

APP-003586

PROJECT DETAILS

Title	Environmental Management Plan (EMP) for the installation and operation of five camouflage telecommunication towers within the municipality of Swakopmund, Erongo Region.		
HEEC Reference	HEEC0202022		
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1 OVERVIEW

1.1 Project Background

Demshi Investment Holdings (Pty) hereafter referred to as the proponent is of the intention to undertake the following development activities:

- **Environmental Impact Assessment (EIA) for the installation and operation of the five camouflage telecommunication towers within the municipality of Swakopmund, Erongo Region.**

The objective of the Environmental Assessment was in order to assess the potential social and environmental impacts associated with the installation and operation of the 5 camouflage telecommunication towers within the municipality of Swakopmund, Erongo Region and also to formulate methods of maintenance and continuous monitoring of the towers once erected and operational.

The above is a listed activity in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

In terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), the following listed activities in **Table 1** were triggered by the proposed development:

Table 1: List of triggered activities identified in the EIA Regulations which apply to the proposed project

Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 10.1 (Infrastructure)	(g) The construction of communication networks including towers, telecommunication and marine telecommunication lines and cable.	The proposed project includes the construction of telecommunication towers and fibre cable for commercial purpose.

The proponent commissioned this EIA and appointed Healthy Earth Environmental Consultants CC (HEEC) to undertake the necessary activities to enable an application for an Environmental Clearance with the Office of Environmental Commissioner as prescribed by the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012). In line with Regulation 21(2) of the mentioned EIA Regulations.

Locality

The proponent intends to install and operates five camouflage telecommunication towers within some of the neighbourhoods in the town of Swakopmund Erongo Region as indicated in **Table 2** below;

Table 2: The description of the proposed sites for the five camouflage telecommunication towers in some of the neighborhoods within the townland of Swakopmund, Erongo Region.

Location	Erf Number	Erf Size	BTS Size
DRC	8664	1 739	100 m ²
Tamariskia	1248	26 135	100 m ²
Mondesa	4653	TBD	100 m ²
Ocean View	5031	3 999	100 m ²
Tulinawa	7238	1520	100 m ²



Figure 1-1: Location of proposed BTS sites in Swakopmund

1.2 Purpose of the EMP

Regulation 8 of the Environmental Management Act's (EMA) (7 of 2007) Environmental Impact Assessment Regulations (2012) requires that a draft Environmental Management Plan (EMP) be included as part of the scoping Environmental Assessment (EA) process. A 'management plan' is defined as:

"...a plan that describes how activities that may have significant effects on the environment are to be mitigated, controlled and monitored."

An EMP is one of the most important outputs of the EA process as it synthesises all the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EIA Process and the required environmental management on the ground during project implementation and operation. It is important to note that an EMP is a legally binding document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This EMP is a living document and should be amended to address project changes and/or environmental conditions and feedback from compliance monitoring.

The purpose of this document is therefore to guide environmental management throughout the following life-cycle stages of the proposed development, namely planning and design, construction, operation and maintenance and if considered, decommissioning.

The following phases are addressed in this EMP:

- **Planning and design** - the period, prior to the construction phase, during which preliminary legislative and administrative arrangements are carried out in preparation of construction activities;
- **Construction phase** – during this phase, the tower and its related infrastructure will be constructed;
- **Operation and maintenance** - the period during which the tower and its related infrastructure will be operational and maintained as necessary.
- **Decommissioning** – Should the tower be decommissioned; this phase will be implemented.

1.3 Environmental Assessment Practitioner (EAP)

Healthy Earth Environmental Consultants CC ("HEEC" hereafter) have been appointed by Demshi Investment Holdings (Pty) Ltd ("Demshi or Proponent" hereafter) as independent environmental consultants to conduct the required Environmental Assessment (EA). This includes the compilation of an EMP for the proposed development. The EMP is to be submitted with the Scoping EA Report to apply for an Environmental Clearance Certificate (ECC). The application will be submitted to the Environmental Commissioner at the Department of Environmental Affairs (DEA) of the Ministry of Environment Forestry and Tourism (MEFT). The EMP will also be used by Contractors and Engineers, as well as the Proponent, in guiding them during the construction and operation of the towers to ensure that impacts on the environment are limited or avoided altogether.

1.4 Legal Requirements

The contents of the EMP must meet the requirements Section 8 (j) of the EIA Regulations. The EMP must address the potential environmental impacts of the proposed activity on the environment throughout the project life cycle. It must also include a system for assessment of the effectiveness of monitoring and management arrangements after implementation. Demshi therefore has the responsibility to ensure that the proposed activities, as well as the EIA process, conforms to the principles of EMA. Any contractors appointed by Demshi must also comply with such principles.

Under the 2012 Environmental Impact Assessment (EIA) Regulations of the Environmental Management Act (7 of 2007), the proposed development is a listed activity that may not be undertaken without an Environmental Clearance Certificate (ECC). This activity is listed under the following section:

"10.1 (g) The construction of masts of any material or type and of any height, including those used for telecommunication, broadcasting, and radio transmission."

Table 1-1 below lists the applicable and relevant Namibian legislations and other international guidelines for this specific EA process

Table 1-1: Applicable and relevant Namibian legislations and other international guidelines for this specific EA process

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). Details principles which are to guide all EAs.	The EMA and its regulations should inform and guide the EA process.
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21). Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
The Constitution of Namibia Act No. 1 of 1990	According to Legal Assistance Centre (LAC), there is no clear right to health in the Namibian Constitution. But under the Article 95 of the Namibian Constitution that deals with Principles of State Policy, the Namibian Constitution states “the state shall enact legislation to ensure consistent planning to raise and maintain an acceptable standard of living for the country’s people” and to improve public health.	The Proponent should ensure compliance with the conditions set in the Act.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Namibian Communications Act 8 of 2009	Provides for the regulation of telecommunications services and networks, broadcasting, postal services and the use and allocation of radio spectrum; for that purpose the establishment of an independent Communications Regulatory Authority of Namibia; to make provision for its powers and functions; the granting of special rights to telecommunications licensees; the creation of an Association to manage the .na internet domain name space and for matters connected therewith.	Provides the standards for setting up cellular, wireless and satellite services.
Local Authorities Act (No. 23 of 1992)	Provides for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters.	The Swakopmund Municipality is the responsible Local Authority of the area in which the proposed development will be located, and they have been consulted for this EA.
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.	To determine the "safe distance" around the site.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
<p>"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 Protection (ICNIRP))</p>	<p>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.</p>	<p>Justifies the need for assessing the impact of electromagnetic radiation from the antennae, on the nearby residents.</p>
<p>The Aviation Act, Act 74 of 1962</p>	<p>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 structures in Namibia.</p>
<p>Namibian Civil Aviation Regulations, 2001</p>	<p>Section 139:01.34 outlines the obstacle limitations and marking outside aerodromes</p>	<p>The proposed project should adhere to the limitations outlined in the act.</p>
<p>Convention on International Civil Aviation, Annex 14</p>	<ul style="list-style-type: none"> Annex 14 to the Convention on International Civil Aviation. Chapter 4: Obstacle restrictions and removal Chapter 6: Visual aids and donating of obstacles 	<p>The proposed new structures may be obstacles to some aerodromes in Namibia. Those that are close to existing aerodromes need to be assessed in accordance with the document. Visual aids to the new structures to make them visible to aircraft need to be applied in accordance with this Convention.</p>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Labour Act (No. 6 of 1992)	Ministry of Labour (MOL) 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 insures effective implementation of the Labour Act no. 6 of 1992.	Demshi should ensure that construction, operation and maintenance of the towers, the safety and welfare of workers are not compromised.

1.5 Assumptions and Limitations

This EMP has been drafted with the acknowledgment of the following assumptions and limitations:

- This EMP has been drafted based on the scoping-level Environmental Assessment (EA) conducted for the installation and operation of the five camouflage telecommunication towers within the municipality of Swakopmund, Erongo Region. No specialist studies were included as part of the assessment; and
- The mitigation measures recommended in this EMP document are based on the risks/impacts in the Scoping Report. These impacts were identified based on the provided project description and anticipated project impacts. Should the scope of the project change, the risks will have to be reassessed and mitigation measures provided accordingly.

1.6 Report Structure

This EMP lays out the management actions for the proposed sites in Swakopmund (Table 2) of the Erongo Region. The EMP addresses the following phases:

- **Planning and design** - the period, prior to construction, operation and maintenance, during which preliminary legislative and administrative arrangements are carried out in preparation for the construction of the infrastructure (tower);
- **Construction phase** – during this phase the services infrastructure (electricity cables), the tower and its related infrastructure will be constructed;
- **Operation and maintenance phase** - the period during which the tower and its related infrastructure will be operational, and maintenance is conducted by the proponent as deemed necessary; and
- **Decommissioning phase:** the period during which the proponent may decide to discontinue the operations of the tower and the associated infrastructure. The modern world is advancing on a daily basis, and there will always be a need for improved mobile services, hence the decommissioning of the infrastructure is not anticipated at this stage. Regardless, mitigation measures will be provided.

2 ROLES AND RESPONSIBILITIES

Demshi Investment Holdings (Pty) Ltd is ultimately responsible for the implementation of the EMP. The Proponent may delegate this responsibility at any time, as they deem necessary, from operation and maintenance phase and decommissioning phase (if considered). The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals which may be fulfilled by the same person:

- Proponent's Representative; and/or
- Environmental Control Officer.

2.1 Proponent's Representative

If the Proponent does not personally manage all aspects of the planning and design, construction and operation and maintenance phase activities and decommissioning, referred to in this EMP, they should assign this responsibility to a suitably qualified individual referred to in this plan as the Proponent's Representative (PR). The Proponent may decide to assign the role of a PR to one person for both phases. Alternatively, the Proponent may decide to assign a separate PR for each component i.e. planning and design, construction, operation and maintenance and decommissioning phase. The PR's responsibilities, included in **Table 2-1**, are as follows:

Table 2-1: Responsibilities assigned to the Proponent's Representative for planning and design, construction, operation and maintenance and decommissioning phases

Responsibility	Project Phase
Managing the implementation of this EMP and updating and maintaining it when necessary.	Throughout the lifetime of the project.
Management and monitoring of individuals and/or equipment on-site in terms of compliance with this EMP.	Throughout the lifetime of the project.
Issuing fines for contravening EMP provisions.	Throughout the lifetime of the project.

2.2 Environmental Control Officer

The Proponent should assign the responsibility of overseeing the implementation of the whole EMP on the ground from the planning and design phase to operation and maintenance and decommissioning phase to an independent consultant, referred to in this EMP as the Environmental Control Officer (ECO). The Proponent may decide to assign this role to one person for both phases or may assign separate individual ECOs to oversee EMP implementation during each phase. The ECOs will have the following responsibilities:

- Management and facilitation of communication between the Proponent, PR and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting site inspections (recommended minimum frequency is weekly during construction period and bi-annually during the operation and maintenance and decommissioning) of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP);
- Advising the PR on the removal of person(s) and/or equipment not complying with the provisions of this EMP;
- Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP; and
- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

3 ENVIRONMENTAL MANAGEMENT PLAN ACTIONS

3.1 Key Potential environmental impacts to be managed

From the EA, the following key potential negative impacts have been identified per project phase and are summarised in **Table 3-1** below.

Table 3-1: Summary of key potential environmental impacts per project phase

	Project Phase	Potential negative impacts identified in the EA
1	Planning and Design	Design and planning failures.
2	Construction	Disturbance to surrounding property owners, health and safety, waste generation, dust and noise impacts.
3	Operation and maintenance	Health and safety (radiation emission) and civil aviation impacts.
4	Decommissioning	Loss of better cellular network coverage, removal of infrastructure, health and safety and waste handling and disposal from site.

The aim of the management actions of the EMP is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

Management actions recommended to manage the potential impacts rated in the EA carried out for the proposed antennae construction are presented in the following tables. The management actions were compiled based on the four project phases:

- Planning and design phase (**Table 3-2**);
- Construction phase (**Table 3-3**);
- Operation and maintenance phase management actions (**Table 3-4**); and
- Decommissioning phase (**Table 3-5**).

The responsible persons at Demshi should assess these commitments in detail and should acknowledge their responsibility to the specific management actions detailed in the table of the next subchapters.

3.2 Phase 1: Planning and Design Management Actions

Since the proponent is responsible for the construction of the sites, the management requirements detailed in **Table 3-2** need to be carried out before any construction works. Necessary preliminary legislative and administrative arrangements should be made in preparation for the operation of the proposed development. These management requirements are also applicable for the period during which engineering designs/drawings are carried out.

Table 3-2: Planning and design management actions

Aspect	Management Requirement	Responsibility	Timeframes
Tower and associated Equipment Design	<ul style="list-style-type: none"> The design standards to be applied to the associated equipment which produces the telecommunication signals should comply with the internationally accepted public exposure guidelines. 	Proponent	Pre-construction phase
Labour Recruitment	<ul style="list-style-type: none"> It is anticipated that Demshi will utilize its own workforce. However, should there be a need to employ additional labourers it is recommended that local labour be recruited for unskilled or semi-skilled labour; Recruitment should not be done at the project site. 	Proponent	Ongoing
Construction schedule	<ul style="list-style-type: none"> A convenient construction work/schedule should be prepared and be shared with the surrounding property owners. This will ensure that the surrounding property owners are aware of when to expect the construction team at the site. 	Proponent	Pre-construction

Aspect	Management Requirement	Responsibility	Timeframes
EMP Implementation	<ul style="list-style-type: none">Demshi needs to appoint a Proponent's Representative (PR) that will act as their on-site implementing agent. This person should be responsible to ensure that the Proponent and Contractor's responsibilities are executed in compliance with relevant legislation and this EMP.	Proponent	Ongoing
Agreement with affected landowners	<ul style="list-style-type: none">Demshi to ensure that permission is granted in writing by the landowners to erect the structures on the site prior to commencing construction.	Proponent	Pre-construction

3.3 Phase 2: Construction Phase Management Actions

The management actions for the construction phase are listed in Table 3-3.

Table 3-3: Construction phase management actions

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
EMP training	Lack of EMP awareness and the implications thereof	<ul style="list-style-type: none"> Employees appointed for construction work on respective infrastructure must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work. Comprehensive induction forms a critical component during the construction and operational period. This includes the following: <ul style="list-style-type: none"> Ensuring that all employees are aware of their individual impact on the environment. Ensuring that preventative measures and procedures are undertaken in order to reduce the risk of a potential impact. 	Environmental Control Officer and Contractor	Ongoing

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
Monitoring	EMP non-compliance	<ul style="list-style-type: none"> The PR should monitor the implementation of this EMP. The ECO should inspect the site throughout the construction period and after completion. 	Proponents Representative and Environmental Control Officer	Ongoing
Health and Safety	Health and Safety	<ul style="list-style-type: none"> Construction workers should be trained on how to handle materials and equipment on site (if they do not already know how to) in order to avoid injuries. The contractor(s) should ensure that all personnel are provided with personal protective equipment (PPE), such as gloves, safety boots, safety glasses and hard hats at all times during construction hours on site. No workers should be allowed to drink alcohol during working hours. No workers should be allowed on site if under the influence of alcohol. 	Proponents Representative and Contractor	Ongoing
Waste Management		<ul style="list-style-type: none"> The construction site should be kept tidy at all times. 	Proponents Representative and Contractor	Ongoing

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
		<ul style="list-style-type: none"> All domestic and general construction waste produced on a daily basis should be cleaned and contained daily. No waste may be buried or burned on site or anywhere else. Waste containers (bins) should be emptied after the construction and removed from site to the municipal waste disposal site. Separate waste containers (bins) for hazardous and domestic / general waste must be provided on site. Construction labourers should be sensitized to dispose of waste in a responsible manner and not to litter. No waste may remain on site after the completion of the project. The proponent should investigate and utilise possible methods for recycling waste generated on site. 		
Construction labourers		<ul style="list-style-type: none"> Construction workers will be transported, in a bus (or similar suitable passenger vehicle) to and from site. 	Proponents and representative Contractor	Ongoing
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Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
		<ul style="list-style-type: none"> If the construction team is not allowed to use the toilets available on site, portable toilets (i.e. easily transportable) should be available at a ratio of at least 1 toilet per 10 workers. No workers may reside on-site for the entire duration of the construction period. No cooking on site to prevent the risk of fires. 		

3.4 Phase 3: Operation and Maintenance Management Actions

The table below (Table 3-4) presents the management action for the operation and maintenance phase.

Table 3-4: Operation and maintenance phase management actions

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Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
EMP training	Lack of EMP awareness and the implications thereof	<ul style="list-style-type: none"> Employees appointed for operation and maintenance on respective site infrastructure and services must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work. 	Environmental Control Officer and Contractor	Ongoing
Monitoring	EMP non-compliance	<ul style="list-style-type: none"> The PR or the Proponent should monitor the implementation of this EMP. The ECO(s) should inspect the site operation throughout the operation on a biannual basis. 	Proponents Representative, and Proponent Environmental Control Officer	Ongoing
Health and Safety	Electromagnetic Radiation (EMR) emission	<ul style="list-style-type: none"> Demshi should ensure that the associated telecommunication infrastructure and equipment to be mounted on their tower and its EMR are within the international standards of The Atomic Energy and Radiation Protection Act, Act 5 of 2005 and Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (April 1998 developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP)). 	Proponent	Ongoing

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
		<ul style="list-style-type: none"> • Proof of the above is to be supplied to Demshi by the applicants that wish to mount their equipment on the tower. • Demshi should adopt cautionary policies, and in particular the Precautionary Principle. This approach should be adopted in such a manner to optimize the benefits that is derived from the technology while also providing protection to allay the fears of those for which the State has responsibility to protect. • The National Radiation Protection Authority should be involved during this phase (operational) to assess the possible emissions from antennae. 		
Civil aviation	Civil aviation impact	<ul style="list-style-type: none"> • Demshi should ensure that no other high projections/extensions will be added on top of the antennae that may compromise the aerodrome (civil aviation) safety. • Demshi should ensure that the structures adhere to the Namibia Civil Aviation Regulations (NAMCARS) Part 139 Aerodomes and Heliports: licencing and Operation. 	National Authority of Namibia Proponent	Ongoing Ongoing

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
		<ul style="list-style-type: none">In the case that Demshi will need to increase the height of the tower or add additional infrastructure on top of the tower, prior consultations should be made with Civil Aviation Department to ensure that the new infrastructure does not interfere with civil aviation operations.		

3.5 Phase 4: Decommissioning Management Actions

The table below (Table 3-5) presents the management action for decommissioning phase.

Table 3-5: Decommissioning phase management actions

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
Tower Decommissioning	Loss of better mobile network coverage	<ul style="list-style-type: none"> The proponent should ensure that the mobile coverage is not compromised, by putting up an alternative cellular infrastructure. 	Proponent	Pre-decommissioning
Health and Safety	Health and Safety during removal of infrastructure	<ul style="list-style-type: none"> Construction workers should be trained on how to handle materials and equipment on site (if they do not already know how to) in order to avoid injuries. The contractor(s) should ensure that all personnel are provided with personal protective equipment (PPE), such as gloves, safety boots, safety glasses and hard hats at all times during construction hours on site. <ul style="list-style-type: none"> No workers should be allowed to drink alcohol during working hours. No workers should be allowed on site if under the influence of alcohol. 	Proponents Representative and Contractor	Ongoing

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
Waste Management	Waste handling and removal during removal of infrastructure	<ul style="list-style-type: none"> The construction site should be kept tidy at all times. All domestic and general construction waste produced on a daily basis should be cleaned and contained daily. No waste may be buried or burned on site or anywhere else. Waste containers (bins) should be emptied after the construction and removed from site to the municipal waste disposal site. Separate waste containers (bins) for hazardous and domestic / general waste must be provided on site. Construction labourers should be sensitised to dispose of waste in a responsible manner and not to litter. No waste may remain on site after the completion of the project. It is recommended that the recycling and re-use of removed infrastructure should be explored and implemented. 	Environmental Officer and Contractor	Ongoing

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
Construction labourers		<ul style="list-style-type: none">Construction workers will be transported, in a bus (or similar suitable passenger vehicle) to and from site.If the construction team is not allowed to use the toilets available on site, portable toilets (i.e. easily transportable) should be available at a ratio of at least 1 toilet per 10 workers.No workers may reside on-site for the entire duration of the construction period.No cooking on site to prevent the risk of fires.	Proponents Representative and Contractor	Ongoing

4 CONCLUSIONS

HEEC has provided practical mitigation measures and monitoring regimes for all phases of the proposed telecommunication tower developments. Should the mitigation measures provided within this EMP be implemented effectively, HEEC is of the opinion that no significant environmental or social impacts will be generated.