Provide for the regulation of telecommunication activities. The bill provides licencing and enforcement of conditions, and the approval or equipment and technical standards to ensure public health and safety.	As per relevant spectrum, network equipment should be as per licenses.
Convention on Biological Diversity (CBD)	• Namibia is a signatory of the Convention on Biological Diversity and thus is obliged to conserve its biodiversity.	The project will preserve tree species on as part of their plans for greed and sustainable development.
United Nations Convection to combat Desertification	Namibia is bound to prevent excessive land degradation that may threaten livelihoods.	It will be the responsibility of the proponent to conserve vegetation on and around the area, to avoid encroachment of the desert environs in the area.

3. CHAPTER THREE: RECEIVING ENVIRONMENT

3.1. Introduction

In this chapter, the findings of the EIA Team on baseline surveys, public consultation, and desk reviews are undertaken with respect to the ecology, society, economy, and geo-political setup of the proposed project area. The geological makeup and meteorology of the project site will also be discussed in this chapter to give an in-depth understanding of the project area in question.

3.1.1. Socio-Economic status

Howobees 51 is a farm about 50 kilometres (16 mi) southeast of Keetmanshoop. Land use in this area consists of farms that focus on livestock farming of goats, sheep and, cattle and, some farms are doing a bit of crop farming, the land is also used for tourism.

Due to the far distribution of farms, and little vegetation on the site, the construction impacts will be minimum if mitigated by the Environmental Management Plan. The tower will improve network connection for businesses in the areas and, tourists or Howobees residents will have internet access to communicate with family and friends.

Figure 4: Existing Land use: Private landowner residents (Howobees 51 homestead)

Figure 5: Existing land use: livestock, greenhouse and workshop

Figure 6: Existing Land use: Greenhouse

3.2. Climate

Karas is known for its extreme weather since it has a subtropical desert climate. It is located at an elevation of 947.1 meters above sea level which have a yearly temperature of 24.34ºC and it is -0.12% lower than Namibia's averages. Karas typically receives about 18.12 millimeters of precipitation and has 34.64 rainy days (9.49% of the time) annually. Therefore, in Karas, the summers are long and hot, the winters are short, cool, and windy, and it is dry and mostly clear year round.

3.3. Fauna

Fauna varies depending on the type of vegetation, climate, and topography of an area. The Karas region hosts a variety of large to small games, ranging from Kudu and Springbok to Duiker, Klipspringer, Steenbok, Jackal, and Caracal. The Kudu are abundant among the 'koppies' and roam free, leaping over any fence that may come in their way, whereas the Springbok on the other hand

are bound to single encampments because they lack the suppleness and length to jump over fences. Caracals are widely hunted down by farmers because they prey on the lambs of sheep. Gemsbucks are also widely scattered across the region in addition to Zebra and Red Hartebeest. However, all of these species were not observed on the specific site due to human presence and the openness of the vegetation. Besides, the reduction or loss of grazing area for animals, hence the project will have minimal impacts on fauna.

3.4. Avifauna

The karas area consists mostly of grass-shrubland but you can find trees such as Acacia growing along a water channel or river which play or mostly constitute a suitable area for bird habitation. The type of birds most likely to be found or observed in this area, especially in the lower river is Little Swift, Dusky Sunbird, Speckled Pigeon, Acacia Pied Barbet, Cape Sparrow and many others.

It is imperative to understand that the specific site consists of grasses and scattered shrubs. But there are acacia trees along the Lowen river possibly consisting of bird nests. Therefore no contact will occur with the avifauna; hence the project will have minimal or no impacts on the birds and their habitats.

3.5. Flora

Rainfall in Karas is usually both low and extremely variable which means that years of abundant rain are often followed by extremely dry conditions. As a result of low rainfall, vegetation is generally sparse, with few trees and a thin covering of grass. Plant cover varies with rainfall. The Aloe dichotoma or Quiver Tree (Namibia's national tree) is mostly found in Karas. Other plants include the three thorns Rhigozum (Rhigozum trichotomum), various grass species, and species of succulents, such as the Euphorbia However, most of these species are not present on the site. The area consists dominantly of grass species, with scattered shrubs such as Euphobia Gregaria, which is the dominant shrub.

The removal of any vegetation especially in the surrounding area should still be done in a properly managed, planned and responsible manner to avoid the destruction of unnecessary ground cover. The rehabilitation of disturbed areas is important and should be done following the Environmental Management Plan (EMP) hence the project will have minimal impacts on the environment

Figure 7: Overview of vegetation on site

Figure 8: *Euphobia Gregaria*

3.6. Hydrology

The project area is 334.98m north of the Lowen River which feeds the Naute Dam. The Lowen River is at a much lower altitude than the tower site. During the construction phase, it is important to ensure that pollution prevention to prevent runoff pollutants to be washed into the water channel is strictly implemented. Construction is also recommended not to be conducted during the rainy season. The proposed project will have little or no significant impact on general area hydrological drainage, and thus, the project will have a relatively low impact on surface water hydrology.

Figure 9: Lowen River

3.7. Pedology & Geology

Howobees is situated within the Nama-Karoo Basin, which is a "large, flat-lying plateau which dominates much of southern Namibia. Sedimentary rocks deposited in the Nama Basin and later in the same area in the Karoo Basin form the foundations of the landscape. The basin slopes from the north, where elevations are about 1,400 m above sea level, to the south, where altitudes are approximately 900 m above sea level. The Fish, Löwen, and Konkiep rivers drain the landscape, all flowing south to the Orange River" (Mendelsohn, 2002). There is no to little vegetation cover in the area because the soil will not be able to provide plants with sufficient water or nutrients. The potential soil impact in the study area is that the soils in the area are susceptible to erosion and compaction, therefore the disturbance of the soil surface in the vicinity of the project must be minimised to prevent wind erosion. The footprint of the construction area must be kept as small as possible and existing access roads are to be utilised at all times to avoid off-road tracks. The project footprint area should not be cleared entirely and the site should be rehabilitated after the construction phase.

Figure 10: Soil type on site

3.8. Topography

The project site is on a hilltop. However, the project site area is 334.98m north of the Lowen River. Therefore, pollution prevention and stormwater control should be implemented.

3.9. Archaeology and Heritage

There are no declared heritage sites by the National Heritage Council of Namibia at Howobees 51, Karas Region, however, an accidental find procedure at the subject area may be required.

3.10. Alien Plant Assessment

The alien plants were considered during the botanical assessment. It was found that no alien plant species were found on site.

4. CHAPTER FOUR: PUBLIC CONSULTATION

Public and Stakeholder involvement is a key component of the EA process. The public consultation process, as set out in Section 21 of Regulation No 30 of EMA, has been followed during this assessment, and the details thereof are documented below.

4.1. Printed Media

4.1.1. Background Information Document

A Background Information Document (BID) was drafted at the onset of the EA process to act as a useful information handout about the proposed project development. In addition, the BID provided details on the public consultation process with contact details for further information. This document was advertised for availability through various means of newspaper articles, Public meetings, and electronic mail; see Appendix B of this document

4.1.2. Newspaper Advertisements & Articles

Newspaper notices about the proposed project and related Environmental Assessment processes were circulated in two newspapers for two weeks. These notices appeared in the “Confidante” and “New Era” newspapers, shown in Appendix B.

4.1.3. Site Notices

A site notice was placed at the project site, Howobees entrance, and route to Howobees. These provided information about the project and related EA while providing contact details of the project team.

Figure 11: Site Notice

4.1.4. Building a Stakeholder Database

A stakeholder database for the project was collected through a variety of means. During the advertisement of the project (through public notices in local newspapers and site notices) the list

was augmented as Interested & Affected Parties (I&AP) registered and the contact information of stakeholders was updated, Please refer to Appendix B.

4.1.5. Stakeholder Meetings & Key Conversations

A public meeting was scheduled on Wednesday, 14 September 2022 at Howobees, and the meeting was well attended by all stakeholders. Appendix b has a detailed list of the attendance register. The consultant administered questionnaires during the meeting to all members who attended the meeting.

Figure 12: Community engagement meeting conducted

4.1.6. Comments and review period

From the onset of the public consultation process and the initial information sharing through the BID, newspaper, and site notices, various stakeholders have registered and provided comments. All of the immediate neighbours are in support of the initiative. The Scoping Report and Environmental Management Plan were made available to the public and stakeholders for comment and review. Questionnaires and proof of stakeholder engagement are attached in appendix B of this EAR.

5. CHAPTER FIVE: ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

5.1. Overview

POWERCOM has committed to sustainability and environmental compliance by coming up with a corrective action plan for all anticipated environmental impacts associated with the project. This is also in line with the Namibian Environmental Management legislation and International best practices on telecommunication infrastructure. The proponent will implement an Environmental Management Plan (EMP) in order to prevent, minimize and mitigate negative impacts. The environmental management plan is being developed to address all the identified expected impacts, the plan will be monitored and updated continuously with the aim of continuous improvement to address impacts.

5.2. Assessment Of Impacts

This section sets out the overall approach that was adopted to assess the potential environmental and social impacts associated with the project. To fully understand the significance of each of the potential impacts each impact must be evaluated and assessed. The definitions and explanations for each criterion are set out below in Table 2: Assessment Criteria and

Table 2: Impacts Assessment Criteria

Duration – What is the length of the negative impact?	
None	No Effect
Short	Less than one year
Moderate	One to ten years
Permanent	Irreversible
Magnitude – What is the effect on the resource within the study area?	
None	No Effect
Small	Affecting less than 1% of the resource
Moderate	Affecting 1-10% of the resource
Great	Affecting greater than 10% of the resource
Spatial Extent – what is the scale of the impact in terms of area, considering cumulative impacts and international importance?	
Local	In the immediate area of the impact
Regional / National	Having large scale impacts
International	Having international importance
Type – What is the impact	
Direct	Caused by the project and occur simultaneously with project activities
Indirect	Associated with the project and may occur at a later time or wider area

Duration – What is the length of the negative impact?	
Cumulative	Combined effects of the project with other existing / planned activities
Probability	
Low	<25%
Medium	25-75%
High	>75%

(***Adopted from ECC-Namiba, 2017)***

Table 3: Impacts Significance

Class	Significance	Descriptions
1	Major Impact	Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
2	Moderate Impact	Impacts are long term, but reversible and/or have regional significance.
3	Minor	Impacts are considered short term, reversible and/or localized in extent.
4	Insignificant	No impact is expected.
5	Unknown	There are insufficient data on which to assess significance.
6	Positive	Impacts are beneficial

(Adopted from ECC-Namiba, 2017)

Table 4: Environmental Impacts and Aspects Assessment

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
TOPOGRAPHY	Landscape Scenery	Visual aesthetic impact	Construction and Operation	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Minor	Tower construction
SOIL	Soil	Contamination to soil from paints and other potentially hazardous substances	Construction and Operations	Moderate	Small	Local	Direct	Low <25%	Minor	Tower
	Soil	Spillages of fuel, oil and lubricants.	Construction	Short	Small	Local	Direct	Low <25%	Minor	Tower and Access Road construction
	Soil	Erosion	Construction	Moderate	Small	Local	Direct	Low <25%	Minor	Tower and Access Road construction
LAND CAPABILITY	Terrestrial ecology	Change in land use	Construction and Operations	Permanent	Great	Local	Direct	Low <25%	Moderate	Tower
	Carrying capacity	Increase in human activities in the environment	Construction and Operations	Moderate	Moderate	Regional	Direct	Low <25%	Minor	Tower
WATER	Surface water quality	Water pollution from oils, lubricants and chemicals spillages.	Construction and Operations	Moderate	Small	Local	Direct	Medium 25 - 75%	Moderate	Construction hydrocarbons
	Surface water quality	Turbidity and high sediment load	Construction	Moderate	Small	Local	Direct	Low <25%	Moderate	Construction hydrocarbons
AIR QUALITY	Air Quality	Construction phase dust	Construction	Short	Small	Local	Direct	Low <25%	Minor	Tower and Access Road construction
WASTE	Groundwater quality	Hazardous waste such as waste lubricants and stored chemicals may be release into the environment.	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Tower and Access Road construction
	Surface water quality	Threatened from chemicals being washed into nearby rivers	Construction and operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Tower and Access Road construction
	Surface water quality	Construction and Operational solid waste	Construction and operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Tower and Access Road construction and maintenance

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
FAUNA	Terrestrial ecology and biodiversity	Loss of habitat and driving away of local animals	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Tower and Access Road construction
	Terrestrial ecology and biodiversity	Destruction of vertebrate fauna (e.g. road kills; fence and powerline mortalities)	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Tower and Access Road
SOCIAL	Noise Pollution	Increased noise levels	Construction	Moderate	Small	Local	Direct	Low <25%	Minor	Tower and Access Road
	Socio Economic Activities	Temporary and permanent employment prospects.	Construction and operations	Long	Moderate	Regional	Direct	Medium 25 – 75%	Positive	Tower and Access Road
	Socio Economic Activities	Climate change impacts	Operations	Long	Moderate	Regional / National	Direct	High >75%	Positive	Tower and Access Road
	Contribution to National Economy	Employment, local procurement, duties and taxes.	Construction and Operations	Short	None	Regional / National	Direct	Low <25%	Positive	Tower and Access Road
HERITAGE	Artefacts, archaeological high value components	Destruction or affecting paleontological and archaeological artefacts	Construction and Operation	Moderate	Small	Local	Direct	Low <25%	Minor	Tower and Access Road
HEALTH AND SAFETY	Health Sanitation	Poor ablution and waste management facilities may be detrimental to human health.	Construction	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	Tower and Access Road
	Property and human life	Electrocution, fires resulting in fatalities, damage to properties, veldt fires and power surges.	Construction and Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Warehouse
	Natural Environment	Spillage/ release of chemicals into the environment	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower and Access Road
	Humans, Vegetation, Animals	Potential impacts from non-ionizing radiation propagated by masts.	Operation	Moderate	Small	Local	Direct	Low <25%	Minor	Tower

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
AVIAN IMPACTS	Air traffic	Air Traffic disturbances	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower
	Avifauna	**Bird fatalities**	**Operation**	**Moderate**	**Moderate**	**Local**	**Direct**	**Medium 25 – 75%**	**Moderate**	**Tower**
TRAFFIC	Access road	Vehicular accidents	Construction and Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Tower

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Environmental Management Plan (EMP)

Appendices