



Paratus Telecom

Environmental Management Plan (EMP)

For the installation of underground fibre optic cables along the road from
Katima Mulilo to Ngoma

9th June 2017

Project Name:

Paratus Telecommunications – Installation of Underground Fibre Optic Cable between Katima Mulilo and Ngoma along the existing road servitude (B8).

Stage of Report

Environmental Management Plan – Final - MET approval pending

Client

Paratus Telecommunications

Date of Release:

9th June 2017

Environmental Compliance Consultancy Contact Details

We welcome any enquiries regarding this document and its content, please contact:

Stephan Bezuidenhout

Environmental Consultant & Practitioner

Tel: +264 81 262 7872

Email: stephan@eccenvironmental.com

www.eccenvironmental.com

Jessica Mooney

Environmental & Safety Consultant

Tel: +264 81 653 1214

Email: Jessica@eccenvironmental.com

www.eccenvironmental.com

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ENVIRONMENTAL COMPLIANCE CONSULTANCY



DECLARATION OF INDEPENDENCE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I, **Stephan Bezuidenhout**, declare that –

General declaration:

- I act as the independent environmental practitioner in this application/tender
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- All the particulars furnished by me in this form are true and correct;
- I will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations



SIGNATURE

1st January 2017

DATE

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Definitions and Abbreviations

AIDS/HIV	Acquired/Human immunodeficiency virus infection immunodeficiency syndrome
CLO	Community Liaison Officer
CLT	Communication Liaison Team
CM-EMP	Construction, Monitoring Environmental Management Plan
DEA	Directorate of Environmental Affairs
EAP	Environmental Assessment Practitioner
ECC	Environmental Compliance Consultancy
ECO	Environmental Control Officer (Contractor)
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
ESO	Environmental Site Officer
Ha	Hectares
MAWF	Ministry of Agriculture Water and Forestry
MET	Ministry of Environment and Tourism
OHS&E	Occupational, Health, Safety and Environment
OM&D	Operation, Monitoring and Decommissioning
SABS	South African Bureau of Standards
STDs	Sexually Transmitted Diseases
Maintenance Period	A recurring period following formal acceptance by the owner of the project having achieved beneficial operation
Project Environmental Standard	This Construction Environmental Management Plan (C-EMP)
Environmental Consultant	An independent environmental consultant with experience in the environmental management of construction contracts
Project site	The area within which the Contractor will be required to work on during the construction phase.
The Works	All areas within which the Contractor's activities will take place
Wetland	Includes all areas where the soils were formed under seasonal or permanent saturation
Pan	Often near circular seasonal and perennial water bodies that occur along the route
Method Statement	A written submission by the Contractor to the Client's Representative in response to a specification or a request by the Client's Representative, setting out the plant, materials, labour and method that the Contractor proposes to use to carry out an activity, in such detail that the Client's Representative is able to assess whether the proposal is in accordance with the specifications and/or will produce results in accordance with the specifications
Compensation Procedures	The procedures developed jointly by project proponent for resettlement and compensation on and around the project area.
Sodic soils	Soils that have a low soluble salt content but have sufficient adsorbed sodium to have caused significant de-flocculation. These soils are particularly sensitive to erosion.

1. INTRODUCTION

1.1. BACKGROUND

Environmental Compliance Consultancy (ECC) has compiled this Environmental Management Plan (EMP) in accordance with the Environmental Management Act No. 7 of 2007 on behalf of Paratus Telecommunication (Paratus).

Paratus intends to install an underground fibre optic cable on the existing servitude along the B8 road from Katima Mulilo to Ngoma, Namibia stretching about 70.1 km. The purpose of this EMP is to support the request for an Environmental Clearance for the installation of the underground fibre optic cable along the existing road servitude.

The road servitude is already impacted from various activities that it has been used for, and infrastructure associated with the servitude (e.g. roads, tracks, pylons) will continue to impact the servitude and its adjacent environs. It is however important to note that there are potential nominal environmental impacts that may result from the proposed underground fibre optic project and an Environmental Management Plan will be essential to minimise the possible impacts and effects of the associated activities on the environment.

A vertebrate fauna and flora desktop study for the proposed project site was carried out to establish possible impacts on fauna and flora phenomenon in the area. The exact right of way will be passing through an already degraded servitude such that there will be no direct impact to fauna and flora in the area. The proposed fibre optic cable route passes through two communal conservancies: Sikunga and Salambala (NACSO 2006, 2010), adding on no freehold (commercial) conservancies occur in the area (Mendelsohn et al. 2002, See: www.canam.iway.na), thus no adverse impacts are expected by the project on the natural environment and the social-economic set up of the communities around. This document represents the Environmental Management Plan (EMP) for the proposed installation of underground fibre optic cables (main works phase) from Katima to Ngoma, Namibia.

1.2. DOCUMENT HIERARCHY

In terms of the Namibian Environmental Impact Assessment (EIA) Regulations (Government Notice (GN) 28, 29, and 30 promulgated on 6 February 2012) enacted in terms of the Namibian Environmental Management Act (Act no. 7 of 2007) (EMA), the proposed activity falls under the listed activities, thus it requires Environmental Impact Assessment (EIA) carried out and the development of an Environmental Management Plan. This Environmental Management Plan (EMP) has been developed to assist the project development that entails the construction and operational/maintenance. Where there is any conflict between the provisions of this EMP and any contractor's obligations under their respective contracts, including statutory requirements (such as licences, Project Approval conditions, permits, standards, guidelines and relevant laws), the contract and statutory requirements are to take precedence.

In the event of any real or perceived ambiguity between elements of this EMP, the Contract and/or statutory requirements, the Contractor shall first gain clarification prior to implementing that element of the EMP over which the ambiguity is identified.

1.3. OBJECTIVES

The objective of this EMP is to detail the environmental management framework, practices and procedures that will be followed during construction, and during any follow-up maintenance or repair work, with the aim of minimising potential environmental impacts and ensuring that statutory requirements and other obligations are fulfilled

2. PROJECT DETAILS

2.1. SITE DESCRIPTION

Paratus Telecommunication intends to install an underground fibre optic cable from Katima Mulilo to Ngoma, Namibia. The intended project will follow the Katima Mulilo-Ngoma B8 road servitude stretching approximately 71 km as illustrated on the google earth map below, (see figure 1). The area is already disturbed by servitude activities such as roads, electricity poles, etc. such that the proposed development will have minimal to no severe impacts on the environment.

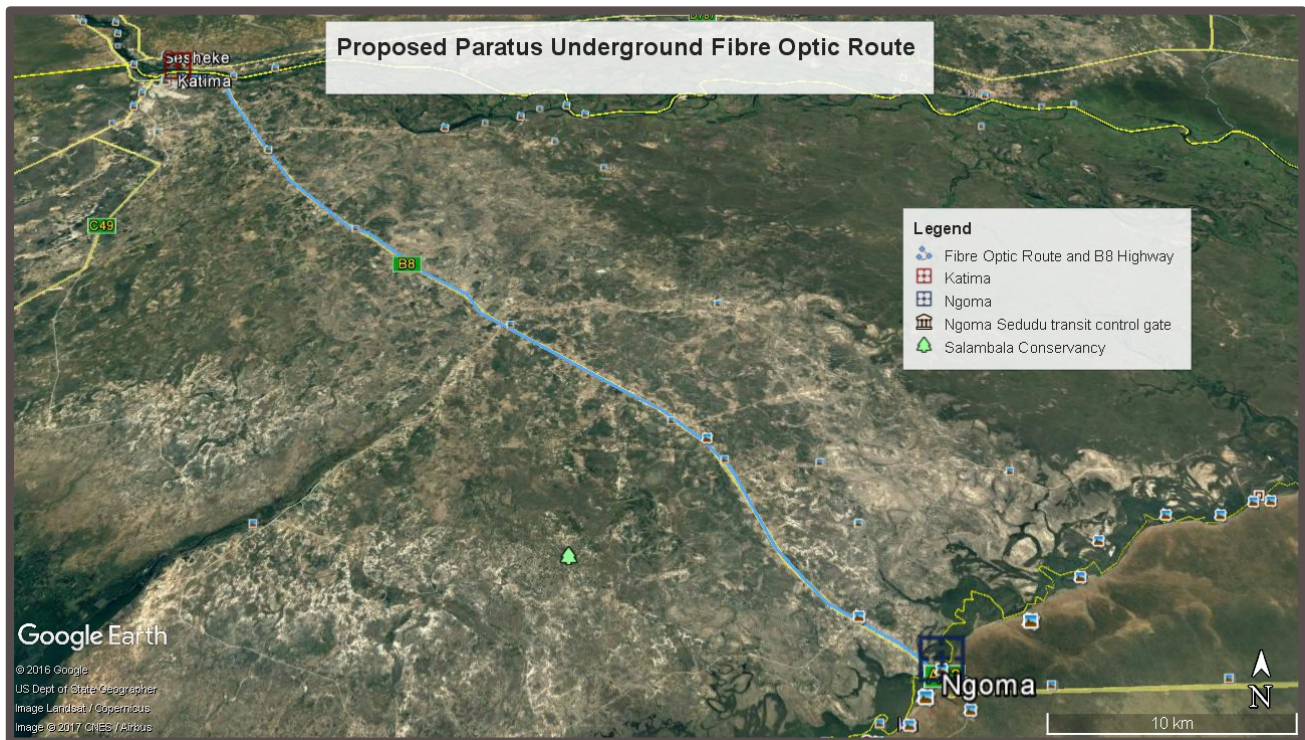


Figure 1: Paratus Underground Fiber Optic cable route

2.2. ENVIRONMENTAL AUTHORIZATION

An ecological desktop study has been undertaken for the proposed project, to determine the impact associated with the installation of the underground cable. In order to implement the proposed project according to the Environmental Management Act No. 7 of 2007 (EMA) and the Namibian Environmental Impact Assessment (EIA) Regulations (Government Notice (GN) 28, 29, and 30 promulgated on 6 February 2012) a well inclusive Environmental Management Plan (EMP) is required for to provide environmental guidelines during project planning, construction and operation.

This document comprises of an EMP for the proposed project's Construction and Main Works as a basis for obtaining an environmental clearance and approval for the proposed activities.

2.3. ENVIRONMENTAL MANAGEMENT PLAN

This EMP presents the official EMP for the proposed project and covers the construction main works, monitoring/maintenance and decommissioning phases of the project lifecycle. This document is as follows:

- Operation, Monitoring & Decommissioning Environmental Management Plan (O&D EMP);

The purpose of the Construction and Monitoring Environmental Management Plan (CM-EMP) is to set environmental and social standards within which the project will operate. The environmental standards are set to minimise the risk of damaging or impairing (a) the health or well being of the public, (b) land use capability, and (c) natural ecosystems and environmental quality. The Contractor and Paratus (The Proponent) will be legally required to comply with the standards set out in this CM-EMP.

The EMP is supported by the field and desktop investigations carried out as part of the study. The fieldwork has served a number of functions, including:

- Generation of conclusions based on field assessment of the actual impacts of the proposed project
- The basis for recommendations for special control measures, where these are considered to be necessary, over and above the administration and implementation of the project.
- Setting out environmental standards set out in this CM-EMP that are in approximate sequence of activities relating to the proposed project.

2.4. LIMITATIONS OF THE CM-EMP

This CM-EMP does not include measures for compliance with statutory Occupational Health and Safety requirements. The Contractor's obligations in this regard are dealt with in the Project Development Plan. In terms of the Project Development Plan, the Contractor is required to develop an Occupational Health & Safety and Environmental Plan (OHS&E), in consultation with Paratus prior to construction on site.

The Contractor's OHS&E Plan will include methods to manage risks such as occupational hazards, illnesses such as pneumoconiosis, malaria, HIV/AIDS infections etc. among employees. Where reference is made to HIV in this document, it is in relation to potential third party impacts on surrounding communities and the general public

2.5. STUDY TEAM

The study team comprises of environmental assessment practitioners and specialists listed in Table 1 .The field investigations carried out for the EIA and EMP update were conducted during March-April 2017.

Table 1 - Environmental Assessment Practitioners Team

Name	Role	Company
1. S Bezuidenhout	Lead Environmental Consultant	ECC
2. T E Kasinganeti	EAP	ECC
3. J Mooney	Social & Safety Specialist	ECC
4. P Cunningham	Ecological Specialist	ECC

3. PROJECT MANAGEMENT AND PERSONNEL

3.1. CONTRACTING ARRANGEMENTS AND ORGANISATION STRUCTURE

The organizational structure identifies and defines the responsibilities and authority of the various organisations and individuals involved in the project. All instructions and official communications regarding environmental matters shall follow the organizational structure.

Within the proponent's organization there should be an environmental team, together with any external specialists, who are responsible for monitoring the construction contractor's performance in relation to the CM-EMP. The proponent's team will consist of an ECO, one or more Environmental Site Officers (ESOs) and one or more Community Liaison Officers (CLOs). The ESOs and CLOs will report directly to the ECO. All of the environmental monitoring team will report to the Paratus Site Manager.

Specialist consultants, as needed, will be appointed by Paratus in consultation with ECC. All reports concerning non-compliance with the project specification will be routed through the site manager and tabled and discussed at the monthly site meetings with the construction Contractor.

The (main) Construction Contractor is required to appoint a similar environmental team to manage and implement the obligations set out in the CM-EMP. The main contractor is held accountable for the performance of all subcontractors. For the sake of clarity, the environmental site officer(s) appointed under the main contractor are referred to as Environmental Control Officers (ESOs) so as to distinguish them from the proponent's ECO.

Compliance with the CM-EMP will be an item on the monthly site meeting agenda, which will be attended by the Environmental Control Officers (ECOs), ESOs, the contractor's environmental team and, at intervals, by the Environmental Consultant.

3.2. DEFINITION OF ROLES

The following definitions of staff and organisation roles apply in this report:

Paratus Site Manager: The site manager is appointed to manage the performance of the construction contractor(s) commissioned to undertake the project.

Paratus ECO: The environmental lead appointed by the proponent, responsible for the overall management of the team monitoring the Construction Contractor's environmental and social performance. The ECO must have at least 5 years of experience in environmental assessment and a proven track record in contract management. This role could be a consultant contracted to have an intermittent role on the project.

Proponent Environmental Control Officer (ECO): The ECO(s) shall have previous experience of field management of large construction contracts.

Specialist Consultant: An independent environmental expert, in any field, who will act in an advisory capacity on request from the proponent, contractor, ECO or Site Manager.

Construction Contractor: The construction contractor that is appointed by the Paratus to undertake the project activities.

Environmental Site Officer (ESO): An environmental officer employed by the Construction Contractor to manage and implement all requirements relating to compliance with the CM-EMP.

Independent Environmental Auditor: An independent environmental consultant with at least ten years of experience of the management of large construction projects and a proven track record as a review consultant and auditor.

3.3. PARATUS ROLES AND RESPONSIBILITIES

While the proponent takes overall responsibility for the actions of all of its contractors, for the purposes of this MD-EMP a distinction is drawn whereby the proponent may act in his own capacity or appoint a professional services contractor to oversee the project. The professional Services Contractor will represent the proponent in all respects in relation to its interface with the Construction Contractor.

Environmental Site Officer

The requirements and responsibilities for the Environmental Site Officer (ESO) shall be as follows. He/she shall:

- Have appropriate experience in the monitoring of environmental compliance on large contracts;
- Be a full time appointment for the duration of the Contract, working under the staff of the Paratus.
- Report directly to the ECO and liaise closely with the Site Manager and other environmental field staff;
- Liaise with the Construction Contractor's ESO's on a daily basis regarding the matters relating to compliance on the construction contract;
- Liaise closely with the Paratus ECO and, when necessary, with the specialist consultants;
- Thoroughly familiarize himself/herself with the existing information about habitat and social sensitivities contained in the CM-EMP report and the specifications which the Construction Contractor must comply with;

- Train the Contractor's field staff to ensure that there is an understanding of the CM-EMP requirements for environmental management;
- Perform all of the day-to-day tasks necessary to monitor the Contractor's performance with regard to compliance with the CM-EMP
- Report non-compliance by the Construction Contractor to the ECO and the proponent Site Manager within 12 hours and participate in the actions necessary to ensure that the Contractor rectifies any non-compliance as rapidly and effectively as possible;
- Keep accurate records of monitoring for the purposes of audit. These records shall provide a systematic account of the Construction Contractor's performance with respect to environmental management of the site;
- Prepare formal monthly monitoring reports utilising the stationary attached to this EMP. These reports shall be presented at the monthly contract progress meetings and shall be circulated, together with the agreed Action List to the following individuals/organizations (among others):
 - a. ESO
 - b. Paratus Site Manager
 - c. ECO
- Prepare, together with the ECO, a snag list of outstanding items that need to be addressed by the Contractor at the completion of the contract before all environmental obligations have been met. The list shall take into consideration any items that require action to meet the contract specification before the Contractor demobilises.

Environmental Control Officer (ECO)

The requirements and responsibilities for the ECO shall be as follows: He/she shall:

- Have a tertiary qualification in the natural sciences and a proven track record in environmental contract management on large projects over at least 10 years.
- Provide support to the ESO by means of regular site visits (preferably monthly) during the period of construction.
- Assist the ESO to formulate the most effective and structured monitoring and reporting strategy, tailored to the conditions of the contract.
- Assist the ESO to prepare the monthly monitoring reports by making use of the appendices of this EMP.
- Report to and discuss with Paratus Site Manager any significant non-compliance by the Construction Contractor and the steps to be taken to rectify this.

The Site Manager shall be the single upward communication channel for the ESO and the ECO both of whom shall report to him/her. Any site instructions to rectify non-compliance by the Construction Contractor with respect to environmental management shall be issued by the proponent's Site Manager.

Environmental Auditor

The requirements and responsibilities for the Environmental Auditor shall be as follows. He/she shall:

- Be an independent consultant with at least ten years' experience of the management of large construction contracts and a proven track record as a review consultant / auditor.

- Prepare an independent post - construction audit report based on a site visit, the review of monthly monitoring reports and discussion with the Contractor's environmental team, Paratus' environmental team and any other party whose views/opinions are considered relevant.
- Prepare a final audit report at the end of the construction contract and at the end of the maintenance period (one year post contract sign-off), prior to the issuing a closure certificate for rehabilitation.
- Distribute the audit reports to the Paratus (and its contractors) and the Ministry of Environment and Tourism.

3.4. CONSTRUCTION CONTRACTOR ROLES AND RESPONSIBILITIES

- 3.4.1. The Construction Contractor is responsible for implementation of all environmental and social management requirements as set out in this CM-EMP during the Construction Phase of the project, unless otherwise specified.
- 3.4.2. The Construction Contractor is responsible for obtaining all necessary licenses required to implement the project, which includes permits for borehole abstraction and use of borrow pits.
- 3.4.3. The Construction Contractor shall take proactive steps to ensure that the standards in the CM-EMP are met during all phases of construction. These shall include, but not be limited to, the following:
- Close liaison with the ECO, followed by regular tool box talks, to reinforce messages contained in the CM-EMP;
 - Employment of competent and dedicated members of staff to implement the standards in the CM-EMP;
 - Active participation of such staff in initial induction and subsequent training sessions to ensure that there is compliance with the CM-EMP's environmental standards; and
 - Instruction of staff about the relevant environmental sensitivities and the specific measures that each employee will implement to meet the environmental protection and management standards defined by the C- CM-EMP.
- 3.4.4. The Construction Contractor shall adhere to the provided CM-EMP for the proposed project which will be compliant with the requirements of ISO 14001 and shall include, but not be limited to:
- A description of responsibilities, lines of communication and qualifications of staff responsible for environmental management on the project, and the implementation of this CM-EMP;
 - Detailed plans and Method Statements for the elements of construction for which such information is required by this CM-EMP;
 - Preparation of a Method Statement for an environmental awareness course to be administered to contract employees; and
 - Details of how the Contractor will monitor and report project performance in respect of the environmental standard.

- 3.4.5. The Contractor shall provide the Paratus with reasonable notice of staff training sessions, in order that their representatives may attend these sessions.
- 3.4.6. The Construction Contractor shall comply with all Namibian legislation in the industry as well as all the requirements of this CM-EMP and shall, in accordance with accepted international standards that regulate the project.
- 3.4.7. The Construction contractor shall update techniques, practices and methods of construction that will ensure compliance with this CM-EMP and, in general, minimise environmental damage, control waste, avoid pollution, prevent loss or damage to natural resources, and minimise effects on surrounding landowners, occupants and the general public.
- 3.4.8. The Contractor shall prevent or minimise the occurrence of incidents which may cause unnecessary damage to the environment, prevent or minimise the effects of such incidents and shall return the environment to a state as close to the condition existing prior to any such incident as possible.
- 3.4.9. The Construction Contractor's environmental staff shall work with the Environmental Control Officer (ECO) in order to ensure that areas of habitat sensitivity, specified by the proponent/ professional services Contractor, are protected.
- 3.4.10. Should the Construction Contractor fail to commence any remedial measures within a reasonable period following the receipt of a written instruction from the proponent/ professional Services Contractor to do with prior notice, undertake these measures at the cost of the Construction contractor.
- 3.4.11. The proponent retains the right to enforce compliance with the standards irrespective of waivers that it might, at its sole discretion, allow in certain instances.

3.5. TRAINING OF CONTRACT TEAMS

- 3.5.1. Paratus ECO shall train the construction contract teams so that there is a high degree of understanding of the aims and objectives of the CM-EMP.
- 3.5.2. Training shall include an initial induction by the ECO, followed by regular tool box talks, administered by the ESO, to reinforce messages contained in the CM-EMP. This shall be in addition to measures taken by the Construction Contractor to facilitate awareness of contract personnel.

3.6. COMMUNICATION WITH COMMUNITIES AND AUTHORITIES

- 3.6.1. The proponent shall appoint a Communication Liaison Team (CLT) that is actively involved in the project area covering the areas between Katima Mulilo and Ngoma where the fiber optic will pass through. The CLT will be represented on site by the relevant Community Liaison Officer (CLO) who shall liaise with the local communities regarding the works, including:
- Proposed project goals and activities in the area;
 - How these activities will be conducted to minimise the impacts on surrounding communities;
 - Employment policy and requirements; and
 - Contact details should the residents have questions, concerns or complaints.

- 3.6.2. The proponent/ PSC shall appoint a separate CLO who will be permanently on site and who will liaise with the CLT and CLO on community matters. The CLO will be an important source of information for the day-to-day communication with affected communities and will report to the Site Technical Manager about any community issues relating to the works.
- 3.6.3. The negotiation and monitoring of compensation is outside the field of responsibility of the PSC. This will be managed by the proponent and their consultants.

3.7. COMPLIANCE MONITORING

Compliance monitoring is intended to verify the specifications and agreed procedures that govern the environmental management of the project activities. Compliance monitoring is based on the principle encompassed by the notion 'deemed to satisfy'. If the Construction Contractor complies with the project specification, then his/her contractual obligations have been met, whether or not the management measures that have been implemented effectively reduce environmental and social impact to acceptable levels.

Construction compliance monitoring consists of the monitoring of the performance of the Construction Contractor(s) in respect of compliance with the Construction Management Plan Main Works (this document (Part 1) of this EMP) and other environmental requirements of the General Conditions of Contract.

Construction compliance monitoring is scheduled for the period of the construction contracts itself and the maintenance period following the completion of construction. Post-construction monitoring is covered in the Operation, Monitoring and Decommissioning Plan.

3.8. SNAG LIST AND FINAL CLOSURE CERTIFICATE

The ESO shall prepare monthly compliance certificates that shall be discussed with the PSC/proponent Site Manager, and then signed by the ESO and the Site Manager. The compliance certificates shall contain a brief description of any areas of non-conformance with the contract specification, the reason for the non-conformance, the responsible party, the result (consequence), the corrective action taken and any necessary follow up required.

At the completion of the contract, the ECO and ESO shall prepare a snag list of outstanding items that need to be addressed by the Contractor before all environmental obligations have been met with respect to the construction contract. This list shall take into consideration any items that require action to meet the contract specification before the Contractor demobilises. Once these items have been rectified, to the satisfaction of Paratus Site Manager, in consultation with the ESO and the ECO, the maintenance/warranty period of one year shall commence. At the end of this one year period the Paratus with any necessary assistance from specialist consultants shall verify that the standard of rehabilitation still meets the Contract Specification. A list shall be prepared of any areas where remedial measures are necessary and these measures shall be implemented before a Closure Certificate is issued

4. GENERAL CONDUCT AND SITE MANAGEMENT

Note: All references to “The Contractor” in this section refer to the Paratus appointed Construction Contractor.

4.1. CAMPSITE SELECTION AND MANAGEMENT

- 4.1.1. The Paratus appointed contractor shall select campsites and lay down depots along the Katima Mulilo-Ngoma B8 road servitude only at specifies locations that minimize the potential for social and ecological impacts. In order to minimize conflict between local inhabitants and construction workers campsites shall not be located within or in close proximity to main population centres or villages, this will also be done to minimise in migration of job-seekers from their villages to the construction workers’ camps. The Contractor shall comply with all laws and regulations in Namibian relevant to the project construction activities concerning water provision, sanitation, wastewater discharge and solid waste disposal.
- 4.1.2. The Contractor shall not locate campsites in any area in which vegetation is pristine, nor within 200 m of any watercourse, pan or other wetland as defined in this report, nor where threatened plants or animals occur, nor in any area that could cause nuisance or safety hazards to surrounding inhabitants or the general public.
- 4.1.3. Prior to the commencement of construction, the Contractor shall prepare a Method Statement for each proposed campsite which contains, but is not limited to, details of:
- a) Site location and layout;
 - b) Topsoil management;
 - c) Cuts and fills;
 - d) Waste management, as detailed below in Section 3.2;
 - e) Management of polluted runoff;
 - f) Erosion control;
 - g) Fencing;
 - h) Management of hazardous materials;
 - i) Water supply;
 - j) Management of bush fire risk; and
 - k) Reinstatement

The above documentation shall be submitted to Paratus for review prior to establishment on site.

- 4.1.4. The Contractor shall prohibit visits from local people to the campsite unless planned and approved and shall restrict, as far as possible, the access of contract personnel into local villages.
- 4.1.5. The contractor shall avoid and/or limit the use of lights during nocturnal exploration activities as this could influence and/or affect various nocturnal species – e.g. bats and owls, etc., hence there should be use of focused lighting for least effect;
- 4.1.6. The Contractor shall be prohibited from recruiting workers at the camp (see Section 4.12 on employment).
- 4.1.7. The Contractor shall organize a recreational area inside the Base Camp to promote pastime activities and social interaction between workers

4.2. WASTE MANAGEMENT

- 4.2.1. The Contractor shall prepare a Waste Management Plan and obtain all necessary Namibian Government approvals for the local disposal of waste. The Waste Management Plan shall comply with the regulations' requirements as well as the aspects mentioned in the current section and must be submitted to the Proponent for approval prior to submission to responsible local Government Authorities. The required information for the Waste Management comprises the following:
 - a) Waste management operations location;
 - b) Identification and classification of all types of waste to be handled, their origin and envisaged quantities;
 - c) Quantities and characteristics of final products;
 - d) Facilities description, including storage areas;
 - e) Identification of devices, machinery and all equipment mentioning the primary sources of noise and vibrations;
 - f) Qualitative and quantitative characterization of liquid and gas effluents, as well as the waste generated by activities;
 - g) Description of waste minimization, reuse and recycling measures;
 - h) Waste disposal destination and local storage conditions when applicable;
 - i) Proof document of acceptance from the planned waste receiver;
 - j) Description of environmental measures envisaged to minimise, monitor and treat liquid effluents, indication final discharge site;

- 4.2.2. Organic (biodegradable) domestic waste generated at the base camp and fly camps can be buried in purpose built pits, as long as approved by the Authorities and done according to the Namibian Waste Management Regulations. The pits must have a temporary cover, while in operation and, upon work completion, shall be covered with topsoil. Alternatively, the waste can be incinerated at a nearby incinerating facility such as Katima Mulilo State Hospital, subject to negotiations and agreement with the owners of the incinerator plant.
- 4.2.3. Non-organic (non-biodegradable) waste, such as glass, metal or plastic shall be collected and securely and separately stored (by category), prior to removal and transportation by a professional waste handling company.
- 4.2.4. The Contractor shall set up a system of solid waste control and removal. Domestic waste shall not be left uncontained. Temporary storage shall be managed to keep out unauthorised people and animals. Bins shall be emptied regularly. Waste storage areas shall be kept clean and tidy at all times. Littering and the random discard of solid waste on the site shall be prevented.
- 4.2.5. All hazardous material and wastes (including medical waste, if necessary) shall be managed in a safe and responsible manner so as to prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials and according to Namibian Waste Management Regulations.
- 4.2.6. Hazardous and non-hazardous waste shall be stored separately at all times.
- 4.2.7. All hazardous waste shall be stored, handled, transported and disposed according to Namibian Waste Management Regulations. Amongst other aspects, the following must be considered:
- a) Hazardous waste shall be placed in drums with sealable lids and labelled accordingly.
 - b) Transport within the construction camp areas may be performed by the Contractor, as long as the correct means of transportation is ensured; and
 - c) Transport on public roads and outside the construction area must be performed by a certified waste service provider.

4.3. FUELS AND LUBRICANTS

- 4.3.1. The Contractor shall comply with all applicable Namibian laws, regulations, permit and approval conditions and requirements relevant to the storage, use, and proper disposal of hydrocarbons.
- 4.3.2. The Contractor shall not locate fixed fuel storage tanks in any location other than at approved plant yards or campsites that have provision for safe storage facilities.
- 4.3.3. The Contractor shall locate any fuel storage facilities with a capacity greater than 1000 litres on flat or gently sloping ground and shall berm the surrounding area to contain at least 110% of the total capacity of the storage containers. The berms and the floor of the bermed area shall be of impermeable material or shall be lined to ensure that petroleum products cannot escape.
- 4.3.4. The Contractor shall enclose all fixed fuel storage with a security fence which has a lockable gate. Signs indicating 'no smoking' 'no naked flames' and 'danger' shall be provided in appropriate languages, and are to conform to a recognised standard such as the SABS Code 1186 or equivalent Namibian standards. The capacity of the tank and the product within the tank shall be displayed using the Emergency System detailed in SABS 0232 or similar international code.
- 4.3.5. The Contractor shall not construct fixed fuel storage or service or refuel any vehicle or equipment within 100 metres of any settlement, within 100 meters of a watercourse, pan or wetland, within a floodplain, or where there is the potential for spilled fuel to rapidly enter a watercourse. Fixed fuel storage shall always be located within the base camp or fly camps.
- 4.3.6. The Contractor shall take all reasonable precautions to prevent fuel and lubricant spills during the course of construction. To this end, the Contractor shall ensure that:
- a) There is no overfilling of diesel bowsers and equipment tanks;
 - b) Regular audits are performed to verify that no leaking or defective equipment is brought onto site;
 - c) Any oils or lubricants discharged during routine vehicle servicing on site are captured using drip trays, containers or other appropriate containment measures; and
 - d) Equipment is maintained regularly to ensure that no fuel, oil or hydraulic leaks occur.
- 4.3.7. The Contractor shall ensure that all vehicles or equipment that are required to cross rivers, wetlands or floodplains are cleaned of oil, grease and other contaminants damaging to aquatic life.
- 4.3.8. The Contractor shall ensure that there is sufficient absorbent material available on site to manage accidental spills and an inventory of this equipment and its location on site shall be prepared and included in the Method Statement.
- 4.3.9. The Contractor shall ensure that fuelling and repairs are carried out or are supervised by personnel familiar with spill containment and clean up procedures.
- 4.3.10. The Contractor shall immediately clean up accidental spillages of fuels and oils, or other hazardous substances, and shall report the incident to the PSC/Proponent and the measures taken to remediate the spill problem. Oil or petrol spills shall be bio-remediated according to approved methods as per legislative regulations and standards.

4.4. SEWERAGE WASTE MANAGEMENT

- 4.4.1. The Contractor shall use portable toilets to avoid faecal pollution around camp sites and at fly camps required. These shall not be placed within 100 meters of a known source of ground or surface drinking water or near river systems, wetlands or floodplains.
- 4.4.2. Any release of waste effluent shall comply with Namibian Water Resources Management Act, 2004.

4.5. POLLUTED SITE DRAINAGE

- 4.5.1. The Contractor shall comply with all applicable Namibian laws such as the Namibian Water Resources Management Act, 2004, guidelines on Building Systems for Water Distribution and Waste Water Drainage and applicable Water Licenses.
- 4.5.2. The Contractor shall prevent the discharge of any pollutants from the site into the surrounding environment, such as cements, concrete, lime, chemicals and fuels, as well as untreated sewage effluent.
- 4.5.3. Any effluent disposed from site shall meet Namibian guidelines on Environmental Quality and Effluent quality.
- 4.5.4. The Contractor shall prevent accelerated erosion from construction campsites and any other area affected by the Works. In the event that erosion is initiated during the course of the Works as a result of construction activities, the necessary steps to prevent further erosion and sedimentation shall be taken.

4.6. WATER SUPPLY AND ABSTRACTION

- 4.6.1. The Contractor shall obtain all necessary permissions and licences for water abstraction for use at the base camps and construction areas.
- 4.6.2. The Contractor shall prepare a Method Statement detailing any proposed sources of water required on site during construction for review and approval by the proponent prior to implementation. The Contractor shall obtain all necessary permissions and licences for this water abstraction.

4.7. FIRE PREVENTION

- 4.7.1. The Contractor shall take all necessary precautions to prevent the ignition and spread of fires caused either deliberately or accidentally as a result of the work being performed.
- 4.7.2. The Contractor shall prepare a Method Statement for fire prevention and emergency management as a part of the Environmental Plan to be submitted to the Paratus and the Environmental Auditor prior to establishment on site. The Method Statement shall include, but shall not be limited to, the following:
- Sources of fire risk;
 - Procedures to be followed to minimise the risk of accidental bush fires caused by any activity related to the Works;
 - Procedures to be followed to control an accidental bush fire;

- Fire fighting equipment that will be maintained on site and deployed in the event of an emergency.

4.7.3. Open fires shall be prohibited except in designated areas.

4.7.4. Employees shall be briefed of the risks and potential consequences of starting fires. Employees shall also be warned of the risks of careless disposal of burning cigarette butts.

4.7.5. The Contractor shall provide firefighting equipment at specified localities on the Work site to meet any emergency resulting from a fire. This equipment shall include, but not be limited to, fire extinguishers, fire resistant clothing for fire fighters.

4.8. INTRODUCTION OF INVASIVE ALIEN PLANTS

4.8.1. A common method of inadvertently spreading invasive weeds in the Caprivi area such as the Kariba weed and other aquatic and terrestrial weeds is by means of vehicles and may carry the weed or weed spores with them. To avoid such incidences the contractor shall ensure that all heavy vehicles and equipment that enters the site for the first time is washed down using high-pressure water containing a contact herbicide suitable for the elimination of invasive species and weeds. Thorough checks shall be made to ensure that no weed is clinging to the underside of such vehicles and that the herbicide reaches all the more inaccessible areas of the vehicle where the weed could be harboured.

4.8.2. The contractor should avoid introducing ornamental plants, especially potential invasive alien species, as part of the landscaping of the camp sites, etc., but rather use localised indigenous species, should landscaping be attempted, which would also require less maintenance (e.g. water);

4.8.3. Remove all invasive alien species on route – e.g. *Opuntia* spp. This would not only demonstrate environmental commitment, but also actively contribute to a better landscape.

4.9. COMMUNITY NUISANCE AND HAZARDS

4.9.1. The Contractor shall respect the property and rights of local inhabitants i.e. the villages and their traditional leadership at all times and shall treat all such persons with courtesy.

4.9.2. The Contractor will inform communities prior to accessing areas for construction that may be frequented by local communities.

4.9.3. The Contractor shall comply with land use and administration regulations in Namibia.

4.9.4. The Contractor shall control the following activities in the best interests of the local inhabitants: access over land, the integrity of fences, the closure of gates, control of bush and forest fires, littering, dust control, noise abatement, harassment of domestic and wild animals, sedimentation and contamination of ground and surface waters, damage to landscape, crops and vegetation, and all such environmental and social matters referred to elsewhere in this CM-EMP.

- 4.9.5. The Contractor shall prepare a Method Statement for the management of community nuisance and hazards in the areas where community access roads and tracks cross the site or access roads. The Method Statement shall include:
- a) Proof of consultation with community leaders in the areas defined above, concerning possible nuisance and nuisance management;
 - b) Any necessary measures, agreed to by the community leaders, to maintain access for people whose patterns of movement will be disrupted by the Construction activities. Such movement may include routes to schools, shops, water supply, fields, grazing lands or a variety of other daily or occasional activities undertaken by households;
 - c) Measures to accommodate people for temporary loss of access in the event that arrangements cannot be made to maintain the access while construction is ongoing e.g., the supply of drinking water.
- 4.9.6. The Contractor shall maintain a record during construction of all actions taken to comply with the provisions of the Method Statement.

4.10. COMPLAINTS REGISTER

- 4.10.1. The Contractor shall maintain a register for periodic review and audit that logs any complaints and issues raised by inhabitants or the general public about construction activities. The register shall be regularly updated and shall maintain records including the name of the complainant, his or her domicile and contact details, the nature of the complaint and any action that was taken to rectify the problem. The Contractor shall employ competent Community liaison officer (CLO), fluent in English and local language (according to the area), to manage this issue. The complaints procedure should also take into consideration complainants who may be unable to read and write in any language or to speak English.
- 4.10.2. The Contractor shall inform government officials at local level (Zambezi Region, Katima Mulilo Town Council, and Traditional Leaders) of the complaints register, its location and the person responsible to ensure that inhabitants or the general public are aware and know about the complaints register.
- 4.10.3. The Contractor's personnel shall be informed about the complaints register, its location and the person responsible, in order to forward to him/her any inhabitant or the general public who wishes to lodge a complaint.

4.11. COMMUNITY HEALTH AND SOCIAL COHESION

- 4.11.1. The Contractor shall prepare an OHS plan for the implementation of a programme to minimise diseases and illnesses incidence among employees, and the consequent spread of disease into the surrounding populous. The programme shall be prepared with the assistance of a medical doctor with experience of diseases such as malarial infections and their treatment. A typical programme would include, among other things, the following:
- a) Measures to control the breeding of mosquitoes and other disease distributing parasites at the construction sites;
 - b) Measures to prevent employees from contracting the disease, including education with respect to malarial prevention and the installation of protective measures in sleeping accommodation and eating areas;
 - c) Distribution of treated mosquito nets to all workers; and

- d) Measures to determine and effectively treat infection as quickly as possible after the disease is contracted.

4.11.2. The Contractor shall prepare an Occupational Health and Safety (OHS) plan for the implementation of a programme to minimise the spread of HIV infection as a result of the construction contract. The programme shall be prepared with the assistance of a medical doctor with experience of HIV prevention and treatment. A typical programme would include, among other things, the implementation of the following measures:

- a) An HIV/AIDS training course and on-going education on transmission of HIV/AIDS and STDs to employees, through workshops, posters and informal information sessions;
- b) Encouragement of employees to determine their HIV status;
- c) Supply of condoms at the project site;
- d) Encouragement of early treatment of STD's in employees, so as to minimise the risk of HIV infection;
- e) Encouragement of the early treatment and monitoring of secondary/opportunistic infections such as coughs, influenza and pneumonia;
- f) Promotion of an HIV/AIDS stigma-free environment by means of an open and non-discriminatory approach to the epidemic at all levels of employment;
- g) Development of a comprehensive construction camp management plan including rules for on-site behaviour, entrance and exit policies, and prohibition of the sex worker trade;
- h) In partnership with local health authorities at regional level, promotion of awareness campaigns in surrounding communities about the dangers and prevention on HIV AIDS, STD's and other communicable diseases and distribute information materials;

4.12. TRESPASSING, POACHING AND PROTECTION OF PLANTS AND WILDLIFE

- 4.12.1. This section is regulated by the Forest Act, 2001 (Act No. 12 of 2001), Controlled Wildlife Products and Trade Act (Act 9 of 2008) and the Nature Conservation Ordinance Act (Act no. 4 of 1975).
- 4.12.2. The Contractor shall prohibit and actively monitor and prevent poaching or harassment of wild animals by employees as well as buying and consumption of game meat. Any employee found poaching shall be dismissed.
- 4.12.3. Consumption of game meat inside the Contractor's facilities shall be prohibited and discouraged outside the camp boundaries also.
- 4.12.4. At the start of every working day the Contractor shall patrol the site and any open pits or trenches and shall rescue any animals that are trapped in it either by catching and releasing (e.g. frogs and toads) or by driving out (e.g. dangerous snakes).
- 4.12.5. The Contractor shall prohibit and actively monitor and prevent the harvesting of medicinal or any other plants by employees.
- 4.12.6. The Contractor shall ensure that employees remain within the project site or on existing roads providing access to the project site.

4.13. EMERGENCY PREPAREDNESS AND RESPONSE PLAN

- 4.13.1. The Contractor shall develop an Emergency Preparedness and Response Plan that will enable rapid and effective response to all types of environmental emergency in accordance with recognised international standards. This Plan shall be submitted to Paratus for approval prior to the commencement of construction activities.

5. CONSTRUCTION MANAGEMENT MEASURES

Note: All references to “The Contractor” in this section refer to the Construction Contractor.

5.1. ACCESS AND ROUTE ALIGNMENT

- 5.1.1. Prior to commencement of works Paratus and the Contractor are to inform the Local Roads Authority Officer of the intended activities.
- 5.1.2. Paratus has to inform the contractor on site of the regulations and specifications of construction and cable laying works on the servitude as specified in the guidelines (Ref: 14/19/2/8/7) given to Paratus by Roads Authority-Namibia, for reference the guidelines are annexed on appendix 8 of the CM-EMP.
- 5.1.3. The contractor shall consult relevant authorities (Roads Authority) in terms of administrative issues and land rights if there are any misunderstandings during operations.
- 5.1.4. The Contractor shall obtain access to the site a) on a public road, and b) on the project site. No new access roads shall be constructed.
- 5.1.5. The utility and safety of any existing access road shall not be made worse by the use for construction work or construction-related activities. Spillages, littering, accelerated erosion, and other environmental impacts shall be carefully managed. The Contractor shall ensure compliance with these requirements and remedy immediately any non-compliance and the effects thereof.
- 5.1.6. In any areas where construction requires gravelling or other methods of improving vehicle access, the Contractor shall completely remove these materials after construction and prior to rehabilitation of the area.
- 5.1.7. The Contractor shall not clear any vegetation outside of the project areas as defined by the project site boundaries.
- 5.1.8. The Contractor shall minimize infringement into the pristine ecosystems near the project area.

5.2. HEALTH AND SAFETY

- 5.2.1. Construction activities main works on site, including roadside camping will have the potential to affect amenity, safety, the environment and human health. A general regard for the social and ecological well-being of the route and adjacent areas, as well as the safety of the workers and the surrounding communities, is expected of the contractor working on this project.
- 5.2.2. The contractor is expected to have a Safety officer implementing Health and Safety Management Practices recommended by the Safety consultant or Paratus. Paratus should prepare a Safety management Plan for reference by the contractor to ensure health and safety of construction workers and nearby sensitive receptors.
- 5.2.3. This Plan should identify and encompass safe work practices that are expected of all the Paratus employees, Contractor’s and Sub-Contractor’s employees who are engaged in the installation,

maintenance and repair of the fibre optic cable. The plan should consider all health and safety issues that will have to do with the project implementation including the following:

- Safe drinking water, food sources and sanitation facilities.
- Personal Protective Clothing and Safety Equipment
- Putting in place a practical emergency responsive plan and associated training such as first aid.
- As far as is possible, all precautions and measure to ensure that no harm comes to the general public, either directly through construction-related activities or indirectly must be included in the Safety Management Plan to be implemented on site.

5.3. AIR QUALITY MANAGEMENT

5.3.1. Construction activities along the right of way may result in potential air pollution from dust emitted as a result of the following:

- Vehicle movements
- Machinery operations
- Clearing of vegetation and topsoil when digging the trench to lay the cable.
- Refilling trench

5.3.2. In order to minimise the potential for dust generation during the project activities the following management measure will have to be implemented by the contractor:

- Vehicle movements will be restricted to pre-existing designated roads only.
- Appropriate speed limits will be set and enforced, particularly on dirt roads.
- Ground disturbance will be minimised as far as practical.
- Vehicles and machinery will be maintained so as to limit exhaust fume emissions.

5.4. TRAFFIC MANAGEMENT

Given the nature of the project and its proposed right of way along the Katima Mulilo-Ngoma B8 road, it becomes essential to ensure that control of construction activities and road traffic users is done. This is done to avoid the occurrence of accidents along the road during the construction phase. The contractor will have to implement the following:

There should be appropriate temporary signage signalling construction activities along the road, a speed limit as well as alternative routes/detours if necessary to ensure that there is low risk of accidents.

Construction traffic should be visible during the day and night, adding on the vehicles should have minimal contact with B8 road users. During the construction phase there will be suspension of some waiting, loading or parking areas so as to avoid confusion in management of construction traffic, B8 road users and pedestrians.

The Contractor's employees shall not make recreational use of all-terrain vehicles or motorcycles on the site. The Contractor shall determine safe travelling speeds on the access roads to the site and shall ensure that these restrictions are enforced. This may include, but not be limited to, the monitoring of vehicle speeds, the erection of

speed limit signs and the installation of speed humps. The Contractor shall take particular care to avoid injury to livestock in areas where local communities frequent.

5.5. NOISE MANAGEMENT

The underground fibre optic cable will be laid along the servitude roadside, and within close proximity to the road there are no sensitive receptors except for areas where there are roadside shops and the stretch that passes through Salambala Conservancy. It thus becomes imperative to manage noise generated during the construction process to minimise impact of noise to wild animals and the nearby human populace. Noise will be managed by the contractor using the following management practices:

- Scheduling of works to avoid disturbance between the hours of 6 pm and 5 am because it is during this time that noise travel the farthest.
- Saturday construction period from 8am – 12 noon, when near residential areas.
- Procedures for receiving complaints from nearby land users or residents to be in place and mitigation measures to be implemented should construction generate excessive noise, which is unexpected.
- The Contractor shall comply with the World Health Organization (WHO) guidelines for the management of community noise, if instructed to do so by the Paratus, the Contractor shall demonstrate compliance with the noise guidelines by means of measurement of residual noise levels at receiver points specified. Measurement shall be in accordance with the requirements of a recognised standard, such as SANS 10103 - 2007.

5.6. THREATENED PLANT AND ANIMAL SPECIES

- 5.6.1. Regarding this matter, consult this section is regulated by the Forest Act, 2001 (Act No. 12 of 2001), the Controlled Wildlife Products and Trade Act (Act 9 of 2008) and the Nature Conservation Ordinance Act (Act No. 4 of 1975).
- 5.6.2. With reference to a Desktop Study: Vertebrate Fauna and Flora conducted by Cunningham P. L (2017) for the proposed underground fiber optic project in relation to the surrounding environs, there are no significant impacts to be expected on threatened fauna and flora species. This is because the project is to be undertaken on an already impacted servitude such that there are little to no known threatened plant species that are to be affected negatively as a result of the project.
- 5.6.3. Protected mammals such as elephants will experience minimal effects in terms of movements only during the construction phase, but no direct impacts are anticipated on protected animal's movements and habitats because the underground cable will not have any interference to these important aspects.
- 5.6.4. The study revealed that mammals which would result in potential conflict with the proposed fibre optic cable projects' construction activities would be mainly the elephant and giraffe especially in the Bukalo area – i.e. Salambala Conservancy – and closer to the Chobe River system (where elephant cross the river between Namibia and the Chobe National Park in Botswana). The contractor is thus recommended that:
- i. The fibre optic cable is placed below ground between Bukalo and Ngoma and
 - ii. Loose rocks are placed around above ground infrastructures (poles) for a distance of 3-5m (circumference) where these have to be above ground
- 5.6.5. The contractor shall ensure that any infrastructure on site must not exceed 3 meters and the cable is placed below ground close to Katima Mulilo and between Bukalo and Ngoma.
- 5.6.6. The Contractor shall not damage or harm threatened plant species as a result of any activities related to the Works. A formal listing of threatened plant species is clearly outlined in the Forest Act No. 12 Of 2001. The Contractor shall advise how this shall be dealt with, which could include calling upon a suitably qualified botanical expert to oversee the work necessary to evaluate the risk to the species and to determine appropriate action, which may include:
- a) Rescue of the plant(s) and transplantation in a suitable local habitat; or, where this is not possible;
 - b) The collection of seeds and cuttings for use at botanical gardens and for storage in seed banks in Southern Africa;
 - c) No action.
- 5.6.7. A listing of threatened animals that could occur in Namibia and possibly along the project site will be specified in appendix 1B. The Contractor shall take particular note of the occurrence of these species and shall ensure that they are not harmed or harassed in any way. In the event that the Contractor or any other party encounters threatened species during the course of the work or in any of the other areas impacted by the Works, this shall immediately be reported and a course of action to prevent harm to them agreed upon.
- 5.6.8. In addition to threatened animals, the Contractor shall take all necessary precautions to ensure that such species are not harassed or harmed.

- 5.6.9. The Contractor shall train all site staff to respect and prevent injury to wildlife. It is likely that snakes and potentially dangerous species will be encountered around the project site during construction. Killing of snakes and any other wildlife found during construction is strictly prohibited. These messages shall be reinforced in daily tool box talks with workers.

5.7. VEGETATION CLEARING

The desktop study conducted by Cunningham, P.L (2017) for the proposed underground fibre optic cable project reveals that there will be minimal vegetation removal to pave way for the project, except for small shrubs and grasses because most of the construction activities would be within the road servitude – i.e. already impacted area. Thus none of the larger tree/shrub species are expected to be exclusively associated with the fibre optic cable route and/or negatively affected during the construction of the infrastructure. However in circumstances that may result in impacts on trees/shrubs >1m in height, the following guidelines will have to be followed:

- 5.7.1. The Contractor shall comply with what is foreseen in the Namibian Forest Act of 2001 concerning vegetation clearance.
- 5.7.2. The Contractor shall clear only vegetation along the cables route site to the minimum degree necessary for construction. Cleared vegetation shall be windrowed along the perimeter of the site.
- 5.7.3. The Contractor shall not clear any vegetation outside of the areas defined by proponent and approved by the relevant land use authority.

5.8. TOPSOIL AND SUBSOIL

In the process of constructing the fibre optic cable trench Paratus will implement careful topsoil conservation procedures to maintain the productive capability of all lands. This activity supports reclamation and helps to protect the land. It is important to note that Paratus and the contractor will have to operate in strict adherence to the Soil Conservation Act 76 of 1969 and its amendments to date.

- 5.8.1. The Contractor shall store topsoil (defined as the top 150mm of soil) excavated for construction works in a windrow or stockpile which shall be separate from wind rows or stockpiles of any other excavated materials, i.e. To avoid soil mixing, topsoil is salvaged and stored separately from subsoil and other construction related activities. After pipeline installation is complete, subsoil is replaced within the trench and disturbed right-of-way to re-establish the land's natural contours. Following this, the topsoil is then placed on top of the subsoil on the disturbed right-of-way, completing the process.
- 5.8.2. Topsoil shall not be disturbed more than is absolutely necessary for construction works.
- 5.8.3. Topsoil shall not be contaminated with anything that might impair its plant- support capacity (e.g., aggregate, cement, concrete, fuels, litter, oils, domestic and industrial waste). The Contractor shall stockpile topsoil in a location that will minimise any loss due to erosion or mixing with other material. The Contractor shall ensure that topsoil is stockpiled in a manner and for a period of time that does not result in deterioration in its plant support capacity.

5.9. STONE AND ROCK WASTE

- 5.9.1. Excavated material will be backfilled into the same trenches on site. In cases of huge volumes of rock material, the Contractor shall dispose of this waste material in a manner that does not impact on the use

of the land by local inhabitants, nor on the ecological integrity of the area concerned. Windrowing of waste rock and other material along the perimeter of the Construction area shall be prohibited.

5.10. EMPLOYMENT

- 5.10.1. The proponent shall align its Project Labour Agreement in general alignment with the guidelines enshrined in the Labour Act, No. 11 of 2007 of the Government of Namibia.
- 5.10.2. The Contractor shall comply with the proponent's Project Labour Agreement. In considering job applications, the Contractor shall be as objective and impartial as possible.

5.11. COMPENSATION AND DAMAGES

- 5.11.1. Compensation for loss or damage to community assets shall be done in accordance with the procedures and unit rates regulated by the Government of Namibia.
- 5.11.2. The proponent shall discuss with Regional Council when necessary any cases of households that have built residential structures that will be affected by the construction. These discussions shall include the local Regional Council (Administrative Post and Locality Chiefs) and local community and traditional authority. In this process both district authorities, community leaders and affected households must understand that infrastructure is not permitted within the safety zone.
- 5.11.3. The proponent shall implement a monitoring and evaluation framework that includes local government officials and community representatives at district, administrative and locality level and affected parties to audit the effectiveness of any required mitigation.

5.12. ARCHAEOLOGICAL SITES

- 5.12.1. The Contractor shall comply with the requirements of the National Heritage Act, 2004 (Act No. 27 of 2004), all national antiquities and areas of historical and cultural heritage are protected. This includes archaeological sites, graves and graveyards and other sacred sites.
- 5.12.2. Should any archaeological sites be found, the Contractor shall appoint a professional archaeologist to ensure that the project activities do not damage or destroy any such sites accidentally found. In the event that archaeological sites are found the Contractor shall be responsible for the action necessary to provide independent evaluation of the significance of the site, to mitigate the impacts, to inform the Department of Monuments and Ministry of Culture and to obtain any necessary approvals in the event that the site is to be damaged by construction.

5.13. GRACES AND SACRED SITES

- 5.13.1. Regarding these matters, the Contractor shall comply with the traditional Laws of Land, Forest and Wildlife with regard to following local community customary norms and practices, to do with sanctuaries and other sacred, religious and cultural places.
- 5.13.2. Graves and sacred sites are important in the cultural tradition of local communities and shall not be disturbed by construction unless agreement is reached with the affected communities.

- 5.13.3. A site inventory conducted did not identify any graves or sacred sites since the right of way is an existing servitude, however in the event that additional grave(s) are found during bush clearing or construction of the main works that cannot be avoided by construction, the Contractor shall immediately stop work and shall prevent further damage to the vegetation within 20 m of the site. The proponent in conjunction with the Contractor, shall reach agreement with the affected family members/ community leaders as to an appropriate course of action, acceptable to all parties. Records of all such meetings shall be maintained for the purpose of independent audit.
- 5.13.4. In the event that unknown graves are discovered and no related family is identified, the Contractor and proponent shall discuss with local government and traditional authorities the appropriate course of action to be taken.
- 5.13.5. Prior to starting the main works, the Contractor shall contact the traditional authority to conduct ceremonies in accordance with traditional beliefs to ensure that the works will be carried out without problems. The Contractor shall make all preparations necessary to carry out these ceremonies.

5.14. REINSTATEMENT AND REHABILITATION

- 5.14.1. Upon completion of the project the contractor should reinstate the site to a state that it was in before commencement of works, this will include the removal of all temporary works on site such as fence and temporary signage. Affected infrastructure such as roads, poles, culverts and small bridges disturbed shall be restored to their original condition.
- 5.14.2. The Contractor shall restore the affected environment to the natural contours of the ground so as to allow normal surface drainage across the trench.
- 5.14.3. The Contractor shall ensure that any settlement in the trench does not result in the creation of a ditch or channel on or near the project site.
- 5.14.4. In places where erosion control is required, including the top of bank of all gullies, watercourses, large depressions and steep slopes, the Contractor shall construct diversion banks. These diversion banks shall be constructed according to the following requirements:
- a) The banks shall be extended across the entire disturbed width of working area;
 - b) The height of each bank shall be such that it will be capable of retaining a depth of water behind the bank of not less than 150mm. In areas of steep slopes, the height of the bank may be varied to accommodate the total flow of water during storms;
 - c) The interval of banks shall be sufficient to prevent concentration of runoff and erosion at the point of discharge on the down slope end of the bank.
- 5.14.5. The Contractor shall ensure that backfilling and compaction has been done correctly to minimize the risk of backfilled trench collapse/subsidence afterwards.
- 5.14.6. Paratus telecommunications in conjunction with the Contractor, shall undertake a programme of social monitoring and evaluation after completion of the compensation programmes if required. This will be achieved through the facilitation of the community liaison officer, the site manager and local authorities. Compensation evaluation shall consist of verifying whether livelihoods for those families that were affected are being left at a better position than they were before the project inception in their communities

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- Appendix 1 – Ecological desktop study**
- Appendix 2 - Monthly Internal EMP Checklist**
- Appendix 3 - Monthly Internal Compliance Certificate**
- Appendix 4 - Weekly Checklist**
- Appendix 5 - Weed and Seed Clearance Certificate**
- Appendix 6 – Roads Authority Agreement**
- Appendix 7 – A –List of Protected Trees & B – List of Protected Animals**