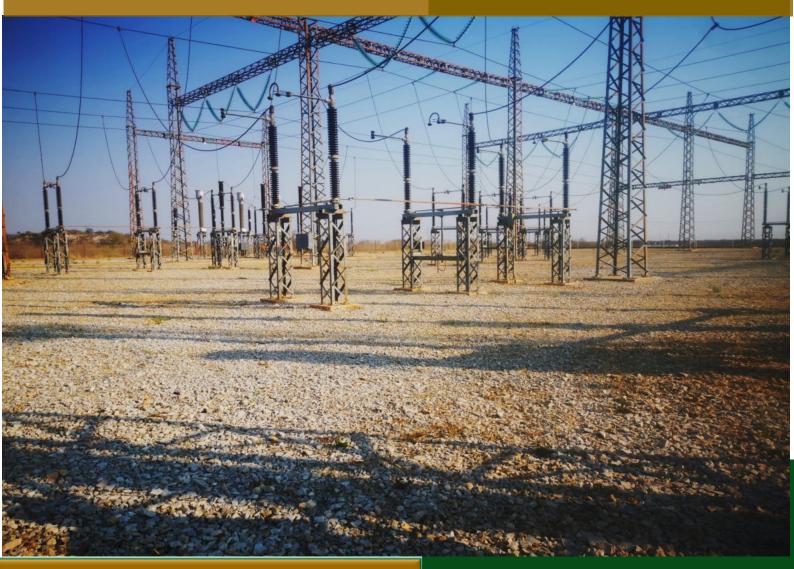
## 2023

# THE ENVIRONMENTAL MANAGEMENT PLAN FOR THE OPERATION, MAINTENANCE AND UPGRADE OF OTJIKOTO TRANSMISSION STATION IN OSHIKOTO REGION



This document is prepared by:

Namibia Power Corporation (Proprietary) Limited NamPower Center 15 Luther Street, Windhoek P.O. Box 2864, Windhoek, Namibia

Tel: +264 (61) 205 4111

August 2023



#### **Table of Contents**

1	LIST OF TERMS, ACRONYMS AND ABBREVIATIONS	2
2	BACKGROUND	3
3	OBJECTIVES OF THIS ENVIRONMENTAL MANAGEMENT PLAN (E	MP) 4
4	POLICY AND LEGISLATIVE FRAMEWORK	5
5	ROLES AND RESPONSIBILITIES	9
6	DESCRIPTION OF OPERATIONAL ACTIVITIES TO BE UNDERTAKE	EN. 12
7	MANAGEMENT AND MITIGATION MEASURES	15
8	REPORTING, MONONITORING AND AUDITING	24
9	NON-COMPLIANCE AND CONFLICT MANAGEMENT PROCEDURE	S25
10	RECORD KEEPING	25
11	CONCLUSION	26
12	ANNEXURES	27
Sectio	n A: Before activities commence	27
Acti	ivities to be undertaken on the property (completed by the contractor):	27
	ecific conditions to be MEFT on the property (as stipulated by the landowr	,
Sectio	n B: Upon completion of work and prior to leaving the property	28
Ren	marks on compliance or misconduct (upon completion of activities):	28

## 1 LIST OF TERMS, ACRONYMS AND ABBREVIATIONS

EAP Environmental Assessment Practitioner

ECC Environmental Clearance Certificate

EIA Environmental Impact Assessment

EMA Environmental Management Act no 7 of 2007

EMP Environmental Management Plan

ISO International Organization for Standardization

MET Ministry of Environment and Tourism

NAMPOWER Namibia Power Corporation (Proprietary) Limited

OEMP Operational Environmental Management plan

SHEW Safety, Health, Environment and Wellness

#### 2 BACKGROUND

The Otjikoto transmission station is part of NamPower's electricity transmission system that transform voltage from high to low, or vice versa, or perform any of several other important functions. Otjikoto substation is located about 8 km on the outskirt of Tsumeb Town. The substation is about 300m from the A1 road and is located in an area with anthropogenic disturbances such as roads, transmission lines, and farms. Figure 1 below shows the locality map for Otjikoto Substation.



Figure 1: Locality map showing Otjikoto substation

Otjikoto Substation is an in and out transmission station and is one of NamPower's big and very important substations, with many transmission lines connecting to it. The lines connecting to the substation are: 132kV Otjikoto – Rundu; 132kV Otjikoto – Okatope; Otjikoto – Ohorongo; 220 kV Gerus – Otjikoto; 132kV Otjikoto – Copper; 66kV Otjikoto – Tschudi; 66 kV Otjikoto – Grootfontein; Otjikoto – Asis West; Otjikoto – Kombat and Otjikoto – Tsumeb. The substation covers a footprint of about 53 000 m².

The operation of the substation can have both positive and negative impact on the environment. However, the negative impacts are limited to the substation it is thus important that good management measures are implemented to ensure that environmental damage is minimised. This Environmental Management Plan (EMP) seeks to manage and keep to a minimum the negative impacts associated with the substation and at the same time, enhance the positive and beneficial impacts. The scope of this EMP include all activities associated with the operation, maintenance and upgrade of the substation. It is necessary to highlight that the EMP is a living document that should be periodically reviewed and updated. It must also be noted that the EMP should be read in conjunction with laws and regulations outlined in Table 1.

#### 3 OBJECTIVES OF THIS ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The aim of this operational EMP is to detail the management actions required to implement the mitigation measures identified thereby ensuring that any operational phase activity is carried out in a manner that takes cognisance of environmental protection and is in line with National legislation.

This EMP has the following objectives:

- To outline mitigation measures to be implemented during the operation phase,
   in order to manage and minimize the extent of environmental impacts.
- Minimize negative impacts and enhance positive impacts associated with the operations.
- To ensure that the operational activities do not result in undue or reasonably avoidable adverse environmental impacts, and ensure that any potential environmental benefits are enhanced.
- To identify key personnel who will be responsible for the implementation of the measures, outline functions and responsibilities.
- To propose mechanisms for monitoring compliance and preventing long term or permanent environmental degradation.

- To ensure that the concerns and complaints of Interested and Affected Parties (I&APs) with regards to the operational activities are addressed effectively and timely.
- Ensure compliance to legislative requirements.

#### 4 POLICY AND LEGISLATIVE FRAMEWORK

Table 1 The legislative requirements which are applicable to the operational phase of this substation include but not limited to the ones outlined in the table below:

Legislation:	Section (s)	Implications:
	applicable:	
Environmental	Section 3	All activities performed should be in line
Management Act no 7 of		with the following principles:
2007		
		<ul> <li>Interested and affected parties</li> </ul>
		should have an opportunity to
		participate in decision making
		<ul> <li>Listed activities should be subject to</li> </ul>
		an EIA
		<ul> <li>Polluter should pay for rehabilitation</li> </ul>
		<ul> <li>Pollution should be minimized</li> </ul>
		Environmental assessments should be
	Section 27	carried out for listed activities. The
		proposed activity can be classified under
		the following range of activities:
		the following range of activities.
		<ul> <li>Generation of electricity</li> </ul>
		<ul> <li>Transmission of electricity</li> </ul>
	Section 33 onwards	
	And all other	These sections details the process to be
	, and an onlo	followed in order to obtain a clearance

EMA Regulations GN 28- 30 (GG 4878) (February	<ul><li>applicable sections.</li><li>Listed activity:</li><li>5.1</li></ul>	<ul> <li>All existing listed activities must obtain a clearance certificate within one year of the law coming into effect. Therefore, all existing activities which can be considered a listed activity should apply for clearance.</li> <li>This activity can be considered as electricity generation and transmission.</li> </ul>
2012)	<ul> <li>6 - 9; 13; 15; 21 -24</li> <li>Any other applicable sections</li> </ul>	These sections details the process to be followed in terms of producing an Environmental Assessment and this process should be adhered to during the generation of information for this document.
No. 156 Labor Act, 1992: Regulations relating to the health and safety of employees at work.	All applicable regulations	All regulations applicable to different activities must be complied with.
Labor Act no 11 of 2007	<ul> <li>Section 3</li> <li>Section 4</li> <li>Section 9</li> <li>Section 39 – 42</li> <li>All other applicable sections</li> </ul>	<ul> <li>Children under the age of 16 may not be employed</li> <li>Forced labor may not be used.</li> <li>Basic conditions of employment as stipulated by the law must be met.</li> <li>The employer shall ensure the health and safety of all employees and non-employees on site. Employees must fulfil their duties in order to ensure their own health and safety and that of other employees and persons. Employees may leave the work site if reasonable measures to protect their health are not taken.</li> </ul>
Electricity Act no 4 of 2007	Section 33	Installations used for the provision of electricity

		should be operated with due compliance with the requirements of laws relating to health, safety and environmental standards. Therefore — any company involved within the Electricity Supply Industry must adhere to the laws covering the previously stated aspects or stand to lose their licenses to operate.
Water Act no 54 of 1956	<ul> <li>Section 21 and 132</li> <li>Section 23</li> <li>All other sections applicable to different activities.</li> </ul>	<ul> <li>Conditions in terms of the disposal and management of effluent are to be adhered to.</li> <li>Any person causing pollution to a water source shall be guilty of an offence.</li> </ul>
Public and Environmental Health Act no 1 of 2015	<ul> <li>Section 52</li> <li>Section 53</li> <li>All other sections applicable to different activities.</li> </ul>	<ul> <li>A person generating waste must ensure that the waste generated is kept and stored under conditions that causes no harm to human health or damage to the environment.</li> <li>Waste must only be disposed of at a waste disposal site, including an incinerator approved by the local authority concerned.</li> </ul>
Water Resources Management Act no 24 of 2013	<ul> <li>Section 89</li> <li>All other sections applicable to different activities.</li> </ul>	The owner or occupier or other person in control of land where an incident that causes or is likely to cause a water resource to be polluted must take all reasonable measures to contain and minimize the effects of the incident; and to clean up polluted areas and remedy the effects of the incident.
Hazardous Substances Ordinance 14 of 1974	<ul> <li>Section 27</li> <li>All other sections applicable to different activities.</li> </ul>	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.  Fertilizers, farm feeds, agricultural remedies and stock remedies Act no 36 of 1947  Section 7  Section 7  All other sections applicable to different activities.  All other sections applicable to different activities.  All other sections application to different activities.  Chapter 11: Game Parks, Nature Reserves, Conservancies and Wildlife  Nature Conservation Amendment Act of 1996.  All Wildlife dividing information of such substances; into groups in relation to the degree of danger;  To provide for the division of such substances into groups in relation to the degree of danger;  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 the prohibition and control of the importation, manufacture, sale, use, operation, application, and importation is defined as an agricultural remedy under this Act only be used.  Only registered pesticide may be used.  May only buy herbicides in a container that complies with the prescribed requirements and is sealed and labelled.  Only allowed to use herbicides in the prescribed manner.  Land owners must be notified about applications, and the following information must be supplied:  Purpose of administration  Registered name and number of the product  Precautions to be taken before, during and after each administration.			
agricultural remedies and stock remedies Act no 36 of 1947  Section 7  Section 7  May only buy herbicides in a container that complies with the prescribed requirements and is sealed and labelled.  All other sections applicable to different activities.  All owners must be notified about applications, and the following information must be supplied:  Purpose of administration  Registered name and number of the product  Precautions to be taken before, during and after each administration.  The Nature Conservation Ordinance (1975) as amended through the Nature Conservation Amendment Act of 1996.  Amendment Act of 1996.  Activities agricultural remedy under this Act  Only registered pesticide may be used.  Nay only buy herbicides in a container that complies with the prescribed requirements and is sealed and labelled.  Only allowed to use herbicides in the prescribed manner.  Land owners must be notified about applications, and the following information must be supplied:  Purpose of administration  Registered name and number of the product  Precautions to be taken before, during and after each administration.  The Nature Conservation Parks, Nature Parks, Nature Reserves, Conservancies and Wildlife geological, ethnological, archaeological,			<ul> <li>To provide for the division of such substances into groups in relation to the degree of danger;</li> <li>To provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and</li> </ul>
Section 7     Section 7     May only buy herbicides in a container that complies with the prescribed requirements and is sealed and labelled.      All other sections applicable to different activities.      Purpose of administration      Registered name and number of the product      Precautions to be taken before, during and after each administration.  The Nature Conservation Ordinance (1975) as amended through the Nature Conservation Amendment Act of 1996.      Section 7      May only buy herbicides in a container that complies with the prescribed requirements and is sealed and labelled.      Only allowed to use herbicides in the prescribed manner.      Land owners must be notified about applications, and the following information must be supplied:      Purpose of administration      Registered name and number of the product      Precautions to be taken before, during and after each administration.  The Nature Conservation  Ordinance (1975) as amended through the Nature Conservacion Amendment Act of 1996.  Only allowed to use herbicides in the prescribed manner.  Land owners must be notified about applications, and the following information must be supplied:  Permits are required to enter the National Park.  Permits are also required for the removal of any protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological,	agricultural remedies and	<ul> <li>Definitions</li> </ul>	. ,
Section 10     Section 10     Section 10     Section 10     All other sections applicable to different activities.     Purpose of administration     Registered name and number of the product     Precautions to be taken before, during and after each administration.  The Nature Conservation Ordinance (1975) as amended through the Nature Conservation Amendment Act of 1996.  Conservancies and Wildlife complex with the prescribed requirements and is sealed and labelled.  Only allowed to use herbicides in the prescribed manner.  Land owners must be notified about applications, and the following information must be supplied:  Purpose of administration  Registered name and number of the product  Precautions to be taken before, during and after each administration.  Permits are required to enter the National Park. Permits are also required for the removal of any protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological,		Section 7	
<ul> <li>All other sections applicable to different activities.</li> <li>Purpose of administration</li> <li>Precautions to be taken before, during and after each administration.</li> <li>Permits are required to enter the National Park. Permits are also required for the removal of any protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological,</li> </ul>		Section 10	complies with the prescribed requirements and
<ul> <li>Land owners must be notified about applications, and the following information must be supplied:         <ul> <li>Purpose of administration</li> <li>Registered name and number of the product</li> <li>Precautions to be taken before, during and after each administration.</li> </ul> </li> <li>The Nature Conservation Ordinance (1975) as amended through the Nature Conservation Nature Conservation</li> <li>Reserves, Conservancies and Wildlife</li> <li>Conservancies and Wildlife</li> <li>Land owners must be notified about applications, and the following information must be supplied:         <ul> <li>Purpose of administration</li> <li>Precautions to be taken before, during and after each administration.</li> </ul> </li> <li>Permits are required to enter the National Park. Permits are also required for the removal of any protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological,</li> </ul>		<ul><li>All other</li></ul>	,
<ul> <li>Registered name and number of the product</li> <li>Precautions to be taken before, during and after each administration.</li> <li>The Nature Conservation Ordinance (1975) as amended through the Nature Conservation Nature Conservation Amendment Act of 1996.</li> <li>Chapter 11: Game Permits are required to enter the National Park. Permits are also required for the removal of any protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological,</li> </ul>		applicable to different	applications, and the following information
product Precautions to be taken before, during and after each administration.  The Nature Conservation Ordinance (1975) as amended through the Nature Conservation Nature Conservation Amendment Act of 1996.  Permits are required to enter the National Park. Permits are also required for the removal of any protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological,			<ul> <li>Purpose of administration</li> </ul>
after each administration.  The Nature Conservation Ordinance (1975) as amended through the Nature Conservation Nature Conservation Amendment Act of 1996.  Chapter 11: Game Permits are required to enter the National Park. Permits are also required for the removal of any protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological,			
Ordinance (1975) as mended through the Nature Conservation Amendment Act of 1996.  Parks, Nature Permits are also required for the removal of any protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological,			, ,
amended through the Nature Conservation Amendment Act of 1996.  Reserves, protected plant or tree. It also stipulates that no damage may be done to any object of geological, ethnological, archaeological,	The Nature Conservation	Chapter 11: Game	Permits are required to enter the National Park.
Nature Conservation Conservancies damage may be done to any object of Amendment Act of 1996. and Wildlife geological, ethnological, archaeological,	,	ŕ	
Amendment Act of 1996. and Wildlife geological, ethnological, archaeological,	j –	ŕ	
historical or other scientific interest without the			

	Councils	appropriate permits.
National Heritage Act No 27 of 2004	<ul> <li>Section: 46, 48, 55</li> <li>All other sections applicable to different activities.</li> </ul>	<ul> <li>All heritage resources are to be identified and either protected or removed/mitigated with a permit from the National Monuments Council, before any development may take place</li> <li>A chance find procedure should be followed in case of discovery of a heritage resource.</li> </ul>
Soil Conservation Act no 76 of 1969	<ul> <li>Section 4</li> <li>Section 13</li> <li>Section 21</li> <li>And other applicable sections</li> </ul>	<ul> <li>Institutions may be ordered by the relevant         Minister to construct soil conservation works         when and where necessary.</li> <li>Fire protection schemes may be implemented         to regulate the prohibition of veld burning as         well as the prevention, control and         extinguishing of veld and forest fires.</li> <li>It is illegal to damage, destroy / fail to         maintain any soil conservation works; fire         belts; works constructed in terms of a fire         protection scheme.</li> </ul>
Forest Act no 12 of 2001	<ul> <li>Section 132</li> <li>Section 41</li> <li>And other applicable sections</li> </ul>	<ul> <li>Vegetation may not be removed within 100 m of a river, stream or water course</li> <li>A person shall be liable for damage caused by any fire which arises as a result of activities carried out on site without having taken reasonable measures to prevent a fire.</li> </ul>

#### **5 ROLES AND RESPONSIBILITIES**

It is the responsibility of NamPower to ensure that all the environmental management actions are carried out effectively and timeously. It is important to note that the successful implementation of the EMP is, however dependent on clearly defined roles and responsibilities by several stakeholders. Below are the key employees that are responsible for the management of environmental and social issues during the

## operational phase:

Table 2: The roles and responsibilities for operational activities:

Responsible person	Responsibilities
The Area Superintendent	Is responsible for the enforcement of the EMP
	<ul> <li>To ensure that environmental requirements are adequately covered in any external service provider contracts.</li> </ul>
	<ul> <li>To ensure that SHE requirements are included in the tender documents sent to the contractors. A copy of this EMP should also form part of the tender documents.</li> </ul>
	<ul> <li>To ensure that corrective actions are implemented for non- compliances.</li> </ul>
	<ul> <li>To ensure that appropriate records and information regarding compliance with environmental requirements are maintained.</li> </ul>
	<ul> <li>To ensure that the line and substation remain in compliance with the requirements of this EMP, through regular communication and monitoring.</li> </ul>
	<ul> <li>To ensure that all incidents, accidents and complaints are reported. To also ensure that incidents, accidents and incidents are investigated to prevent re-occurrence.</li> </ul>
Project Manager	Is responsible for the enforcement of the EMP.
	<ul> <li>To ensure that SHE requirements are included in the tender documents sent to the contractors.</li> </ul>
	<ul> <li>Must ensure that the contractor remains in compliance with the requirements of this EMP.</li> </ul>
	<ul> <li>To ensure that all incidents, accidents and complaints are reported. To also ensure that incidents, accidents and incidents are investigated to prevent re-occurrence.</li> </ul>

## NamPower SHEW To ensure that all requirements with regards to this EMP are fulfilled. Communicate NamPower SHEW requirement to the contractors and NamPower employees. Provides SHEW inductions to NamPower and contractor employees. Implement monitoring, conduct inspections and audits in consultation with the Project Manager/Area Superintendent. Document and communicate monitoring, audit and inspection findings to project manager and area superintendent. Communicate the final inspection report to the Project manager on contractor compliance to the EMP before the project close-off and final payment is made to the contractor. Contractor Is responsible for the implementation of the EMP responsible appoint as SHE officer the implementation of this EMP. To ensure that all tasks undertaken under the scope of work, are in accordance both with NamPower's SHEW policies and procedures as well as to the requirements of this EMP. Ensure that employees are trained and awareness built relating to environmental and social management. To ensure that all incidents, accidents and complaints are reported to the project manager. The contractor to ensure that incidents, accidents and complaints are investigated to prevent re-occurrence. Ensuring that all employees receive a SHEW induction before the start of the project. Ensuring that the work being done does not create a

nuisance to any anyone working, residing or living on adjacent properties or within the immediate surroundings of the site.

#### 6 DESCRIPTION OF OPERATIONAL ACTIVITIES TO BE UNDERTAKEN

Table 3: Description of the activities related to the operational activities.

Activity	Description	Associated potential impacts		
General functioning of the substation	Physical presence and functional characteristics of the substation and associated lines.	<ul> <li>Bird mortalities through electrocution.</li> <li>Visual impact.</li> <li>Community impacts in a form fatalities or injuries caused by electrocution.</li> </ul>		
Maintenance of the substation	<ul> <li>The maintenance of the substation entails:</li> <li>General equipment repairs.</li> <li>Replacement of batteries servicing batteries.</li> <li>Maintenance of electrical equipment such as transformers, relays and capacitors.</li> </ul>	<ul> <li>Loss of biodiversity</li> <li>Social issues related to the introduction of new workers the area, e.g. HIV/AID spreading</li> </ul>		

	<ul> <li>Maintenance of electrical equipment such as transformers, relays and capacitors.</li> <li>Construction or repairing of access roads.</li> </ul>	
Construction	<ul> <li>Construction include the following activities:</li> <li>Construction of temporary or permanent buildings (digging and setting of foundations, digging of cable trenches).</li> <li>Extension of boundary fences</li> <li>Construction of additional feeder bays.</li> <li>Upgrade of electrical equipment (either in size, capacity or technology).</li> <li>Connection of new lines to Substations.</li> <li>Refurbishment of buildings.</li> <li>Personnel conduct in surrounding communities.</li> </ul>	<ul> <li>Noise emissions</li> <li>Dust emissions</li> <li>Introduction of new people in the area leading to the spread of diseases such as HIV/AIDS</li> <li>Soil and water contamination</li> <li>Waste generation</li> <li>Employment of casual workers</li> <li>Loss of biodiversity</li> <li>Loss of productive land</li> </ul>
Periodic inspections, monitoring,	Replacement, cleaning and maintenance of	<ul> <li>Soil and ground water contamination as a result of oil</li> </ul>

maintenance of the line.	substation components.	<ul> <li>spills</li> <li>Soil contamination as a result of improper waste handling and disposal.</li> <li>Veld fires.</li> </ul>
Hazardous Substances	<ul> <li>Storage of hazardous material;</li> </ul>	Possible oil spills and soil contamination due to transformer blow out.
Installation of Optic Fibre networks	<ul> <li>Design, Supply,         Delivery, Installation and             Commissioning of Optic             Fibre networks for             communication             purposes with National             Control.     </li> </ul>	Soil contamination as a result of improper waste handling and disposal.
Vegetation management	Selective herbicide application and manual weed removal	<ul> <li>Loss of biodiversity Soil and groundwater contamination.</li> <li>Water pollution.</li> <li>Possible employment opportunities if vegetation management is outsourced.</li> </ul>
Safety, Health and Environmental monitoring	<ul> <li>Periodic environmental monitoring and audits to assess compliance to management procedures, and EMP requirements.</li> </ul>	Littering

#### 7 MANAGEMENT AND MITIGATION MEASURES

In order to ensure that the potential impacts are eliminated and/or minimised, it is necessary to ensure that the various activities related to the operation of these s are adequately managed and monitored. Table 4 below outlines mitigation measures as well as objectives to be achieved. A responsible person (s) have been assigned to each mitigation measure (s).

Table 4: Proposed mitigation measures for the general operational activities

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
Safety Health and	All employees should undergo SHE induction before work commences	<ul> <li>Area</li> </ul>
Environmental (SHE)	onsite.	superintendent
Awareness	All employees are to be made aware of their individual roles and	<ul> <li>Project manager</li> </ul>
	responsibilities in achieving compliance with the EMP.	<ul> <li>Contractor</li> </ul>
	Environmental toolbox talks to be conducted and records to kept onsite.	
Safety Management	Develop and implement an occupational health and safety plan that	<ul><li>Area</li></ul>
	comprises key elements such as risk assessment and safe working	superintendent
	procedure.	<ul> <li>Project manager</li> </ul>
	All work activities to be done under the supervision of a competent	<ul> <li>Contractor</li> </ul>
	person.	
	<ul> <li>Appropriate warning signs must be placed on the facilities.</li> </ul>	
Fire Management	Eliminating the presence of potential sources of ignition and providing	<ul><li>Area</li></ul>
	appropriate equipment to minimize fire risk.	superintendent
	Fire extinguishers to be readily available onsite, especially when hot	<ul> <li>Project manager</li> </ul>
	works are conducted.	<ul> <li>Contractor</li> </ul>
	Regular servicing of fire extinguishers.	
	Maintain servitude access road under the line leading to the substation	

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	to act as fire break.	
Air Quality	<ul> <li>Dust generation from all activities must be minimised wherever possible.</li> <li>Excavation, handling and transportation of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present.</li> <li>Speed limit to be enforced to control dust emissions, and minimize incidents onsite.</li> <li>Dust suppression measures shall be implemented if necessary especially during projects.</li> <li>Vehicle, machinery and equipment shall be maintained in good working order in order to minimise emissions from exhaust fumes.</li> </ul>	<ul> <li>Area superintendent</li> <li>Project manager</li> <li>Contractor</li> </ul>
Resources Efficiency	<ul> <li>Minimise water wastage and record water usage.</li> <li>Avoid wasteful use of materials.</li> <li>Source goods and services locally were possible</li> </ul>	<ul><li>Area</li><li>superintendent</li><li>Project manager</li><li>Contractor</li></ul>
Waste Management	<ul> <li>Minimise the generation of waste by applying the waste hierarchy.</li> <li>Substation to be kept free of waste.</li> </ul>	Area     superintendent

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<ul> <li>No burning, burying or dumping of any waste materials shall be permitted onsite.</li> <li>Labelled waste bins with lids must be provided onsite for all waste streams where applicable and ensure that waste is disposed at nearest approved waste disposal site.</li> <li>Ensure that waste segregation is done at source.</li> <li>Hazardous waste shall be disposed of at a registered waste disposal site.</li> <li>Safe disposal certificates for hazardous waste must be kept in the SHE file.</li> <li>Concrete waste must not be dumped on site.</li> <li>No burning of cleared vegetation shall be allowed on site.</li> <li>All waste management requirements as stipulated in the NamPower Waste Management procedure shall be complied with.</li> </ul>	Contractor
Wastewater management	<ul> <li>Water containing environmental pollutants shall be collected and removed from site.</li> <li>No waste water runoff or uncontrolled discharges from the site/working areas shall be permitted.</li> </ul>	<ul><li>Project manager</li><li>Contractor</li></ul>

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	Mobile toilets or septic tanks should be used in remote areas.	
Hazardous Substances	<ul> <li>The use, handling, storage and disposal of the hazardous chemical must be in accordance with the MSDS.</li> <li>Containers must be clearly marked to indicate contents, quantities and safety requirements.</li> <li>Hazardous substances storages areas must be bunded. A bund should be able to contain 110% of the volume of the largest container stored within it.</li> <li>All transformers to be contained in bunded areas with oil sumps. Bund walls must be maintained and kept in good condition.</li> <li>Diesel and other liquid fuel, oil and hydraulic fluid must be stored in appropriate storage tanks or in bowsers.</li> <li>Report any accidental spills that occur onsite.</li> <li>Spill kit and absorbents must be available onsite</li> <li>Hazardous substance storage areas must display safety signs.</li> <li>All spills must be reported, cleaned and remediated to in compliance with SHEW requirements.</li> </ul>	<ul> <li>Area superintendent</li> <li>Project manager</li> <li>Contractor</li> </ul>
Social Impact	Contractor to sign land permission form and agreement with land	• Area

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<ul> <li>owners prior to commencement of work on site.</li> <li>Employees should limit their contact with farm workers and other permanent residents of the area.</li> <li>Employees should be properly educated about the impact of HIV / AIDS and pregnancies.</li> <li>The use of intoxicating liquor or drugs of any kind by the employees is strictly prohibited.</li> <li>Ensure that all queries and complaints are documented and dealt with.</li> <li>A register shall be kept of all complaints from landowners.</li> <li>All claims shall be handled immediately to ensure timely rectification.</li> </ul>	Superintendent     Project Manager     All NamPower employees     Contractor
Cultural and heritage resource	<ul> <li>Any chance finds must be reported to NamPower SHEW section.</li> <li>In an event of discovery of human remains or other artefacts the work shall cease. A professional archaeologist is to be consulted and carry out investigation.</li> </ul>	<ul><li>Area</li><li>superintendent</li><li>Project Manager</li><li>SHEW</li><li>Contractor</li></ul>
Fauna and Flora	Ensure that the site is kept clean and free of rubbish that could potentially attract animals and pests	Area     superintendent

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON
	<ul> <li>Barricading of work area to keep animals and unauthorised persons from site.</li> <li>Workers should be educated so as not to kill any fauna found onsite.</li> <li>Poaching or capturing of any animal (wild or domestic) shall be prohibited.</li> <li>Bird nests may not be disturbed.</li> <li>No domestic animals may be kept onsite site as they can introduce diseases or interbreed with the animals occurring naturally in the area.</li> <li>All wildlife and electrical infrastructure interactions must be reported to the SHEW section.</li> </ul>	<ul><li>Project Manager</li><li>SHEW</li><li>Contractor</li></ul>
Herbicide Use	<ul> <li>Avoid spraying herbicide during windy days/periods. See the general product requirements for herbicide used. This could affect non-target areas and species.</li> <li>Herbicide must only be applied inside the substation.</li> <li>Herbicide will be handled in accordance with NamPower Vegetation Procedures.</li> </ul>	<ul> <li>Area superintendent</li> <li>Project Manager</li> <li>SHEW</li> <li>Contractor</li> </ul>
Water Resources	Care must be taken to ensure that pollution of water does not occur.	• Area

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON	
	<ul> <li>Herbicides shall not exceed the recommended volume and concentration of application.</li> <li>Naturally occurring water resources may not be used for any personal hygiene, mixing herbicides or for washing equipment used for herbicide application.</li> <li>Water may only be taken from a private or government property based on an agreement between the NamPower, contractor and custodian of the water source.</li> </ul>	superintendent  Project Manager  SHEW  Contractor	
Campsite Establishment (If required)	<ul> <li>NamPower/ Contractor must sign land permission form and agreement with land owners prior to commencement of work onsite.</li> <li>Adequate ablution facilities must be provided onsite in relation to the number of employees.</li> <li>Ablution facilities must not be located within 100m of any river, stream channel, pan, dam or borehole</li> <li>Non-employees are not allowed to reside at the campsite.</li> <li>Fire extinguishers, first aid kits, assembly point, and emergency numbers must be available onsite.</li> </ul>	<ul> <li>Area superintendent</li> <li>Project Manager</li> <li>SHEW</li> <li>Contractor</li> </ul>	
Site Rehabilitation	A post construction audit within 1 week prior to the Contractor leaving	• Area	

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	RESPONSIBLE PERSON	
	<ul> <li>site must be conducted.</li> <li>SHEW to sign site close off or take over certificate once remedial corrective actions have been implemented.</li> </ul>	superintendent  Project Manager  SHEW  Contractor	

#### 8 REPORTING, MONONITORING AND AUDITING

Environmental monitoring and audits must be conducted during the operational phase. The environmental monitoring and audits must be conducted in line with supporting procedures and requirements of this plan. Monitoring and audit reports detailing the monitoring and audit results shall be prepared by the SHEW section and communicated to the Area Manager, Superintendent and Project Manager. Records of monitoring and auditing report shall be kept and will be made available during inspection and audits.

The following general monitoring indicators and guidelines are recommended should herbicides be used to do vegetation management along the line:

Table 5: General monitoring indicators and guidelines recommended after herbicide application

Monitor trees adjacent the cleared	A survey in year 1 (i.e. 6 months after application of
area after herbicide application	herbicide) should be conducted along the affected
	route to determine the effect of the herbicide on non-
	target areas - i.e. adjacent vegetation. Focus on
	protected tree species along the route
Monitor coppicing and regrowth after	A survey in year 2 (i.e. 1 year after application of
herbicide application	herbicide) should be conducted along the affected
	route to determine the effect of the herbicide on
	bush clearing.
	This would indicate the success of the herbicide
	used as well as indicate the necessity of follow-up
	treatment.

#### 9 NON-COMPLIANCE AND CONFLICT MANAGEMENT PROCEDURES

The Area Superintendent and/or project manager shall ensure that the employees and external service providers comply with the requirements outlined in this EMP. In the event of non-compliance the following recommended process shall be followed:

- Non compliances will be identified during inspections or audits carried out by the SHEW Section and reported to the Area manager, Superintendent and Project Manager for corrective actions.
- Area Superintendent / Project Manager shall notify the employees about the noncompliance.
- Corrective and preventative actions must be implemented on an agreed timeframes.
- Follow up inspections shall be conducted to assess whether the corrective and preventative actions were implemented effectively.

NamPower has the right to stop all contractor's activities if it is found that a gross violation of the EMP is taking place. The contractor shall notify NamPower of the following:

- Conflicts arising with any landowner / representative.
- Any special conditions requested by a landowner / representative.

#### 10 RECORD KEEPING

Record keeping is important for the effective functioning and implementation of an EMP. EMP documentation must be kept in both the hard copy and electronic format for safe keeping. These must include:

- Copy of the Environmental Clearance Certificate
- A copy of an EMP
- EMP implementation activities
- Induction records

- Resource use records i.e. water and fuel consumption
- Audit and Inspection reports

In case vegetation management is conducted and is done using herbicides, the following records should be kept:

- Date of application
- Herbicide applied
- Persons responsible for application
- Supervisor
- Type of herbicide used
- Method of application
- Timing of application
- Equipment used
- Concentration of herbicide used

#### 11 CONCLUSION

All management measures and legal requirements outlined in this EMP should be implemented in order to ensure environmental compliance by all parties undertaking the operational activities. This will ensure that potential negative impacts are identified, avoided or mitigated.

#### 12 ANNEXURES

#### **Annexure 1: Landowner permission form**

## **Landowner Permission Form** Landowner name: Contact number: Representative name: Farm name: Contractor: Representative name: Contact number: **General Notice** This form is to be used prior to a contractor entering a landowner's property to commence any work related to the construction or maintenance of power-line structures and servitudes. The form must be completed by either the landowner or his / her legal representative on the property. Section A: Before activities commence Activities to be undertaken on the property (completed by the contractor): Use of water resources camping Erection Bush clearing Refurbishment Herbicide application Trimming of vegetation Access road usage Use of other Rehabilitation infrastructure (please specify)

pecific conditions to be MEFT on the	property (as stipulated by the landowner
Dates when access is needed: rom:	
Signatures (prior to entry)	
_andowner/Representative	Contractor representative
Date	Date
Section B: Upon completion of Remarks on compliance or miscond	of work and prior to leaving the property uct (upon completion of activities):

#### **Annexure 5: Landowner permission form**



## **Landowner Permission Form**



Landowner name:	Contact number:	
Representative name:		
Farm name:		
Contractor:		
Representative name:	Contact number:	
General Notice  This form is to be used prior to a contractor entering a landowner's property to commenceany work related to the construction or maintenance of power-line structures and servitudes.		
The form must be completed by either representative onthe property.	er the landowner or his / her legal	

#### Section A: Before activities commence

Activities to be undertaken on the property (completed by the contractor):

Use of water resources		Camping Bush		
Powerline erection Powerline		clearing		
refurbishment Trimming of		Herbicide application		
vegetation Use of other		Access road usage		
infrastructure(please specify)		Rehabilitation		
Specific conditions to be me	t on the proper	ty (as stipulated by the landowne	<u>er):</u>	
				_
			_	_
Dates when access is neede	ed:			
	From:		To:	
Signatures (prior to entry)				
Landowner/Representative		Contractor representative	_	
Date	<u> </u>	Date	_	

## Section B: Upon completion of work and prior to leaving the property

Remarks on compliance or misconduc	et (upon completion of activities):	
Issues still to be resolved upon comple	tion of activities:	
Signatures (upon completion)		
Landowner/Representative	Contractor representative	
Date	Date	

## Annexure 6: pre-application consent form for herbicide/pesticide application

PRE-APPLICATION CONSENT FORM		
Name of Landowner / Representative:		
Contact Details:		
Name of Farm:		
Name of Contractor:		
Name and Details of Contact Person:		
Herbicide/pesticide to be used:		
Period of Application:		
NamPower District Supervisor:		
Contact Details:		
NamPower Installation to be Treated:		
Comments from Landowner/Representation	tive:	
Signed:		
Landowner/	NamPower Representative:	
Representative:		
Date:	Date:	

## Annexure 7: Post application review form for herbicide/pesticide applications

POST-APPLICATION REVIEW FORM	
Name of Landowner / Representative:	
Contact Details:	
Name of Farm:	
Name of Contractor:	
Name and Details of Contact Person:	
Herbicide/pesticide to be used:	
Period of Application:	
NamPower District Supervisor:	
Contact Details:	
NamPower Installation to be Treated:	
Outstanding Issues:	
Signed:	
Landowner/ Representative:	NamPower Representative:
Date:	Date: