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**ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR THE CONSTRUCTION AND OPERATION OF  
DIESEL AS WELL AS THE LIQUEFIED PETROLEUM GAS (LPG) FILLING STATION AT ERF I-316M ONIIPA,  
OSHIKOTO REGION, NAMIBIA.**

**Prepared for (Proponent):**

**Mr Eliphas Shivute & Mr Titus Shivute**

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## DOCUMENT INFORMATION

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<b>PROJECT TITLE</b>	CONSTRUCTION AND OPERATION OF DIESEL AS WELL AS THE LIQUEFIED PETROLEUM GAS (LPG) FILLING STATION AT ERF I-316M ONIIPA, OSHIKOTO REGION, NAMIBIA.
<b>PROJECT TYPE</b>	ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT STUDY
<b>PROJECT LOCATION</b>	ERF I-316M ONIIPA, OSHIKOTO REGION, NAMIBIA (LAT -17.922341, LOG 16.002886)
<b>COMPETENT AUTHORITY</b>	MINISTRY OF MINES AND ENERGY, MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
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<b>LISTED ACTIVITY</b>	HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE: <b>CLAUSE 9.4</b> , THE STORAGE AND HANDLING OF A DANGEROUS GOODS, INCLUDING PETROL, DIESEL, LIQUID PETROLEUM GAS OR PARAFFIN, IN CONTAINERS WITH A COMBINED CAPACITY OF MORE THAN 30 CUBIC METERS AT ANY ONE LOCATION.

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## LIST OF ABBREVIATIONS AND ACRONYMS

CCTV:	Closed-circuit television
EAP:	Environmental Assessment Practitioner
EHS:	Environmental Health and Safety
EIA:	Environmental Impact Assessment
EMA:	Environmental Management Act
EMP:	Environmental Management Plan
HSE:	Health, Safety and Environment
IFC:	International Finance Corporation
I&APs:	Interested and Affected Parties
LPG:	Liquefied Petroleum Gas
MEFT:	Ministry of Environment, Forestry and Tourism
MSDS:	Material and Safety Data Sheet
NHC:	National Heritage Council
PPE:	Personal Protective Equipment
SANS:	South African National Standards
UKLPG:	United Kingdom Liquefied Petroleum Gas
WLPGA:	World Liquefied Petroleum Gas Association

## EXECUTIVE SUMMARY

Eliphas Shivute and Titus Shivute Trustee (Proponent), are Namibian business man with interests in the areas of establishing and operating diesel as well as Liquefied Petroleum Gas (LPG) Filling Stations in the norther part of Namibia, specifically in Oniipa Constituency. The Proponent has currently identified the need to establish and operate the same business in Oniipa Constituency. As such, the Proponent aims to construct and operate a diesel and LPG Filling Station at Erf I-316 in Oniipa. The purpose of the proposed facility is to provide a stable and reliable supply of diesel and LPG to local consumers.

The Environmental Assessment process has identified impacts ranging from low-to-high in their respective significance rating. However, various mitigation strategies are recommended in the Environmental Management Plan (EMP), which shall be complied with at all times.

**It is the view of the Environmental Practitioner that the project is given Environmental Clearance from the authorities with conditions that the EMP is implemented and adhered to in its entirety, and possibly further enhanced with the implementation of a fully functioning Health, Safety and Environmental Management System.**

## 1. INTRODUCTION

Eliphas Shivute and Titus Shivute Trustee (Proponent), is a Namibian business entity with interests in the areas of establishing and operating diesel as well as Liquefied Petroleum Gas (LPG) Filling Stations in the norther part of Namibia, specifically in Oniipa Constituency. The Proponent has an interest in petroleum products distribution and supply, and currently identified the need to establish and operate a diesel and LPG Filling Station at Erf I-316 in Oniipa Constituency. The purpose of the proposed facility is to provide a stable and reliable supply of diesel and LPG to local consumers.

The Proponent has appointed Extra Times Consulting cc to conduct a baseline Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) which will allow the Proponent to apply for an Environmental Clearance Certificate (ECC) from the Ministry of Environment, Forestry & Tourism (MEFT) for the construction and operation of the diesel and LPG Filling Station at Erf I-316 in Oniipa Constituency. Moreover, the ECC will allow the Proponent to apply for and obtain a fuel retail license and/or consumer installation certificate from the Ministry of Mines & Energy (MME).

This Environmental Assessment Scoping Report and EMP are aimed at providing information on the environmental significance of the proposed activities, to guide decision-makers as well as Interest & Affected Parties (I&APs) on the proposed development. The EMP shall ensure that the Environmental Impacts as identified are managed, mitigated and kept to a minimum – as well as ensure that the mitigation measures are implemented and complied with and adhered to during construction and operation.

The EMP is a legal dynamic bidding (to both the Proponent, constructors and sub-contractors) document which is flexible and responsive to new and changing circumstances, hence, it should be updated as and when required. Any substantive changes to the EMP will require authorization and endorsement by MEFT.

### 1.1 The Environmental Assessment Practitioner (EAP).

Extra Time Consulting CC is a Namibian-owned company that focuses on environmental services provision with more than 20 years of combined experience in the industry. Detailed curriculum vitae of the Environmental Assessment Practitioner (EAP) involved in this Environmental Assessment can be found in **Appendix A**.



## 1.2 Limitations of the Assessment

Information provided to the EAP Team by the proponent included the following:

- Special Power of Attorney (**Appendix B**).
- Designs and Illustrations of the proposed 14 000 L (14 m<sup>3</sup>) combined volumes of diesel and Tanks (**Appendix C**).

The assessment was essentially based on secondary data from various sources as well as on stakeholder input throughout the process as discussed in this document. Moreover, the assessment was limited to activities to be carried out onsite including both the construction and operational phase, as described in this document.

## 2. PROJECT DESCRIPTION

### 2.1 Nature of the listed activity under assessment

The proposed project requires an Environmental Clearance Certificate in terms of the Environmental Management Act No.7 of 2007 and Environmental Impact Assessment (EIA) Regulations (2012). The Listed activities that trigger this specific project subject to Environmental Assessment as per the Government Notice No. 29 of 2012 are as follows:

**Table 1: Summary of Listed Activity.**

Activity	Description of Relevant Activity	Relevance to Proposed Development
Activity 9: Hazardous Substance Treatment, Handling and Storage.	9.4 The storage and handling of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.	The proponent intends to construct and operate a diesel and LPG Filling Station consisting of a capacity of 14 m <sup>3</sup> tanks combined volume.

### 2.2 Proposed Site and Surrounding Land Use

The proposed site for the diesel and LPG Filling Station is located on Erf I-316 in Oniipa, Ondangwa (Lat -17.922341, Log 16.002886). The plot is zoned as a local business with the proponent's existing Buildware and Hardware Supplies. The surrounding zoning of the proposed site is a combination of Local Business, Public Parking, Single Residential, Public Open Space, General Business and Special Residential. This surrounding land use consists of residential properties just across the street towards the south of the proposed location, some SME Businesses.



**Figure 1 – Locality of the proposed diesel and LPG Filling Station**

## 2.3 Proposed Activities

The main activities to be carried out onsite predominantly entail the construction and operation of diesel and LPG Filling stations.

### A. Properties of LPG and Diesel

LPG is a blend of light hydrocarbon compounds which mainly consists of butane ( $C_4H_{10}$ ) or propane ( $C_3H_8$ ) or both. At room temperature, both gases are colourless and odourless. Propane has its boiling point at  $-42^\circ\text{C}$  and butane at  $-0.5^\circ\text{C}$ . Under modest pressure or in cooler conditions, LPG transforms into a liquid state. LPG in domestic cylinders used for cooking generally comprises more butane than propane, because the fuel value per kilogram of butane is higher than propane and it liquefies under much lower pressure than propane, thus it requires much safe handling.

LPG has many advantages such that when under pressure, the volume of butane and propane is reduced to around 1/260 of the gaseous aggregate state. As a result, the specific calorific value of LPG will be around 12.78 kWh/kg depending on the composition. In comparison, wood has an energy content in the range of 3.89 - 5 kWh/kg and charcoal in the range of 7.5 - 8.34 kWh/kg. If made available as a cooking energy fuel it could help to reduce the use of wood and biomass in households in Namibia – which also contribute to the reduction of deforestation and air pollution.

Liquefied Gas is heavier than air and can therefore accumulate above the ground. It is common practice to add a foul-smelling odorant to the gas to alert on its presence, to allow for early detection of leaks and prevent, mitigate or reduce fire and explosion risk – even though LPG is nontoxic, it is highly flammable. As such, LPG has to be handled with care and all equipment and appliances used to store or transport the gas must comply with high safety standards and international best practices. These standards and best practices have to be maintained and regularly inspected to identify deficiencies and to allow for corrective actions, especially, since it is known that if LPG contains more than 0.1% Butadiene, it can be classified as a carcinogen and mutagen. LPG is also regarded as non-corrosive but can dissolve lubricants, certain plastics or synthetic rubbers.

On the other hand, diesel fuels are complex hydrocarbon mixtures, containing all the classes of hydrocarbons: paraffin, naphthenes, aromatics, and in small concentrations, olefins. They are specifically manufactured to meet the property limits of the specifications and regulations, and

not to achieve a specific hydrocarbon distribution by class and size – but, to varying degrees, the property limits define the chemical composition of the fuel. The volatility of diesel fuel is expressed by its distillation curve, with each hydrocarbon boiling at a specific temperature called its boiling point and, in general, the boiling point increases with molecular size. The temperature limits of the distillation curve exclude smaller hydrocarbons with lower boiling points and larger hydrocarbons with higher boiling points.

### **B. Construction and Operation of diesel and LPG Filling Station/Facility**

Construction of the proposed diesel and LPG Filling Station/Facility would entail the upgrading of the existing main building(s) that will house the LPG Tank. All onsite infrastructure shall be designed, constructed, installed and operated following applicable Namibian and international legal framework and standards as well as industry best practices, which include, but are not limited to:

- UKLPG Codes of Practice
- South African National Standards (SANS)
- WLPG Guidelines and Industry Best Practices
- IFC Environmental, General Health and Safety Guidelines
- Any provisions of the Metrology Amendment Act and any provisions of the Local Authority.

The specifications of the diesel and LPG Tanks are illustrated in **APPENDIX C**, with each tank will have its individual dispensing nozzles, hoses, flow meters and related equipment. Other supporting infrastructure onsite would include a small office block with ablution facilities as well as a perimeter/boundary wall. All infrastructure and operations will conform to applicable legal framework and standards as well as the engineering design of the premises should be approved by the relevant departments of the Oniipa Town Council. Liquefied gas would be used to fill up gas cylinders of various sizes for clients at a cost for profit, which will be regularly filled up with gas by trucks from other bulk suppliers. It is expected that once in full operation, the diesel and LPG Filling Station can employ up to 10 local people.

### **2.4 Alternatives and No-Go Alternative**

The proponent has not considered any alternatives to the proposed site, since the development will be a complementary or expansion of the existing business. The only alternative considered is

the “No-Go Project”, which assumes that the project as proposed does not go ahead, which shall have implications such as:

- the land use potential remains unused, even though it will remain open to other potential business activities;
- there is no introduced risk of fire and explosion in the area;
- The jobs for the local community will not be realised and the local economy will be compromised;
- Reduced or unavailable locally accessible alternative energy options;

### **3. LEGAL AND ADMINISTRATIVE BACKGROUND**

This section outline and briefly discuss all the various laws, policies, national developmental plans and international best practices that have been considered in the preparation of this scoping report for the proposed development.

#### **3.1 The Namibian Constitution**

Articles 91, 95 and 144 of the Namibian constitution are of particular relevance to the planned development.

Part of Article 95 recites: “The State shall actively promote and maintain the welfare of the people by adopting policies aimed at...the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future...” Part of Article 91 recites “The functions of the Ombudsman shall be defined and prescribed by an Act of Parliament and shall include the following... the duty to investigate complaints concerning the over-utilization of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia”. Article 144 Recites “Unless otherwise provided by this Constitution or Act of Parliament, the general rules of public international law and international agreements binding upon Namibia under this Constitution shall form part of the law of Namibia.”

#### **3.2 Namibia’s Environmental Assessment Policy (1995).**

The Environmental Assessment Policy of Namibia declares the following: “...Achieving and maintaining sustainable development on all policies, programs and projects undertaken within Namibia. In particular, the wise utilization of the country's natural resources, together with the

responsible management of the biophysical environment, must be for the benefit of both present and future generations Namibia shall place a high priority on (i) maintaining ecosystems and related ecological processes, in particular, those important for water supply, food production, health, tourism and sustainable development; (ii) observing the principle of optimum sustainable yield in the exploitation of living natural resources and ecosystems, and the wise utilization of non-renewable resources; (iii) maintaining representative examples of natural habitats; (iv) maintaining maximum biological diversity by ensuring the survival and promoting the conservation in their natural habitat of all species of fauna and flora, in particular those which are endemic, threatened, endangered, and of high economic, cultural, educational, scientific and conservation interest." The policy also outlines an Environmental Assessment procedure.

### **3.3 National Energy Policy (2017)**

The National energy policy recognises 3 main issues with the Local Gas Market, these are: A legal and regulatory framework for a local downstream gas market does not exist; A regulatory authority responsible for the local gas market does not exist; Lastly, the local gas industry remains under-developed.

The Policy Objective concerning the Local Gas Market is thus to establish a legal and regulatory framework for the local gas market. Therefore, government resolves to; Facilitate the development of a legal and regulatory framework for the local gas market; Develop and maintain a transparent and consistent price regime that ensures that the pricing of downstream gas recovers all relevant costs; Lastly, ensure that the legal framework promotes investment, fairness, transparency and competition.

### **3.4 Environmental Management Act of Namibia (Act 7 of 2007) and its Regulations (2012).**

The Environmental Management Act (2007) aims to: promote the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment; establishing the Sustainable Development Advisory Council; to provide for the appointment of the Environmental Commissioner and environmental officers; to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

The Act further sets out several environmental objectives that; guide the implementation of the Act and any other law relating to the protection of the environment; serve as the general

framework within which environmental plans must be formulated; and serve as guidelines for any organ of state when making any decision in terms of this Act or any other law relating to the protection of the environment. These Environmental Objectives include (non-exhaustive list):

- The option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term must be adopted to reduce the generation of waste and polluting substances at source;
- A person who causes damage to the environment must pay the costs associated with the rehabilitation of damage to the environment and to human health caused by pollution, including costs for measures as are reasonably required to be implemented to prevent further environmental damage;
- Damage to the environment must be prevented and activities that cause such damage must be reduced, limited or controlled.

The Environmental Management Act Regulations specify scheduled activities that may not be under taken without an Environmental Clearance Certificate from the Environmental Commissioner.

### **3.5 Local Authorities Act (Act No. 23 of 1992).**

The Act provides for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters.

### **3.6 Labour Act (Act No. 11 of 2007)**

The Act aims to provide for a Labour Law and the protection and safety of employees. Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997).

### **3.7 Hazardous Substances Ordinance (No. 14 of 1974)**

The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its serves to prevent hazardous substances from causing injury, ill-health or the death of human beings.

### **3.8 Public and Environmental Health Act (Act No. 1 of 2015)**

The Act aims to provide for a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters.

### **3.9 Metrology Amendment Act, 2005 (Act No. 17 of 2005)**

The Act aims to incorporate certain provisions of the Measuring Units and National Measuring Standards Act. And to further provide for the approval of measuring instruments; to make available measuring instruments subject to certain conditions.

### **3.10 Namibia's 5<sup>th</sup> National Development Plan (NDP 5)**

The fifth National Development Plan is the fifth of a series of seven 5-year national development plans that outline the objectives and aspirations of Namibia's long-term vision as expressed in Vision 2030.

### **3.11 South African National Standards (SANS)**

In the absence of a National Legal Framework and Standards, for the sale, handling and distribution of LPG in Namibia, the Ministry of Mines and Energy recommends that the Local LPG supply industry to make use of applicable SANS Standards. These standards include:

- **SANS 347:** Categorization and conformity assessment criteria for all pressure equipment
- **SANS 199:** Shut-off valves for refillable liquefied petroleum gas cylinders
- **SANS 1156-2:** Hose for liquefied petroleum gas (LPG) Part 2: Hose and tubing for use in LPG vapour phase and LPG-air installations
- **SANS 1237:** Single-stage regulators for LPG
- **SANS 1539:** Appliances operating on LPG – safety aspects
- **SANS 10019:** Transportable Pressure Receptacles for Compressed, Dissolved and Liquefied Gases - Basic Design, Manufacture, Use and Maintenance. This standard covers the minimum requirements for the design, manufacture, use and maintenance of refillable and non-refillable pressure receptacles of water capacity 0.5 to 3 000 L.
- **SANS 10087-1:** The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial, and industrial installations Part 1: Liquefied petroleum gas installations involving gas storage containers of individual water capacity



not exceeding 500 L and a combined water capacity not exceeding 3 000 L per installation.

- **SANS 10087-2:** The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial, and industrial installations Part 2: Liquefied petroleum gas installations involving gas storage containers (used in mobile applications) of individual water capacity not exceeding 113 L and a combined water capacity not exceeding 500L.
- **SANS 10087-3:** The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial, and industrial installations Part 3: Liquefied petroleum gas installations involving storage vessels of individual water capacity exceeding 500 L.
- **SANS 10087-4:** The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial and industrial installations Part 4: The transportation of LP gas including the design, construction, inspection, fittings, filling, maintenance and repair of LP gas bulk vehicles and rail tank car.
- **SANS 10087-7:** The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial, and industrial installations Part 7: Storage and filling premises for refillable liquefied petroleum gas (LPG) containers of gas capacity not exceeding 9 kg and the storage of individual gas containers not exceeding 48 kg.
- **SANS 10087-8:** The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial and industrial installations Part 8: Filling containers for LP gas operated fork lift vehicles in-situ.
- **SANS 10087-10:** The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial and industrial installations Part 10: Mobile filling stations for refillable liquefied petroleum gas (LPG) containers of capacity not exceeding 9 kg.

### **3.12 World LPG Association (WLPGA) Guidelines**

WLPGA is the authoritative voice of the global LPG industry representing the full LPG value chain. The primary goal of the Association is to add value to the sector by driving premium demand for LPG, while also promoting compliance to good business and safety practices.

The association periodically publishes good practice guidelines for the LPG industry, these include:

- Guidelines for Good Safety Practice in the LPG Industry.
- Guide to Good Industry Practices: HSE Management Systems.

- Guidelines for Good Industry Practices: LPG Cylinder Filling.

### **3.13 UKLPG Codes of Practice**

UKLPG is the Trade Association for the LPG industry in the UK and is responsible for the industry's technical standards. UKLPG's Codes of Practice, which provide guidance on best engineering and safety practice, are amongst the most recognised in the world. Topics covered include the transportation, storage, installation, operations and utilisation of LPG. The Codes have been developed by experts from within the industry in consultation with the UK Health & Safety Executive and other UK government authorities.

### **3.14 World Bank - International Finance Corporation EHS Guidelines**

The EHS (Environmental Health and Safety) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP) and are referred to in the World Bank's Environmental and Social Framework and in IFC's Performance Standards.

The EHS Guidelines contain the performance levels and measures that are normally acceptable to the World Bank Group, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology.

#### **4. PUBLIC CONSULTATION**

The public participation phase is an integral part of the EIA process which continues throughout different stages. It can be referred to as a dynamic process where diverse societal interests, needs and values must be recognised and managed. Public participation provides the opportunity for engagement openly and transparently which would add significant value to the planning of the proposed project.

a) Stakeholders were actively identified by Extra Time Consulting and were also afforded a copy of the background Information document. Stakeholders/I&AP for the project ranged from various individuals representing a diverse multitude of institutions, such as:

- Oniipa Town Council
- Oshana Regional Council
- Adjacent land users/owners
- Local Ministries and Non-Governmental Organisations

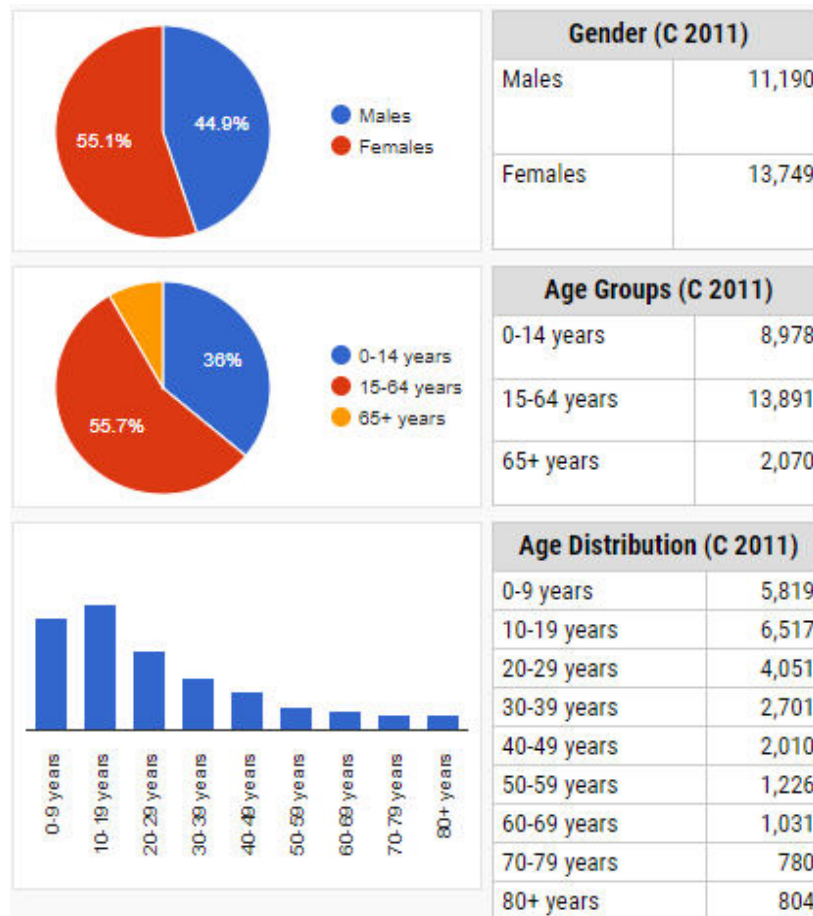
## **5. DESCRIPTION OF THE ENVIRONMENT**

Oniipa is a town located in the Oshikoto Region of northern Namibia and is a district capital of the Oniipa Electoral Constituency, along the B1 Road between Omuthiya and Ondangwa. It is a young town with an innumerable history and legacy and it was proclaimed as a town on 30 April 2015. Before the proclamation, Oniipa was a settlement area known as Onethindi-Oniipa Settlement Area since January 2014. Oniipa is home to over 24,000 inhabitants from diverse cultural backgrounds. The proposed site is specifically located at Erf I-316 within Oniipa Town Council land (Figure 1). In this chapter, the socio-economic as well as natural receiving environments of the broader Oniipa Constituency have been elaborated.

### **5.1 Socio-Economic Environment**

Oniipa was formerly a settlement station established by the first Finnish Missionaries in 1872, which makes it the oldest town in the whole of Namibia. Oniipa is known to be the discovery of urban life and professional education in Namibia – making it to be the first place to host a brick and corrugated metal roof sheeting structure, flushing toilet, car, cotton plantation, printing press and the first place to ever produce a medical doctor, nurse, teacher and pastor in Namibia. In the global context, the first Strategic Plan of Oniipa Town Council is aligned with the United Nations' Agenda 2030, the Sustainable Development Goals (SDGs) as set by Resolution 70/1 of the United Nations General Assembly in 2015, with the main focal SDG goal of the 11<sup>th</sup> Goal that is fostering for Sustainable Cities and Communities – as such the proposed development is supporting this goal.

Based on the 2011 Census, Oniipa covers approximately 371.4 km<sup>2</sup> area and has about 24,939 Total Population, with a 67.15/km<sup>2</sup> Population Density. Figure 2, indicates further information regarding the population structure, age group and sex.



**Figure 2 – Total population of Oniipa by age group and sex**

The key potential commercial economic activity in Oniipa range from dry industries, tourism, retailing and transportation. Oniipa is considered an educational hub where most people got their education through the Finnish Mission and ELCIN. In addition, there are 3 bakeries, 2 butcheries, different workshops, 6 Grocery Shops and 4 mini-service stores. The council has recently initiated an annual exhibition festival known as Oshipe Annual Festival. Oshipe is expected to strengthen the town's economy and help the business community to penetrate the global market through benchmarking and networking, as such the proposed project will ensure the provision of sufficient diesel and LPG at all times. Oshipe is further expected to promote and preserve the indigenous culture of Oniipa.

Within its economic potential, Oniipa Town has ample land for all types of developments and can offer business opportunities in heavy and light industries, hospitality, education, housing, and manufacturing. The town's key strategic economic priorities are versed in urban agriculture, manufacturing, tourism, housing development, hospitality, education and contemporary

shopping malls. Oniipa receives very good sunshine for solar energy harvest. The town has easy access to the railway as well as to the major national road network. Affordable land and community stand for hard work and innovation. Thus, Oniipa is strategically positioning itself to be the reception Centre for business transformation in Namibia due to its strategic position along the key transport corridors of Namibia. The town is ready and open to business negotiations to improve the town and speed up its development of the town, by ensuring that it receives and encourages eye-catching infrastructure and tangible performance-driven results.

In terms, of transport, Oniipa is located within the vicinity Ondangwa Airport which is linked to Oshakati and Oshikango by a tarred road, with rental car services available to tourists, including locals. There are establishments within the surroundings such as the Ekamuti Lodge, Ondangwa Town Lodge, Protea Hotel, Oshoto Pension Hotel, Anot Guest House, Ondangwa Restcamp and many others which can support the proposed project in many ways.

## **5.2 Tourism activities**

Oniipa is not just a historic investment district but an incredible place to enjoy a great vacation as well. The town has a lot to offer the discerning traveller with plenty of things to see and do. After all, Oniipa is the only town in Namibia with an open Medical Museum with plenty to boast in terms of tourist attractions. The Medical Museum is out to be on your list of things to do in Oniipa. The museum is located within the Onandjokwe Hospital, the first hospital in the whole of northern Namibia and has everything you would like to know about health care in the 18<sup>th</sup> century, the up-surge and descent of the country's era of oppression and segregation.

One of the most prestigious and amazing tourist itinerary routes of attraction item in Oniipa is a Sauna. Saunas are generally only found in luxury spas and are so popular in their native country Finland. This is the most unique and historic sauna you can visit in Oniipa and not anywhere else in Namibia. Still carrying most of its old charm, the sauna offers birch twigs for visitors to bite against the skin to improve circulation and even continues to offer old-fashioned bloodletting. It has a much more casual and laid-back atmosphere than high-class spas and is a good place to relax and experience an authentic Finnish Sauna.

On the other hand, the Nakambale Museum is one of the ideal places to use as a base to head off on a safari on the outskirts of the town for a close and personal encounter with a variety of Finnish Missionary Heritage Sites and objects. A tour to the village, Oshiwambo Traditional House (living museum) allow you to see traditional activities.

### 5.3 Natural Environment

Namibia is generally a dry and hot country, with abundant natural resources from which it could reap wealth to improve the living standards of its people, especially at the local level. It is a requirement to conform to the Environmental Law which is hampering the much-needed development in the vicinity of the proposed project, especially when sand and gravel quarrying has since begun to be strictly regulated. The proposed site is at the heart of a built-up area that has plenty of paving and tarred roads, thus there is largely a lack of a natural environment including the immediate vicinity, thus the natural environment shall be discussed on a broader scale.

#### 5.3.1 Climatic conditions

The climatic conditions for the proposed development and vicinity can be described as semi-arid, with hot summers and warm winters (with mild days and cool nights). Average annual temperatures are usually between 19 and 20 °C, with average maximum temperatures between 30°C and 32 °C and average minimum temperatures between 6°C and 8 °C) as indicated in **Figure 3**.

The average annual precipitation is 450 mm, with rainfall occurring mainly during summer (**Figure 4**). Rainfall patterns can be highly variable and unpredictable, for example, in the unusually rainy season of 2010/2011 rainfall was over 1,000 millimetres, while in 2018/19 during the drought only 169 mm of rain fell.

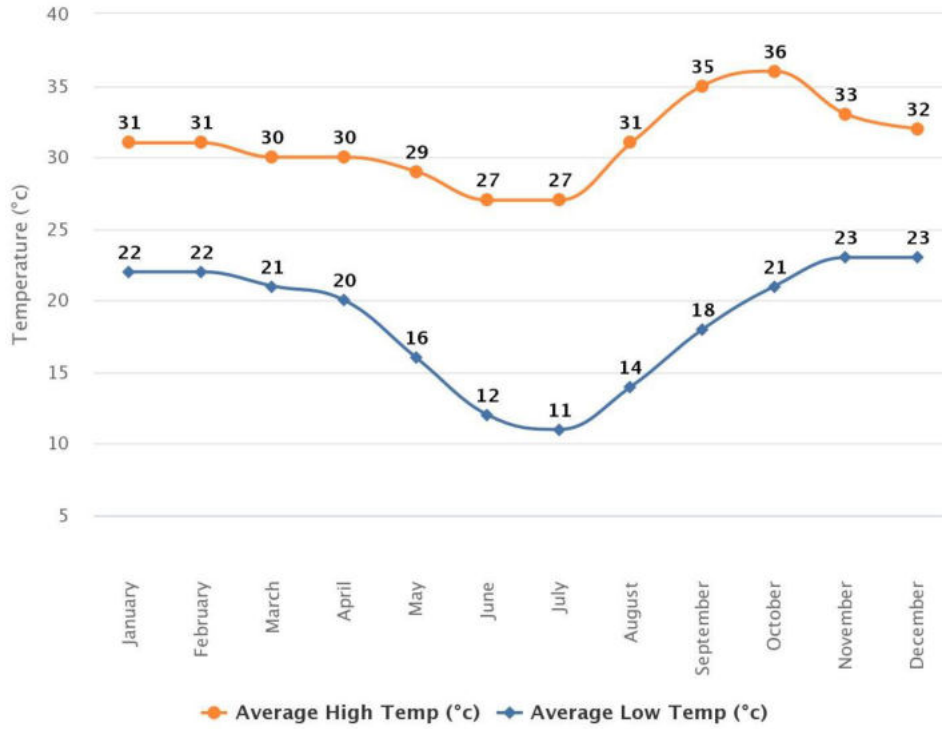


Figure 3 – Temperature around the proposed project vicinity

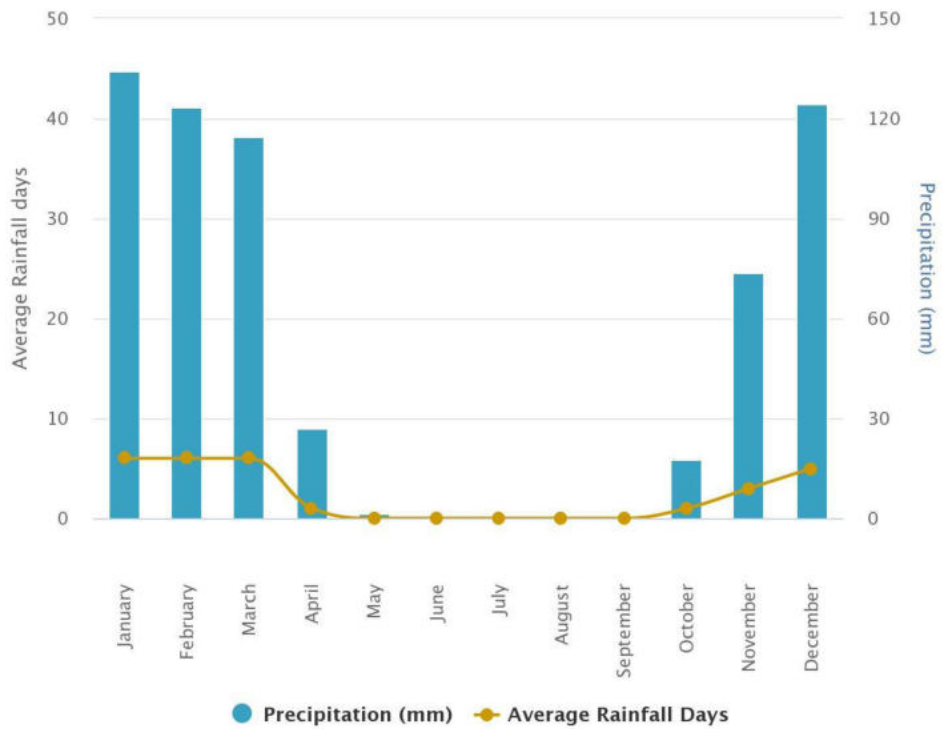


Figure 4 – Rainfall around the proposed project vicinity



### 5.3.2 Topography, Soils, Geology and Hydrology

Oniipa is situated on the eastern edge of the Cuvelai system which is characterized by shallow drainage channels with pockets or islands of higher-lying land in between. The topography is generally, a gently sloping plain with a gradient of about 1:2 500). The drainage channels periodically carry water after heavy local rains or good falls in highland areas to the north of Angola. In the project vicinity, floods are mainly increased by heavy rains and the lack of storm water drainage system, which tends to affect low-lying sites within town boundaries and accessibility to surrounding areas.

The soil of northern Namibia as well as within the project vicinity is dominated by deep Kalahari and Namib sand that mostly occurs in the formation of sands and other sedimentary materials, while the clay sodic sands dominate in the drainage lines. The soil type classification is termed to be favourable for crop cultivation and plant growth in general, and this is determined by its physical properties to the nature of water retention, lower salinity, and high nutrient level. In principle, the soil comprises mosaic soil types such as clay and average salty clay. This determines that the main soil dominance is Eutric Cambisols that characteristic by its definition of consistency, colour and structure. To one extent, it is found in the depression of low-lying areas of the landscape, and typically contains accumulations of calcium carbonate. These soils are potentially fertile, but iron and zinc occurrence might be at lower-level concentrations.

The proposed development is situated amidst the dramatic scenery of the Kaoko and Damara regions, in the vicinity of Etosha National Park. The relatively pristine state of much of the local culture in the surrounding areas is balanced by the bustling markets and vibrant urban life of the town centre.

## 6. ENVIRONMENTAL ASSESSMENT

The Table below indicates a summary of identified environmental impacts. These impacts are categorized into the relevant stages of the proposed development life cycle, namely: Construction Phase; Operational Phase; Decommissioning Phase and Rehabilitation Phase. The environmental assessment section of the Scoping report and the consequent EMP shall also be incorporated into these phases.

**Table 1 – Summary of identified Environmental Impacts**

	Construction Phase	Operational Phase	Decommissioning Phase	Rehabilitation Phase
Environmental Impact	6.2.1 Impacts on Social s and Cultural Heritage.	6.3.1 Impacts on Social s and Cultural Heritage.	6.4.1 Decommissioning of diesel and LPG Filling Station infrastructure.	6.5.1 Environmental Restoration Fund.
	6.2.2 Traffic and Site Access.	6.3.2 Traffic and Site Access.	6.4.2 Health and Safety of Decommissioning Personnel.	
	6.2.3 Fire Hazards.	6.3.3 Waste Management.	6.4.3 Waste Management.	
	6.2.4 Waste Management.	6.3.4 Fire Hazards.		
	6.2.5 Health and Safety of Construction Personnel.	6.3.5 Health and Safety of Operational Personnel.		
	6.2.6 HIV/AIDS and Employee wellness.	6.3.6 HIV/AIDS and Employee wellness.		
	6.2.7 Noise during construction.	6.3.7 Noise during operation.		

### 6.1 Impact Evaluation Criterion used

The identified impacts were evaluated in terms of their magnitude considering Temporal (Duration/Frequency) and Spatial (Local, National and Regional) scales as well Severity and Likelihood of occurrence as explained in Table 2 – 7. The points scored by a particular impact in terms of its effect (Table 2 – 7) and Likelihood (Table 5) the sum of these points was then used to determine the overall significance of the particular impact through the use of a Matrix as indicated in *Table 10*. From table 10, the colour category in which a particular impact falls under is then used in order to determine the significance of the impact as shown in Table 7, either; Low, Moderate, High, Very High. The entire process is repeated for each impact assuming suggested mitigation measures.

**Table 2 – Ranking evaluation criterion for the effects of impacts over temporal scales**

Temporal Scale	Description	Score
Short term (ST)	Less than 5 years	1
Medium term (MT)	Between 5-20 years	2
Long term (LT)	Between 20 & 40 years (a generation) and from a human perspective also permanent	3
Permanent (P)	Over 40 years & resulting in a permanent lasting change that will always be there	4

**Table 3 – Ranking evaluation criterion for the effects of impacts over spatial scales**

Spatial Scale	Description	Score
Localized (L)	At localized scale and a few hectares in extent	1
Study Area (S)	The proposed site and its immediate environments	2
Regional (R)	District and Regional level	3
National (N)	Country	4
International (I)	Internationally	5

**Table 4 – Ranking evaluation criterion for the Severity or Benefits of impacts**

Severity	Description (Severity / Beneficial effects)	Score
Slight (SL)	Slight impacts to the affected system(s) and/or party(ies)	1
Moderate (M)	Moderate impacts of the affected system(s) and/or party(ies)	2
Severe (SE)	Severe impacts of the affected system(s) and/or party(ies)	4
Very Severe (VS)	Very Severe impacts of the affected system(s) and/or party(ies)	8

**Table 5 – Ranking evaluation criterion for the likelihood of potential impacts**

Likelihood	Description	Score
Unlikely (U)	The Likelihood of these impacts occurring is slight	1
May occur (M)	The likelihood of these impacts occurring is possible	2
Probable (P)	The likelihood of these impacts occurring is probable	3
Definite (D)	The likelihood that this impact will occur is definite	4

**Table 6 – Matrix used to determine the overall significance of the impact based on the likelihood and effect of the impact**

		Effect													
		3	4	5	6	7	8	9	10	11	12	13	14	15	16
Likelihood	1	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	2	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	3	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	4	7	8	9	10	11	12	13	14	15	16	17	18	19	20

**Table 7 – Description of Environmental significance ratings and associated range of scores**

Significance Rate	Description	Score
<b>Low</b>	Acceptable impact for which mitigation is desirable but not essential. The impact by itself is insufficient even in combination with other low impacts to prevent the development from being approved.	4 - 7
<b>Moderate</b>	An important impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent project implementation. These impacts will usually result in either a positive or negative medium to long-term effect on the social and/or natural environment.	8 - 11
<b>High</b>	A serious impact if not mitigated, and may prevent the implementation of the project (if it's a negative impact). These impacts would be considered by society as constituting a major and usually a long-term change to the (natural and/or social) environment and result in severe effects.	12 - 15
<b>Very High</b>	A very serious impact which, if negative, may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are immitigable and usually result in very severe effects, or very beneficial effects.	16 - 20

## 6.2 Construction Phase Impacts

### 6.2.1 Impacts on Social and Cultural Heritage.

**DESCRIPTION:** During the construction of the proposed diesel and LPG Filling Station, impacts on social and cultural heritage could be expected and include the following: construction activities may cause minor dust and unintentional heritage destruction; Establishment of a temporary construction mobile site office; community grievances; and archaeological Discoveries on site.

**MITIGATION:** It is recommended that if dust be generated during construction, the proponent should find remedy in non-toxic dust suppression measures. Before commencement of construction, the proponent should ensure that a Community Grievance Mechanism is in place for the local communities through the local authority. In the unlikely event of any discoveries of a heritage/archaeological nature during the construction phase of the project, work should stop and the Local Authority as well as the National Heritage Council (NHC) should be contacted immediately.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(ST) 1	(L) 1	(SL) 1	(P) 3	6 LOW
<b>Score Considering Mitigation</b>	(ST) 1	(L) 1	(SL) 1	(U) 1	4 LOW

The overall rating of this impact is low (6) under unmitigated conditions and low (4) under mitigated conditions. Mitigation is therefore recommended as best practice and as a means of remaining pro-active throughout construction as well as reducing impacts.

### 6.2.2 Traffic and Site Access.

**DESCRIPTION:** During the construction of the proposed diesel and LPG Filling Station, site access should be controlled to avoid traffic congestion on the portion of the road leading up to the site as well as incidents that may arise due to uncontrolled site access.

**MITIGATION:** Existing roads that link the site to neighbouring areas should not be obstructed or damaged through construction endeavours. Operators of vehicles used during construction, should be mindful of their fields of view and be on the lookout for possible pedestrians. The proponent should also restrict access to the site with a focus on high-risk structures or areas depending on the site-specific situations through interventions such as; fencing, appropriate signage, and communication of risks to the local community. A visitor orientation program

should be developed and all visitors to the site should comply with all health, safety and environmental protocols on site, and all visitors should be documented upon entry and departure. Regular communication between the proponent and neighbouring land users and communities with regard to traffic matters should be agreed upon prior to construction, and communication in this regard should be ongoing with possible changing conditions during construction with such discussions documented and relevant recommendations.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(ST) 1	(S) 2	(M) 2	(D) 4	9 MODERATE
<b>Score Considering Mitigation</b>	(ST) 1	(L) 1	(SL) 1	(M) 2	5 LOW

The overall rating of this impact is moderate (9) under unmitigated circumstances and low (5) under mitigated conditions. Mitigation is therefore recommended as best practice and as a means of remaining pro-active through construction as well as reducing impacts.

### 6.2.3 Fire hazards

**DESCRIPTION:** During the construction of the proposed diesel and LPG Filling Station, it is likely possible when dealing with hazardous substances that may be kept and/or handled onsite, may present a fire risk that the proponent should not neglect and should take full responsibility for and manage accordingly. These hazardous substances include: paints, solvents, gases (LPG) and hydrocarbons (non-exhaustive list).

**MITIGATION:** Prior to construction, the proponent should develop an Emergency Response Plan that is to be followed in the event of emergencies that may arise from the handling and storage of hazardous substances onsite, as well as Safe Working Procedures for all activities to be carried out onsite. The design of the facility and installation of all diesel and LPG infrastructure onsite; all associated construction safe working procedures; as well as the development of the Emergency Response Plan should be informed by relevant standards and industry best practices such as (nonexhaustive list):

- UKLPG Codes of Practice
- South African National Standards (SANS) (see Section 3.13)
- WLPG Guidelines and Industry Best Practices

- IFC Environmental, General Health and Safety Guidelines (particularly Hazardous Materials Management section, Overfill Protection, Fire & Explosion Prevention, and Control Measures)
- Any provisions of Metrology Amendment Act and any provisions of the Local Authority.

The Emergency Preparedness and Response Plan should include:

- identification of potential emergencies based on hazard assessment;
- procedures to respond to the identified emergency situations;
- procedures to shut down equipment;
- procedures for rescue and evacuation;
- list and location of alarms and schedule of maintenance;
- list and location of emergency response equipment (firefighting, spill response, first aid kits, personal protection equipment for emergency response teams);
- protocols for the use of the emergency equipment and facilities;
- schedule for periodic inspection, testing and maintenance of emergency equipment;
- clear identification of evacuation routes and meeting points;
- schedule of trainings and drills, including with local emergency response services (fire fighters);
- procedures for emergency drills;
- emergency contacts and communication protocols, including with communities when necessary, and procedures for interaction with the government authorities;
- procedures for periodic review and update of emergency response plans.

Material and Safety Data Sheets (MSDS) should be readily available onsite at all times and the contents of these documents should be adhered to. MSDS documents must also be considered in the development of the recommended Emergency Response Plan and Safe working procedures. The major spillage of any hydrocarbon exceeding 200 liters should be reported to the Ministry of Mines and Energy (MME) as well as the Local Authority without delay. All incidents and near misses with regard to Fire hazards should be; documented, investigated, with the outcomes/corrective action implemented immediately in order to prevent re-occurrence by all means.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(P) 4	(R) 3	(SE) 4	(D) 4	15 High
<b>Score Considering Mitigation</b>	(ST) 1	(L) 1	(M) 2	(P) 3	7 LOW

The overall rating of this impact is high (15) under unmitigated circumstances and low (7) under mitigated conditions. Mitigation is therefore strongly recommended as best practice and as a means of remaining pro-active through construction as well as reducing impacts.

#### 6.2.4 Waste Management

**DESCRIPTION:** During the day-to-day activities of the construction of the proposed diesel and LPG Filling Station, different kinds of waste are expected to be generated. These include: general domestic waste, building rubble, site clearing debris, packaging, chemical/mobile toilet sewage etc.

**MITIGATION:** All domestic waste onsite should be disposed of in receptacles that promote good housekeeping and can hold all waste until such a time that the waste is to be removed from the site without causing any pollution. All waste is to be removed from the site on a regular basis and should under no circumstances be allowed to accumulate. Waste that may be hazardous should not be stored in a manner that would create other hazards (i.e fire and explosion, contamination etc.). Contaminated products that cannot be re-used and domestic waste should be disposed of in accordance with Local Authority requirements. Chemical/Mobile toilets that may be used onsite during construction should comply with applicable national and local authority requirements. Chemical/Mobile toilets that are to be used onsite should complement the number of people that would make use of them in accordance with national laws. No waste should be buried or burnt onsite, and littering should be strictly prohibited.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(ST) 1	(L) 1	(M) 2	(P) 3	7 LOW
<b>Score Considering Mitigation</b>	(ST) 1	(L) 1	(SL) 1	(U) 1	4 LOW

The overall rating of this impact is low (7) under unmitigated circumstances and low (4) under mitigated conditions. Mitigation is therefore recommended as best practice and as a means of remaining pro-active through construction as well as reducing impacts.



### 6.2.5 Health and Safety of Construction Personnel

**DESCRIPTION:** All construction phase related activities require human labour, directly or indirectly, which brings with it an inherent health and safety risk to all construction personnel.

**MITIGATION:** It is the responsibility of the proponent to comply with the provisions set forth in the Labour Act 11 of 2007, with special thoughtfulness to the chapter that primarily outlines Health and Safety in the work place, as well as all other national and local legislations.

Recommended mitigating measures include, but not limited to (non-exhaustive list):

- Periodic internal health and safety compliance audits e.g., once per month.
- Health and Safety training and speciality programs should be provided as needed to ensure workers are oriented to the specific hazards of individual work assignments and all other present hazards.
- Hazard risk identification within Job Profiles/Machinery/Equipment/Work Areas and Tasks that are to be performed.
- Appointment of Safety Officers as custodians of safety within the workplace. In addition to these, Peer Educators and Health and Safety Representatives can also be nominated in constituent working teams in order to foster a culture of health and safety at the construction site – and a First Aid Box should be available onsite all times.
- Documented Safe Operational and Work Procedures as well as Emergency (including Medical) Procedures and drills. These need to be periodically reviewed for their effectiveness and should be constantly improved upon whenever the opportunity presents itself, particularly following an event of note (including near-misses).
- Daily safety talks prior to the commencement of every shift.
- Monthly/Weekly peer education topics encouraging healthy and safety lifestyle choices, safety at the construction site and outcomes of investigations into near-misses and incident investigations.
- Good housekeeping practices in order to avoid unforeseen hazards and obstructions.
- General permits to work and Personal Protective Equipment (PPE)/Clothing
- Conspicuous signs displaying all potential hazards, PPE requirements, assembly points, waste receptacles of all kinds, emergency numbers for respective emergencies that may arise, MSDS Sheets etc.
- Communication of lessons learnt from previous incidents and corrective action taken to avoid re-occurrence as soon as these are known following an investigation.

- Investigations into the improvement of current practices from a health and safety perspective.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(P) 4	(N) 4	(SE) 4	(M) 2	12 HIGH
<b>Score Considering Mitigation</b>	(ST)1	(L) 1	(M) 2	(M) 2	3 LOW

The overall rating of this impact is high (12) under unmitigated and low (3) under mitigated conditions. Thus, mitigation is recommended as best practice and as a means of remaining proactive through construction.

#### 6.2.6 HIV/AIDS and Employee Wellness

**DESCRIPTION:** The construction of the proposed development is expected to attract a large number of people in the area. Should those recruited (particularly contractors) relocate to Oniipa from other towns, it could contribute to the spread HIV/AIDS infections locally.

**MITIGATION:** The proponent should encourage and promote HIV/AIDS and health awareness among employees and contractors.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(P) 4	(S) 2	(SE) 4	(D) 4	10 HIGH
<b>Score Considering Mitigation</b>	(ST) 1	(S) 2	(SL) 1	(M) 2	4 LOW

The overall rating of this impact is high (10) under unmitigated conditions and low (4) under mitigated conditions. Mitigation is recommended as best practice and as a means of remaining pro-active through construction as well as reducing impacts.

#### 6.2.7 Noise during construction

**DESCRIPTION:** Construction activities of the proposed diesel and LPG Facility may generate noise which may become a nuisance to neighbouring land users and local community at large.

**MITIGATION:** The proponent should limit working hour's onsite to 07h00 to 19h00 and coordinate working high noise generating tasks in such a manner that provides the least nuisance to neighbouring land users. The use of hearing protection should be enforced actively where

necessary. Furthermore, the Community Grievance mechanism described in the previous section should also be used for any noise related complaints that the community may have. It is also recommended that the IFC Environmental, General Health and Safety Guidelines (particularly the Noise Management section) should be consulted to address specific noise issues that may be brought about by construction activities.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(ST) 1	(S) 2	(SE) 4	(M) 4	10 MODERATE
<b>Score Considering Mitigation</b>	(ST)1	(L) 1	(M) 2	(M) 2	3 LOW

The overall rating of this impact is high under unmitigated conditions and low under mitigated conditions. Mitigation is recommended as best practice and as a means of remaining pro-active through operations as well as reducing impacts.

### 6.3 Operational Phase Impacts

All operational related impacts of the proposed development are discussed in this section in terms of the description of the impact, its effects (temporal, spatial & severity), the likelihood of occurrence and proposed mitigation measures.

#### 6.3.1 Impacts on Social and Cultural Heritage.

**DESCRIPTION:** During the operation of the proposed diesel and LPG Filling Station, impacts on social and cultural heritage are likely to occur.

**MITIGATION:** Lighting at the facility should be kept at a minimum to reduce light spillage and pollution. In the unlikely event of any heritage or archaeological discoveries during the operational phase of the project, the Local Authority and National Heritage Council (NHC) should be contacted immediately. The community grievance mechanism described in the preceding section, should be further adapted to suit the operational phase and should be implemented and periodically reviewed.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(MT) 2	(S) 2	(M) 3	(P) 3	6 MODERATE
<b>Score Considering Mitigation</b>	(ST) 1	(L) 1	(SL) 1	(U) 1	4 LOW

The overall rating of this impact is moderate (6) under unmitigated conditions and low (4) under mitigated conditions. Mitigation is therefore recommended as best practice and as a means of remaining pro-active through operations as well as reducing impacts.

### 6.3.2 Traffic and Site Access.

**DESCRIPTION:** During the operation of the proposed diesel and LPG Filling Station, an assortment of parties would require access to the site for various reasons: clients looking to purchase diesel and LPG; supply trucks delivering diesel and LPG products; suppliers delivering various goods/services to the Filling Station etc. It is thus important that traffic and site access are managed and controlled during the operation phase of the project.

**MITIGATION:** Any changes to the established access roads need to be done in consultation with the Local Authorities. The proponent should strictly restrict access to the site with a focus on high-risk structures or areas depending on the site-specific situations through interventions such as; fencing, appropriate signage, and communication of risks to the local community. Existing roads that link the site to neighbouring areas should not be obstructed or damaged through any endeavours of the operation of the diesel and LPG Filling Station. A CCTV system should be installed and boundary wall encompassing the facility needs to be in place. A visitor orientation program should be developed and all visitors to the site should comply with all health, safety and environment protocols on site and all visitors should be documented upon entry and departure. Regular communication between the proponent and neighbouring land users with regard to traffic issues should be maintained.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(LT) 3	(S) 2	(M) 2	(D) 4	11 MODERATE
<b>Score Considering Mitigation</b>	(ST) 1	(L) 1	(SL) 1	(M) 2	5 LOW

The overall rating of this impact is moderate under unmitigated circumstances and low under mitigated conditions. Mitigation is therefore recommended as best practice and as a means of remaining pro-active through operations as well as reducing impacts.

6.3.3 Waste Management

**DESCRIPTION:** During the day-to-day activities of the operation of the proposed diesel and LPG Filling Station, different kinds of waste are expected to be generated. These include: general domestic waste, packaging, hazardous waste etc.

**MITIGATION:** All domestic waste onsite should be disposed of in receptacles that promote good housekeeping and can hold all waste until such a time that the waste is to be removed from the site without causing any pollution. All waste is to be removed from the site on a regular basis and should under no circumstances be allowed to accumulate. Waste that may be hazardous should not be stored in a manner that would create other hazards (i.e fire and explosion, contamination). Contaminated products that cannot be re-used and domestic waste should be disposed of in accordance with Local Authority requirements. No waste should be buried or burnt on site and littering should be strictly prohibited.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
Score Before Mitigation	(LT) 3	(S) 2	(S) 4	(P) 4	13 HIGH
Score Considering Mitigation	(ST) 1	(L) 1	(SL) 1	(M) 1	4 LOW

The overall rating of this impact is high under unmitigated circumstances and low under mitigated conditions. Mitigation is therefore recommended as best practice and as a means of remaining pro-active through operations as well as reducing impacts.

6.3.4 Fire Hazards

**DESCRIPTION:** During the operation of the proposed diesel and LPG Filling Station, dealing with the hazardous product to be handled onsite, presents a fire risk that the proponent should not neglect and should take responsibility for and manage & control accordingly.

**MITIGATION:** The proponent should develop an Emergency Response Plan that is to be followed in the event of emergencies that may arise from the handling and storage of hazardous substances onsite, as well as Safe Working Procedures for all activities to be carried out onsite. All associated operational safe working procedures; as well as the development of the said Emergency Response Plan should be informed by relevant standards and industry best practices such as (non-exhaustive list):

- UKLPG Codes of Practice
- South African National Standards (SANS)

- WLPG Guidelines and Industry Best Practices
- IFC Environmental, General Health and Safety Guidelines (particularly Hazardous Materials Management section, Overfill Protection, Fire & Explosion Prevention, and Control Measures)
- Any provisions of the Metrology Amendment Act and any provisions of the Local Authority.

The Emergency Preparedness and Response Plan should include:

- identification of potential emergencies based on hazard assessment;
- procedures to respond to the identified emergency situations;
- procedures to shut down equipment;
- procedures for rescue and evacuation;
- list and location of alarms and schedule of maintenance;
- list and location of emergency response equipment (firefighting, spill response, first aid kits, personal protection equipment for emergency response teams);
- protocols for the use of the emergency equipment and facilities;
- schedule for periodic inspection, testing and maintenance of emergency equipment;
- clear identification of evacuation routes and meeting points;
- schedule of trainings and drills, including with local emergency response services (fire fighters);
- procedures for emergency drills;
- emergency contacts and communication protocols, including with communities when necessary, and procedures for interaction with the government authorities;
- procedures for periodic review and update of emergency response plans.

Material and Safety Data Sheets (MSDS) should be readily available onsite at all times and the contents of these documents should be adhered to. MSDS documents must also be considered in the development of the recommended Emergency Response Plan and Safe working procedures. The spillage of any hydrocarbon exceeding 200 liters should be reported to the Ministry of Mines and Energy as well as the Local Authority without delay. All incidents and near misses with regard to Fire hazards should be; documented, investigated with the outcomes/corrective action implemented immediately in order to prevent re-occurrence by all means.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(P) 4	(R) 3	(SE) 4	(D) 4	15 High
<b>Score Considering Mitigation</b>	(ST) 1	(L) 1	(M) 2	(P) 3	7 LOW

The overall rating of this impact is high (15) under unmitigated circumstances and low (7) under mitigated conditions. Mitigation is therefore strongly recommended as best practice and as a means of remaining pro-active through operations as well as reducing impacts.

### 6.3.5 Health and Safety of Operation Personnel

**DESCRIPTION:** All operation phase related activities require human labour, directly or indirectly, and thus pose an inherent health and safety risk to operational personnel.

**MITIGATION:** It is the responsibility of the proponent to comply with the provisions set forth in the Labour Act 11 of 2007, with special attention to Chapter 4 that primarily outlines Health and Safety in the work place, as well as all other national legislations in this regard.

Furthermore, IFC Environmental, General Health and Safety Guidelines should be consulted to address specific Health and Safety issues that may be brought about by operational activities. Additionally, (Points discussed in section 6.2.5 of the environmental assessment are essential and note-worthy in this regard)

Recommended mitigating measures include, but not limited to (non-exhaustive list):

- Periodic internal safety compliance audits.
- Health and Safety training and speciality programs should be provided as needed to ensure workers are oriented to the specific hazards of individual work assignments and all other present hazards.
- Hazard Risk Identification within Job Profiles/Machinery/Equipment/Work Areas and Tasks that are to be performed.
- Appointment of Safety Officers as custodians of safety within the workplace. In addition to these, Peer Educators and Health and Safety Representatives can also be nominated in constituent working teams in order to foster a culture of health and safety at the construction site.
- Documented Safe Operational and Work Procedures as well as Emergency (including Medical) Procedures and drills. These need to be periodically reviewed for their

effectiveness and should be constantly improved upon whenever the opportunity presents itself, particularly following an event of note (including near-misses).

- Daily crew safety talks prior to the commencement of every shift.
- Monthly/Weekly Peer education topics encouraging healthy lifestyle choices, safety at the construction site and outcomes of investigations into near-misses and incident investigations.
- Good housekeeping practices in order to avoid unforeseen hazards and obstructions.
- General permits to work and Personal Protective Equipment/Clothing
- Conspicuous signs displaying all potential hazards, PPE requirements, assembly points, waste receptacles of all kinds, emergency numbers for respective emergencies that may arise, MSDS Sheets etc.
- Communication of lessons learnt from previous incidents and corrective action taken to avoid re-occurrence as soon as these are known following an investigation.
- Investigations into the improvement of current practices from a health and safety perspective.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(P) 4	(N) 4	(SE) 4	(M) 2	12 HIGH
<b>Score Considering Mitigation</b>	(ST)1	(L) 1	(M) 2	(M) 2	3 LOW

The overall rating of this impact is high (12) under unmitigated and low (3) under mitigated conditions. Thus mitigation is recommended as best practice and as a means of remaining proactive through operations. The proponent is strongly recommended to devise an HSE Policy which should enjoy management commitment in its implementation.

#### 6.2.5 HIV/AIDS and Employee Wellness

**DESCRIPTION:** The proposed development is expected to employ an operations team during the operation phase of the project. Should those recruited (permanent staff, contractors, third party service providers etc.) relocate to Oniipa from other towns, it could contribute to the spread HIV/AIDS infections.



**MITIGATION:** The proponent should encourage and promote HIV/AIDS and employee health awareness among operations employees and contractors.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(P) 4	(N) 4	(SE) 4	(M) 2	12 HIGH
<b>Score Considering Mitigation</b>	(ST)1	(L) 1	(M) 2	(M) 2	3 LOW

The overall rating of this impact is high (12) under unmitigated conditions and low (3) under mitigated conditions. Mitigation is recommended as best practice and as a means of remaining pro-active through operations as well as reducing impacts.

#### 6.4 Decommissioning Phase Impacts

All decommissioning phase impacts shall be discussed in this section in terms of the description of the impact as well as effects, likelihood and mitigation.

##### 6.4.1 Decommissioning of LPG Filling Station infrastructure.

**DESCRIPTION:** It is expected that the proposed diesel and LPG Filling Station may be operational for decades to come, provided that the need for diesel and LPG as an alternative fuel remains, and as such may produce new habitats and ecological niches should the proponent not adhere assessment. Upon decommissioning of the facility, these newly established habitats and niches will vanish and may require remedy.

**MITIGATION:** The proponent would have to ensure that no new habitats are created on site. Prior to decommissioning, inspections would have to be carried out in consultation with the local authority to sanction that the taking apart and elimination of established onsite infrastructure would not result in the inadvertent ruin of newly formed habitats and niches.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(ST) 2	(S) 2	(M) 2	(M) 2	8 MODERATE
<b>Score Considering Mitigation</b>	(SP) 1	(L) 1	(SL) 1	(U) 2	5 LOW

The overall rating of this impact is moderate (8) under unmitigated conditions and low (5) under mitigated conditions. Mitigation is recommended as best practice and as a means of remaining pro-active through decommissioning as well as reducing impacts.

#### 6.4.2 Health and Safety of Personnel.

**DESCRIPTION:** During the Decommissioning Phase of the proposed development, similar risks to decommissioning staff as with the Operational Phase will be present. All other risks associated with demolitions must be considered.

**MITIGATION:** The decommissioning of onsite infrastructure can cause serious health and safety risks to workers on site i.e injuries and medical treatment incidents. For this reason, adequate measures must be put in place to ensure safety of staff on site, and includes:

**Mitigation measures discussed in the preceding section of the environmental assessment should be re-implemented in this regard.**

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(P) 4	(S) 2	(SE) 4	(D) 4	10 HIGH
<b>Score Considering Mitigation</b>	(ST) 1	(L) 2	(SL) 1	(U) 2	4 LOW

The overall rating of this impact is high under unmitigated and low under mitigated conditions. Thus, mitigation is recommended as best practice and as a means of remaining pro-active through decommissioning.

#### 6.4.3 Waste Management.

**DESCRIPTION:** Upon decommissioning waste will be produced in the form of building rubble, and diesel and LPG associated structures.

**MITIGATION:** All waste should be disposed of appropriately considering the type of waste. No waste should be piled up onsite once decommissioning is completed. The municipal dumpsite should be used for wastes that can be accommodated in this regard, waste that cannot be disposed of at the municipal dump site should be discarded off appropriately at such adequate facilities. No waste should be buried and littering should be strictly prohibited.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	1	2	2	2	5 LOW
<b>Score Considering Mitigation</b>	1	2	1	1	4 LOW

The overall rating of this impact is low under unmitigated and mitigated conditions. Mitigation is recommended as best practice and as a means of remaining pro-active through decommissioning as well as reducing impacts.

## 6.5 Rehabilitation Phase Impacts

Rehabilitation phase impacts shall be discussed in this section in terms of the description of the impact as well as effects, likelihood and mitigation.

### 6.5.1 Environmental Restoration Fund

**DESCRIPTION:** As a good corporate citizen as well as the social responsibility corporate, the proponent has the responsibility to establish an Environmental Restoration fund for future environmental restoration once the project has reached the end of its life span, in order to fund for a responsible environmental legacy.

**MITIGATION:** The purpose of the Environmental Restoration Fund is to finance activities aimed at ecological restoration of the project site should project activities cease and the site is decommissioned and/or repurposed by the local authority.

	Temporal	Spatial	Severity	Likelihood	Significance Rate
<b>Score Before Mitigation</b>	(ST) 1	(L) 1	(SL) 1	(P) 3	6 LOW
<b>Score Considering Mitigation</b>	(ST) 1	(L) 1	(SL) 1	(U) 1	4 LOW

The overall rating of this impact is low (6) under unmitigated conditions and low (4) under mitigated conditions. Mitigation is therefore recommended as best practice and as a means of remaining pro-active as well as reducing impacts.

## 7. ENVIRONMENTAL MANAGEMENT PLAN

### The Environmental Management Plan

An Environmental Management Plan (EMP) is a site-specific plan aimed at guiding the proponent/developer/contractor/operator in complying with the environmental conditions of approval for particular activities. The EMP essentially links environmental impacts assessed and project activities or phases, to environmental actions to be carried out to mitigate assessed impacts.

It is recommended that the proponent establishes; 1) a Health and Safety Audit Protocols and 2) an Environmental Management Audit, to be used in combination with this EMP for greater effectiveness. Furthermore, relevant standards and industry best practices should supplement the implementation of the EMP, these include (non-exhaustive list):

- UKLPG Codes of Practice
- South African National Standards (SANS)
- WLPG Guidelines and Industry Best Practices
- IFC Environmental, General Health and Safety Guidelines
- Any provisions of the Metrology Amendment Act and any provisions of the Local Authority.

### Overall EMP Responsibility

Roles and responsibilities in the implementation of the planned diesel and LPG Filling Station are displayed below in the Table below:

**Table 8 – Roles and responsibilities of roles players in the EMP**

Role Player	Obligation
Proponent	The Proponent is to ensure that mitigation recommendations within the EMP are adhered to, as far as reasonably practical. By checking that all approvals, licenses and permits as required by legislation are obtained before specific activities are carried out.
EAP	Compilation of Scoping Report and EMP. Should be considered and/or involved in external environmental audits.

Role Player	Obligation
Environmental Control Officer	Oversee the implementation of the EMP. Develop and document an Environmental Management System. Perform environmental compliance (internal) audits and follow up on corrective actions from incidents to ensure compliance. Should be vigilant of emergent impacts not identified in the EMP. The Environmental Control Officer can be an existing staff member and does not necessarily need to be a newly employed staff member.
Ministry of Environment, Forestry and Tourism/ Local Authority	Enforcement of environmental regulations, EMP obedience inspectors and conducting regular project reviews on environmental and incident reports.

**Construction Phase: EMP**

**Table 9 – Proposed mitigation and monitoring measures for environmental impacts during construction**

Environmental Impact	Mitigation Measures	Monitoring	Responsibility
<b>Impacts on Social Impacts and Cultural Heritage.</b>	Should dust be generated during construction, the proponent needs to find a remedy in non-toxic dust suppression measures. Before the commencement of construction, the proponent should agree on a Community Grievance mechanism for the local communities through the local authority. In the unlikely event of any discoveries of a heritage/archaeological nature during the construction phase of the project, the Local Authority and National Heritage Council (NHC) should be contacted immediately.	Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action is taken and should be documented in a report for auditing purposes.	ECO / Proponent
<b>Traffic and Site Access.</b>	Existing roads that link the site to neighbouring areas should not be obstructed or damaged through construction endeavours. Operators of vehicles used during construction, should be mindful of their fields of view and be on the lookout for possible pedestrians. The proponent should also restrict access to the site with a focus on high-risk structures or areas depending on the site-specific situations through interventions such as; fencing, signage, and communication of risks to the local community. A visitor orientation program should be developed and all visitors to the site should comply with all safety protocols on site, and all visitors should be documented upon entry and departure. Lastly, regular communication between the proponent and neighbouring land users and communities concerning traffic matters should be agreed upon before construction, and communication in this regard should be ongoing with possible changing conditions during construction with such discussions documented and relevant recommendations followed up on.	Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action is taken and should be documented in a report for auditing purposes.	ECO / Proponent
<b>Fire hazards.</b>	The proponent should develop an Emergency Response Plan that is to be followed in the event of emergencies that may arise from the handling and storage of hazardous substances onsite, as well as Safe Working Procedures for all activities to be carried out onsite. All associated operational safe working procedures; as well as the development of the said Emergency Response Plan should be informed by relevant standards and industry best practices such as (non-exhaustive list):	Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective	ECO / Proponent

	<ul style="list-style-type: none"> <li>• UKLPG Codes of Practice</li> <li>• South African National Standards (SANS) (see Section 3.13)</li> <li>• WLPG Guidelines and Industry Best Practices</li> <li>• IFC Environmental, General Health and Safety Guidelines (particularly Hazardous Materials Management section, Overfill Protection, Fire &amp; Explosion Prevention, and Control Measures)</li> <li>□ Any provisions of the Metrology Amendment Act and any provisions of the Local Authority.</li> </ul> <p>The said Emergency Preparedness and Response Plan should include:</p> <ul style="list-style-type: none"> <li>• identification of potential emergencies based on hazard assessment;</li> <li>• procedures to respond to the identified emergencies;</li> <li>• procedures to shut down equipment;</li> <li>• procedures for rescue and evacuation;</li> <li>• list and location of alarms and schedule of maintenance;</li> <li>• list and location of emergency response equipment (firefighting, spill response, first aid kits, personal protective equipment for emergency response teams);</li> <li>• protocols for the use of the emergency equipment and facilities;</li> <li>• schedule for periodic inspection, testing and maintenance of emergency equipment;</li> <li>• clear identification of evacuation routes and meeting points;</li> <li>• schedule of training and drills, including with local emergency response services (firefighters);</li> <li>□ procedures for emergency drills;</li> <li>• emergency contacts and communication protocols, including with communities when necessary, and procedures for interaction with the government authorities;</li> <li>• procedures for periodic review and update of emergency response plans.</li> </ul> <p>Material and Safety Data Sheets (MSDS) should be readily available onsite at all times and the contents of these documents should be adhered to. MSDS documents must also be considered in the development of the recommended Emergency Response Plan and Safe working procedures. The spillage of any hydrocarbon exceeding 200 litres should be reported to the Ministry of Mines and Energy as well as the Local Authority without delay. All incidents and near misses concerning Fire hazards should be; documented, and investigated with the outcomes/corrective action implemented immediately to prevent re-occurrence by all means.</p>	<p>action taken and should be documented in a report for auditing purposes.</p>	
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<p><b>Waste Management</b></p>	<p>All domestic waste onsite should be disposed of in receptacles that promote good housekeeping and can hold all waste until such a time that the waste is to be removed from the site without causing any pollution. All waste is to be removed from the site regularly and should under no circumstances be allowed to accumulate to overpowering levels. Waste that may be hazardous should not be stored in a manner that would create other hazards (i.e fire and explosion, contamination etc.).Contaminated products that cannot be re-used and domestic waste should be disposed of following Local Authority Requirements. Chemical/Mobile toilets that may be used onsite during construction should comply with applicable national and local authority requirements. Chemical/Mobile toilets that are to be used onsite should complement the number of people that would make use of them in accordance with national laws. No waste should be buried or burnt onsite, and littering should be strictly prohibited.</p>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken and should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>
<p><b>Health and Safety of Construction Personnel</b></p>	<p>It is the responsibility of the proponent to comply with the provisions set forth in the Labour Act 11 of 2007, with special thoughtfulness to Chapter 4 that primarily outlines Health and Safety in the work place, as well as all other national and local legislations in this regard.</p> <p>Recommended mitigating measures include, but not limited to (non-exhaustive list):</p> <ul style="list-style-type: none"> <li>• Periodic internal safety compliance audits.</li> <li>• Health and Safety training and speciality programs should be provided as needed to ensure workers are oriented to the specific hazards of individual work assignments and all other present hazards.</li> <li>• Hazard Risk Identification within Job Profiles/Machinery/Equipment/Work Areas and Tasks that are to be performed.</li> <li>• Appointment of Safety Officers as custodians of safety within the workplace. In addition to these, Peer Educators and Health and Safety Representatives can also be nominated in constituent working teams in order to foster a culture of health and safety at the construction site.</li> <li>• Documented Safe Operational and Work Procedures as well as Emergency (including Medical) Procedures and drills. These need to be periodically reviewed for their effectiveness</li> </ul>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken and should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>



	<p>and should be constantly improved upon whenever the opportunity presents itself, particularly following an event of note (including near-misses).</p> <ul style="list-style-type: none"> <li>• Daily crew safety talks prior to the commencement of every shift.</li> <li>• Monthly/Weekly Peer education topics encouraging healthy lifestyle choices, safety at the construction site and outcomes of investigations into near-misses and incident investigations.</li> <li>• Good housekeeping practices in order to avoid unforeseen hazards and obstructions.</li> <li>• General permits to work and Personal Protective Equipment/Clothing</li> <li>• Conspicuous signs displaying all potential hazards, PPE requirements, assembly points, waste receptacles of all kinds, emergency numbers for respective emergencies that may arise, MSDS Sheets etc.</li> <li>• Communication of lessons learnt from previous incidents and corrective action taken to avoid re-occurrence as soon as these are known following an investigation.</li> </ul> <p>Investigations into the improvement of current practices from a health and safety perspective.</p>		
<b>HIV/AIDS and Employee Wellness</b>	<p>The proponent should encourage and promote HIV/AIDS and health awareness among employees and contractors.</p>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken and should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>
<b>Noise during construction</b>	<p>The proponent should limit working hour's onsite to 07h00 to 19h00 and coordinate working high noise generating tasks in such a manner that provides the least nuisance to neighbouring land users. The use of hearing protection should be enforced actively where necessary. Furthermore, the Community Grievance mechanism described at section 6.2.1 should also be used for any noise related complaints that the community may have.</p> <p>Furthermore, IFC Environmental, General Health and Safety Guidelines (particularly the Noise Management section) should be consulted to address specific noise issues that may be brought about by construction activities.</p>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken and should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>

**Operational Phase: EMP**

**Table 10 – Proposed mitigation and monitoring measures for Environmental impacts, aspects and risks during operation**

Environmental Impact	Mitigation Measures	Monitoring	Responsibility
<p><b>Impacts on Social Impacts and Cultural Heritage.</b></p>	<p>Lighting at the facility should be kept at a minimum to reduce light spillage and pollution. In the unlikely event of any heritage or archaeological discoveries during the operational phase of the project, the Local Authority and National Heritage Council (NHC) should be contacted immediately for immediate remedy. The community grievance mechanism described in proceeding section should be further adapted to suit the operational phase and should be implemented and periodically reviewed to changing circumstances.</p>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>
<p><b>Traffic and site access</b></p>	<p>Any changes to the established access roads need to be done in consultation with the Local Authorities. The proponent should strictly restrict access to the site with a focus on high-risk structures or areas depending on the site-specific situations through interventions such as; fencing, signage, and communication of risks to the local community. Existing roads that link the site to neighbouring areas should not be obstructed or damaged through any endeavours of the operation of the LPG Filling Station. A CCTV system should be installed and boundary wall encompassing the facility needs to be in place. A visitor orientation program should be developed and all visitors to the site should comply with all safety protocols on site and all visitors should be documented upon entry and departure. Lastly, regular communication</p>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>
	<p>between the proponent and neighbouring land users with regard to traffic issues should be unending.</p>		

<p><b>Waste Management</b></p>	<p>All domestic waste onsite should be disposed of in receptacles that promote good housekeeping and can hold all waste until such a time that the waste is to be removed from the site without causing any pollution. All waste is to be removed from the site on a regular basis and should under no circumstances be allowed to accumulate to uncontrollable levels. Waste that may be hazardous should not be stored in a manner that would create other hazards (i.e fire and explosion, contamination). Contaminated products that cannot be re-used and domestic waste should be disposed of in accordance with Local Authority Requirements. No waste should be buried or burnt on site and littering should be strictly prohibited. Furthermore, IFC Environmental, General Health and Safety Guidelines (particularly the Waste Management section) should be consulted to address specific waste issues that may be brought about by operational activities.</p>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>
<p><b>Fire Hazards</b></p>	<p>The proponent should develop an Emergency Response Plan that is to be followed in the event of emergencies that may arise from the handling and storage of hazardous substances onsite, as well as Safe Working Procedures for all activities to be carried out onsite. All associated operational safe working procedures; as well as the development of the said Emergency Response Plan should be informed by relevant standards and industry best practices such as (non-exhaustive list):</p> <ul style="list-style-type: none"> <li>• UKLPG Codes of Practice</li> <li>• South African National Standards (SANS) (see Section 3.13)</li> <li>• WLPG Guidelines and Industry Best Practices</li> <li>• IFC Environmental, General Health and Safety Guidelines (particularly Hazardous Materials Management section, Overfill Protection, Fire &amp; Explosion Prevention, and Control Measures)</li> <li>• Any provisions of the Metrology Amendment Act and any provisions of the Local Authority.</li> </ul> <p>The said Emergency Preparedness and Response Plan should include:</p>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>

	<ul style="list-style-type: none"> <li>• identification of potential emergencies based on hazard assessment;</li> <li>• procedures to respond to the identified emergency situations;</li> <li>• procedures to shut down equipment;</li> <li>• procedures for rescue and evacuation;</li> <li>• list and location of alarms and schedule of maintenance;</li> <li>• list and location of emergency response equipment (firefighting, spill response, first aid kits, personal protection equipment for emergency response teams);</li> <li>• protocols for the use of the emergency equipment and facilities;</li> <li>• schedule for periodic inspection, testing and maintenance of emergency equipment;</li> <li>• clear identification of evacuation routes and meeting points;</li> <li>• schedule of trainings and drills, including with local emergency response services (fire fighters);</li> <li>• procedures for emergency drills;</li> <li>• emergency contacts and communication protocols, including with communities when necessary, and procedures for interaction with the government authorities;</li> <li>• procedures for periodic review and update of emergency response plans.</li> </ul> <p>Material and Safety Data Sheets (MSDS) should be readily available onsite at all times and the contents of these documents should be adhered to. MSDS documents must also be considered in the development of the recommended Emergency Response Plan and Safe working procedures. The spillage of any hydrocarbon exceeding 200 liters should be reported to the Ministry of Mines and Energy as well as the Local Authority without delay. All incidents and near misses with regard to Fire hazards should be; documented, investigated with the outcomes/corrective action implemented immediately in order to prevent re-occurrence by all means.</p>		
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<p><b>Health and Safety of Operation Personnel</b></p>	<p>It is the responsibility of the proponent to comply with the provisions set forth in the Labour Act 11 of 2007, with special attention to Chapter 4 that primarily outlines Health and Safety in the work place, as well as all other national legislations in this regard.</p> <p>Furthermore, IFC Environmental, General Health and Safety Guidelines should be consulted to address specific Health and Safety issues that may be brought about by operational activities. Additionally, (Points discussed in section 6.2.5 of the environmental assessment are essential and note-worthy in this regard)</p> <p>Recommended mitigating measures include, but not limited to (non-exhaustive list):</p> <ul style="list-style-type: none"> <li>• Periodic internal safety compliance audits.</li> <li>• Health and Safety training and speciality programs should be provided as needed to ensure workers are oriented to the specific hazards of individual work assignments and all other present hazards.</li> <li>• Hazard Risk Identification within Job Profiles/Machinery/Equipment/Work Areas and Tasks that are to be performed.</li> <li>• Appointment of Safety Officers as custodians of safety within the workplace. In addition to these, Peer Educators and Health and Safety Representatives can also be nominated in constituent working teams in order to foster a culture of health and safety at the construction site.</li> <li>• Documented Safe Operational and Work Procedures as well as Emergency (including Medical) Procedures and drills. These need to be periodically reviewed for their effectiveness and should be constantly improved upon whenever the opportunity presents itself, particularly following an event of note (including near-misses).</li> <li>• Daily crew safety talks prior to the commencement of every shift.</li> <li>• Monthly/Weekly Peer education topics encouraging healthy lifestyle choices, safety at the construction site and outcomes of investigations into near-misses and incident investigations.</li> </ul>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>
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	<ul style="list-style-type: none"> <li>• Good housekeeping practices in order to avoid unforeseen hazards and obstructions.</li> <li>• General permits to work and Personal Protective Equipment/Clothing</li> <li>• Conspicuous signs displaying all potential hazards, PPE requirements, assembly points, waste receptacles of all kinds, emergency numbers for respective emergencies that may arise, MSDS Sheets etc.</li> <li>• Communication of lessons learnt from previous incidents and corrective action taken to avoid re-occurrence as soon as these are known following an investigation.</li> <li>• Investigations into the improvement of current practices from a health and safety perspective.</li> </ul>		
<b>HIV/AIDS and Employee Wellness</b>	<p>The proponent should encourage and promote HIV/AIDS and employee health awareness among operations employees and contractors.</p>	<p>Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.</p>	<p>ECO / Proponent</p>

## Decommissioning EMP

**Table 11 – Mitigation and monitoring measures for environmental impacts, aspects and risks during decommissioning**

Environmental Impact	Mitigation Measures	Monitoring	Responsibility
Decommissioning of diesel and LPG Filling Station Infrastructure.	The proponent would have to ensure that no new habitats are created on site (Points discussed in preceding section of the environmental assessment are essential and note-worthy in this regard). Prior to decommissioning, inspections would have to be carried out to confirm that the taking apart and removal of established onsite infrastructure would not result in the unintended destruction of newly formed habitats and niches.	Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.	ECO / Proponent
Health and Safety of Personnel	The decommissioning of onsite infrastructure can cause serious health and safety risks to workers on site i.e injuries and medical treatment incidents. For this reason, adequate measures must be put in place to ensure safety of staff on site, and includes: <ul style="list-style-type: none"> <li>□ Mitigation measures discussed in section 6.2.5 of the environmental assessment should be re-implemented in this regard.</li> </ul>	Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.	ECO / Proponent
Waste Management	All waste should be disposed of appropriately considering the type of waste. No waste should be piled up onsite once decommissioning is completed. The municipal dumpsite should be used for wastes that can be accommodated in this regard, waste that cannot be disposed of at the municipal dump site should be discarded off appropriately at such adequate facilities. No waste should be buried and littering should be strictly prohibited.	Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.	ECO / Proponent

**Rehabilitation EMP**

**Table 12 – Mitigation and monitoring measures for environmental impacts, aspects and risks during rehabilitation**

Environmental Impact	Mitigation Measures	Monitoring	Responsibility
Environmental Restoration Fund	The purpose of the Environmental Restoration Fund is to finance activities aimed at ecological restoration of the project site should project activities cease and the site is decommissioned and/or repurposed by the local authority.	Weekly/Monthly review of Monitoring should be done through Environmental Incidents / Non-conformities reported as well as corrective action taken should be documented in a report for auditing purposes.	ECO / Proponent



## **8. CONCLUSION**

Identified risks to the proposed project can be avoided, mitigated, and managed through the implementation of the Environmental Management Plan (EMP, which should be adhered to at all times. Management and mitigation of risks can further be enriched through the establishment of a functioning Health, Safety and Environmental Management System.

**It is the view of the Environmental Practitioner that the project is given Environmental Clearance from the authorities with conditions that the EMP is implemented and adhered to in its entirety, and possibly further enhanced with the implementation of a fully functioning Health, Safety and Environmental Management System.**

## 9. LIST OF REFERENCES

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## **10. LIST OF APPENDIX DOCUMENTS**

Appendix A: CV of Environmental Assessment Practitioner

Appendix B: Special Power of Attorney

Appendix C: Designs and Illustrations of the proposed 14 000 L (14 m<sup>3</sup>) combined volumes of diesel and Tanks