



ENVIRONMENTAL IMPACT ASSESSMENT

SCOPING REPORT

(APP-00137)

OneBrik (Pty) Ltd

**Construction and Operation of a Clay Brick Factory, Ruacana
Townlands, Omusati Region, Namibia**

**An Environmental Impact Assessment (EMP) in Support of an
Application for an Environmental Clearance Certificate (ECC)**

Project Name	:	Clay Brick Manufacturing Factory at Ruacana
Type of Project	:	Manufacturing of Clay Fired Bricks and Roofing Tiles
Project Location	:	Industrial Plot Off C35 Highway RUACANA Omusati Region
Competent Authority	:	Ruacana Town Council Private Bag 508 RUACANA
ECC Application No.	:	APP- 00137
Date Report Prepared	:	June 2022
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ABBREVIATIONS AND ACRONYMS

ACRONYM	EXPANSION
AMSL	Above Mean Sea Level
COVID-19	'CO' - Corona, 'VI'- Virus & 'D' - Disease of 2019
EC	Environmental Commissioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Regulations
EMA	Environmental Management Act
EMP	Environmental Management Plan
FCN	First Capital Namibia
FSN	Friedrich Ebert Stiftung Namibia
GPS	Global Positioning System
GRN	Government of the Republic of Namibia
ha	hectare (1 ha = 10 000 m ²)
HPP	The Harambee Prosperity Plan
IAPs	Interested and Affected Parties
m ²	square meters
MEFT	Ministry of Environment, Forestry and Tourism
NamRA	Namibia Revenue Agency
NCCI	Namibia Chamber of Commerce and Industries
NHC	National Heritage Council
NSI	Namibia Standards Institute
ORC	Omusati Regional Council
PPE	Personal Protective Equipment
SHE	Safety, Health & Environment
SME	Small and Medium Enterprises
SSC	Social Security Commission

NAMES OF ROADS

ROUTE	DESCRIPTION
C35	The route number for the road starting from the coastal town of Henties Bay to Ruacana through the settlements/towns of Uis, Khorixas, Kamanjab and Omakange.
C46	The route number for the highway which starts from B1 in the town of Ondangwa to Ruacana via Oshakati, Oshikuku and Outapi.
D3700	The road leading from intersection of C35 and C46 to the Ruacana Waterfalls/Border Post up to Okongwati via Swartbooisdrift running along the Kunene River.
D3616	The route number for the district road from the town of Tsandi to C46 via the settlements of Onesi and Epalela.

DEFINITION OF TERMS

TERM	EXPANSION
Biomass	Biomass is fuel that is developed from organic materials; a renewable and sustainable source of energy used to create electricity or other forms of power. In the Namibian context, biomass is fuel harvested from encroacher bush on commercial farms.
Cumulative Impacts	In the context of quarrying, cumulative impacts would mean the impacts of quarrying activities which in themselves may not significant but may become significant when added to the existing and potential impacts resulting from similar or diverse activities or underrating in the area.
Environmental Component/Aspect	An attribute or constituent of the environment (i.e., air quality; marine water; waste management; geology, seismicity, soil, and groundwater; marine ecology; terrestrial ecology, noise, traffic, socio-economic) that may be impacted by the proposed project.
Environmental Impact	A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.
Environmental Management Plan	A working document which contains site-, project-, or facility-specific plan developed to ensure that environmental management practices to eliminate and control environmental impacts are followed during the developmental phases of that site, project and or facility and would normally consist of construction phase, operational phase and decommissioning phases.
Environmental Monitoring	The collection, evaluation and summarization of environmental data by continuous or periodic monitoring of certain qualitative and quantitate indicators characterizing the state of environmental components and their modification as a result of the impact of natural and anthropogenic factors.
General Waste	Waste that does not pose an immediate threat or hazard to health or the environment: domestic waste; business waste and inert waste.
Hazardous Waste	Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have detrimental impact on health and the environment.
Infrastructure	The network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewerage, etc.
Interested and Affected Parties	All persons who may be affected by the project either directly or indirectly, or who have an interest or stake in the area to be affected by the project, including neighbouring landowners & Road Fund Administration.
Mitigation	Measures designed to avoid, reduce or remedy adverse impacts.
Non-compliance	Issues that are in direct non-compliance with the requirements, commitments and/or management measures as approved in the EMP.
Sensitive Area	A sensitive area or environment is described as an area or environment where a unique ecosystem, habitat for plant and animal life, wetlands or conservation activity exists or where there is high potential for ecotourism
Storage	The accumulation of waste in a manner that does not constitute a treatment or disposal of that waste.

EXECUTIVE SUMMARY

ONEBRIK (Pty) Ltd proposes to establish a green-field clay brick factory at Ruacana, in Omusati Region. The brick factory will manufacture clay bricks of the highest quality to meet the growing demand for bricks required in the building of houses, schools, hospitals and related infrastructure both in the rural and urban areas of Namibia.

Ekwao Consulting has been appointed by **OneBrik** to secure an Environmental Clearance Certificate (ECC) for its proposed brick factory in terms of the Environmental Management Act and related EIA Regulations. **OneBrik** has been offered land by the Ruacana local authority on which to construct the brick factory. However, the land allocation is conditional upon **OneBrik** securing an ECC for the project. This EIA has therefore been confined to a land parcel with a footprint of 50 000 m² on which the factory will be constructed.

Project Scale

At full production the brick factory will process ±40 000 m³ of shale clay per year (equivalent to 20 million standard bricks), and depending on the level of factory automation, employing between 60 and 100 people. The modus operandi is that **OneBrik** will not be involved in mining the shale clay (raw materials) but will source such materials from independent third parties. Therefore, this EIA did not cover any environmental impacts associated with the sourcing and delivery of raw materials to the brick factory. It is understood though that **OneBrik** will only procure shale clay from those third parties whose operations are EMA compliant.

Scoping Assessment – Factory Site

The EA scoping has identified and assessed those potential impacts that the construction and operation of the brick factory will bring to bear on the biophysical environment of the 5 ha project footprint. Practical mitigation measures were recommended to either avoid, eliminate or reduce the identified impacts. Firing bricks in clamps was identified as an activity associated with the release of noxious emissions into the atmosphere. This is mainly due to the combustion action of the solid fuel used in the firing process. **OneBrik** has proposed to use a combination of solid fuel - biomass (woodchips) and coal (fossil fuel) with the coal completely eliminated once a modern kiln has been built. Practical measures have been recommended to reduce emissions.

Public Participation Process

The project was announced to the stakeholders and IAPs in the local media. The local residents who have limited access to print media were informed via an announcement on the NBC Oshiwambo Radio made by the Constituency Councilor, Hon Shintama. An information sharing meeting held on site on 20 November 2021 was also well attended. There were no issues related to the environment raised by any participants.

The Environmental Management Plan

In the EMP section of the EIA, practical management measures have been recommended on how to minimise any negative impacts likely to emanate from the brick factory. The various parties responsible for ensuring compliance with the various aspects of the EMP as well as the timing for monitoring and reporting have been provided. It is the considered opinion of Ekwao Consulting that if the management measures recommended in the EMP are implemented and monitored frequently, the brick factory will be constructed and operated in manner that makes it technically efficient, commercially profitable and environmentally sustainable.

Recommendation

It is recommended that an ECC be granted to **OneBrik (Pty) Ltd** for the construction and operation of its clay brick factory at Ruacana subject to the promoter undertaking to comply with the mitigation measures suggested in the EMP.

1. PROJECT BACKGROUND

1.1 Introduction

OneBrik (Pty) Ltd ('OneBrik' or 'the Promoter') whose contact details are listed in **Table 1-1** below, is seeking an Environmental Clearance Certificate (ECC) from the Ministry of Environment, Forestry and Tourism (MEFT) to permit the activities presented in **Table 1-3**. The promoter would like to manufacture clay bricks and roofing tiles in order to meet the growing demand for building construction materials in the country but targeting the northern regions of Oshana, Omusati, Oshana, Oshikoto and Kunene.

The Ruacana Town Council (RTC) has, in principle, approved to sell ±50 000 m² (±5 ha) of land to **OneBrik** for the construction of the clay brick factory. However, the sale is conditional upon the proponent, obtaining an ECC for its envisaged project.

The company is proposing to produce clay bricks of the highest quality, meeting all local and regional building standards and are manufactured in an environmentally responsible manner.

Table 1-1: Details of the Promoter

Company Details	
Registered Name	OneBrik Pty Ltd
Registration Number	2021/0487
Company Secretaries	Mariba Secretarial Services Shop No. 4 Garthari Park Southern Industrial Area Windhoek
Company Contact Person	Taapopi Shilongo (Mr) Project Manager Mobile: 081 621 5260 Email: taxshaf@gmail.com
Postal Address	Box 25021 WINDHOEK Namibia

1.2 Project Location

There are three road networks serving the town of Ruacana and the project site is located where these roads intersect each other as more depicted in **Fig. 1**. Briefly, these roads are:

- C46 is the name of the route that provides access to Ruacana from Ondangwa via the towns of Ongwediva, Oshakati, Oshikuku and Outapi. The towns of Eenhana and Helao Nafidi are also served by C46 from Outapi via the district road, D3608 which runs parallel to Namibia-Angola border fence.
- C35 is the route linking Ruacana to the coastal town of Henties Bay via Kamanjab, Outjo and Khorixas. The section of C35 between Ruacana and Omakange settlement is 85 km long and was tarred in 2016, providing a much shorter short route to Windhoek (735 km) via Kamanjab. Opuwo is also served by C35 from Omakange.
- D3700 is another vital road linking Ruacana to Okongwati via Epupa and Swartbooisdrift running along the Kunene River. It is the shortest route to the Namibia-Angola border post at Ruacana. D3700 is only tarred up to the border post.

From the brick factory (**Fig. 1**), the road distances to both townships, Oshifo and Ruacana are respectively, 6 km and 10 km. By walking, the distances to both destinations is about half the road distances.

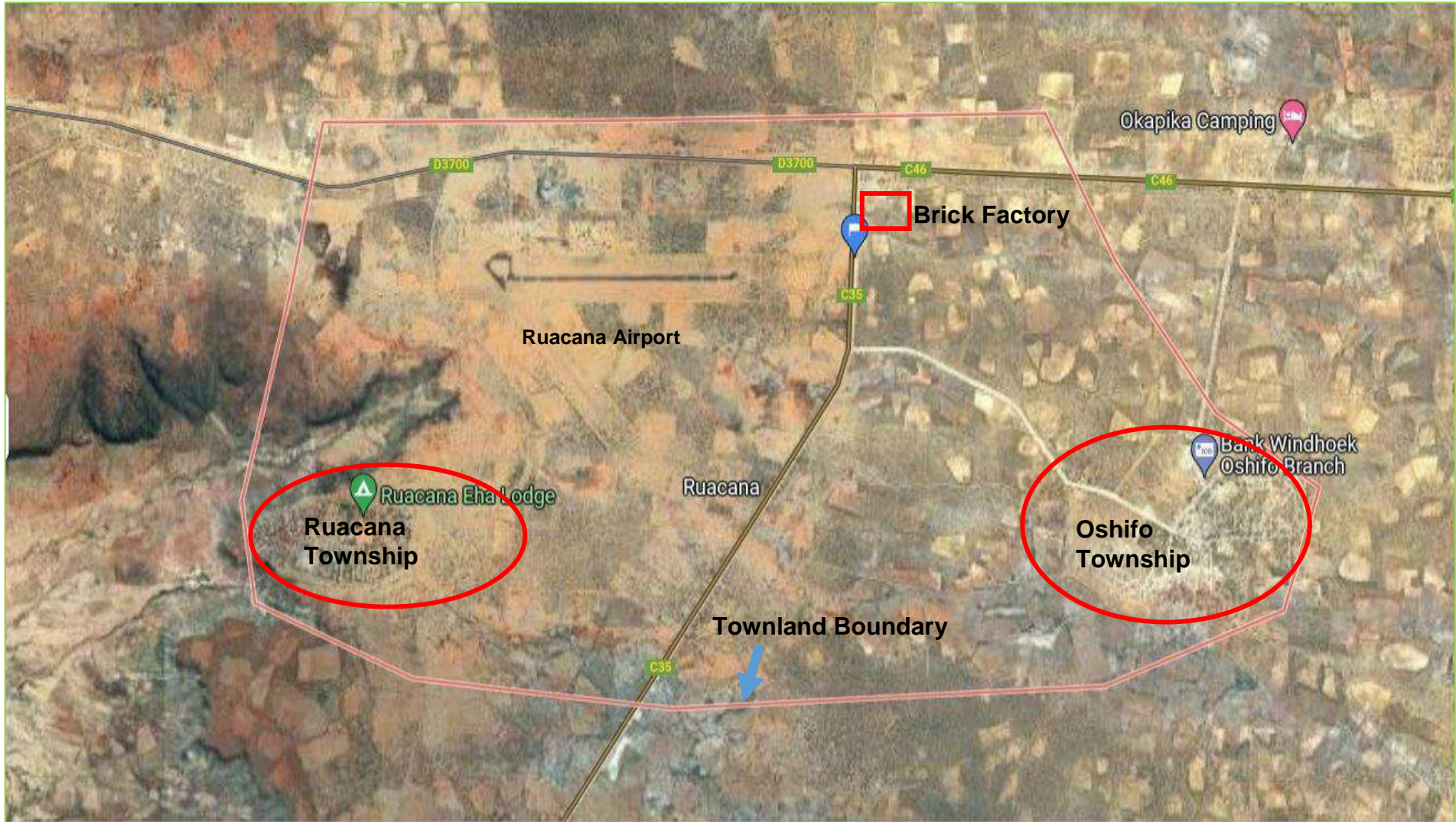


Figure 1: Project Site Map

1.3 Land Details and Breakdowns

The particulars of the land offered to the promoter are listed in **Table 1-2** below, while the breakdowns required for each manufacturing activity are presented in **Table 1-3**.

Table 1-2: Property Details

Property Details	
Situate	Along C35 tar road (south of Ongaka Slaste Factory)
Land Owner	Townland Reserve of Ruacana Town Council
Registration Division	A
Magistrate District	Outapi
Local Authority	Ruacana Town Council
Regional Authority	Omusati Regional Council
Approximate Size	±50 000 m ² (±5 ha) (to be formalised at the cost of the applicant)
Current Zoning	Undetermined
Proposed zoning	Industrial
Current Use	Vacant
Services	Unserviced (no water, no sewer, no electricity, etc.). However, potable water and grid electricity are available around the site such that connection to the factory will not require intrusive construction activities.

The land requirements for the various manufacturing activities/process has been presented in **Table 1-3** below. The land requirement should be viewed from the perspective that at full scale production the brick factory will process about 40 000 m³ of shale clay which equates to ±20 million standard brick equivalent per year.

Table 1-3: Breakdown of Land Requirements

Description	Approx. Size (m ²)	Percentage (%) of Land	Remarks
Raw Materials Storage Section	12 000	24%	Open
Manufacturing Building Plant (Factory)	8 000	16%	Closed building
Drying Yard Section (Initial stages only)	14 000	28%	Open
Aboveground Fuel Storage Tank Section	1 000	2%	Open but fenced
Solid Fuel Storage (Coal, Charcoal or Woodchips)	3 000	6%	Partially closed
Paved Finished Products Section	4 000	8%	Open yard
Workshop for Mechanical & Electrical Repairs	1 000	2%	Closed shed
Paved Machinery & Equipment Parking Section	3 500	7%	Partially closed
Admin Office, Security, Ablution Facilities, etc.	500	1%	Closed building
Internal Routes & Auxiliary Services	3 000	6%	Interlocked
	50,000	100%	

In **Figure 1** below, photographs depicting the surroundings of the site are presented. The adjacent factory operated by Ongaka is to the north (a), the elevated C35 to the west of the site can be seen in (b). The view to the east is depicted in (c) while the south view is seen to in (d). What is evident from all photographs, is the fact that the site has been cleared of vegetation possibly from human activities in the past. Some mature trees were however preserved.



Figure 2: Views from the centre of the site

1.4 General Activities Triggered by the Project

The activities which may not be conducted without an ECC having been granted are listed in the Environmental Impact Assessment Regulations (EIAR) – Government Gazette No 4878 of February 2012. Some of the general activities triggered by the clay brick factory are presented in **Table 1-4** while specific activities which should be covered by the ECC are listed in **Table 1-5**.

Table 1-4: General Activities Triggered by the Project

Applicable Section	Expansion
Section 1 (a): The construction of facilities for the generation of electricity.	The factory will require electricity to be sourced from the Nored Electricity. However, the applicant would like to have the flexibility to be able to consider the installation of alternative energy sources, i.e. an own photovoltaic (up to 1MW) plant. This option will help to supplement the expensive electricity supplied by the local electricity supplier, Nored.
Section 2.2: Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance of 1976.	Clay bricks are fired using solid fuel and the applicant has proposed to use a combination of biomass and coal during the initial stages when clamp firing will be used. Once a tunnel kiln has been built, firing will be 100% biomass (woodchips) sourced from independent suppliers. At full production the factory will require ±5 000 tons of biomass fuel. During the firing process gaseous pollutants are emitted into the atmosphere as a result of combustion action of the fuel being used.
Section 3.1: The construction of facilities for any process or activities which require a licence or any form of authorisation.....	A factory in which clay bricks & roofing tiles are manufactured is to be constructed and licenced by the Ministry of Trade and Industrialisation in terms of the Standards Act of 2005.
Section 3.3: Resource extraction, manipulation, conservation and related activities.....	At least two types of shale clay will be used as raw materials for the manufacturing (manipulation) of clay bricks and roofing tiles. The raw materials will be sourced and supplied to OneBrik by independent third parties who are expected to have their operations formalised including having valid ECC for their quarries.
Section 5.1: The rezoning of land from agricultural to industrial use	The present zoning of the land is undetermined. The desired zoning is for industrial use – to operate a clay brick factory
Section 8.1: The abstraction of ground or surface water for industrial or commercial purposes	The proponent would like to have the flexibility to supplement the water sourced from Namwater by drilling a borehole on the factory premises, if and when the such need arises, in full compliance of applicable regulations.
Section 8.3: Any water abstraction from a river that forms an international boundary	The proponent would like to have the flexibility to supplement the water sourced from Namwater by drawing water from the Kunene River using a suitable water bowser, if and when such need arises, in full compliance of applicable regulations.
Section 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 m ³ at any one location	The proponent will procure hydraulic oil, greases and other chemicals (paint for building, etc.). Such products have to be stored in secure containers kept in the workshop section of the factory
Section 9.5: Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas and paraffin	The proponent has to procure diesel in bulk for the use of its own machinery and vehicles. Such diesel will be stored in an aboveground fuel storage tank to be installed on the factory premises. The fuel storage tank to be installed will have a maximum safe filling capacity of at least 23 000 litres and a bunded capacity of 28 000 litres.

OneBrik would like the specific activities listed in **Table 1-5** to be covered by the ECC:

Table 1-5: Specific Activities to be covered by the ECC

Activity	Description
Rezoning	To rezone the ±50 000 m ² from undetermined to industrial use including related services such as surveying and installation of services (water, electricity, an onsite sewerage system, etc.).
Construction	<ul style="list-style-type: none"> ▪ To construct factory infrastructure: boundary fence, factory buildings, workshop, ablution facilities, offices, internal routes including parking areas for equipment & machinery. ▪ To construct and install a suitable sewerage system to handle the household effluent from the factory personnel (a total of 100 people working three shifts per 24 hours – each shift having about 30 people). The factory site is far away from the local council sewer.
Water requirements	<ul style="list-style-type: none"> ▪ To drill a water borehole on the factory premises, if and when the need arises to supplement potable water sourced from Namwater. ▪ To draw water from the Kunene River (about 15 km away) using a mobile water tank, if and when the need arise and in full compliance of applicable regulations.
Electricity Requirements	<ul style="list-style-type: none"> ▪ To provide for alternative energy source, i.e. a 1MW photovoltaic plant including solar panels on building rooftops. ▪ Use of generators powered by biomass (woodchips).
Hazardous Products	<ul style="list-style-type: none"> ▪ Installation and operation of an aboveground fuel storage tank with a maximum capacity of 23 000 litres and a bunded capacity of 28 000 litres. ▪ To store and handle hydraulic oil, grease, etc. in quantities not exceeding 500 litres (permits to be sought from MME). ▪ To allow for the storage and handling of solid fuel (biomass and coal.)
Factory Operation	<ul style="list-style-type: none"> ▪ Storage of raw materials on stockpiles. • Storage of solid fuel (coal and woodchips, etc.) ▪ Manufacturing activities including firing bricks in clamp kilns.

1.5 Assumptions and Limitations

This report is based on a number of assumptions and is subject to certain limitations that are summarised here.

- The information provided to the EIA Consultant by the promoter, is assumed to be accurate and correct.
- The assessment of significance of impacts on the affected environment has been based on the assumption that the factory activities will be confined to those activities described in this environmental assessment scoping report.
- It is assumed that the stakeholder engagement process undertaken during the PPP has identified all relevant concerns of stakeholders.

- Where detailed design information is not available, the precautionary principle has been adopted, i.e. to overstate negative impacts and to understate any positive benefits.
- The management of **OneBrik** will in good faith implement the recommended mitigation measures identified in the report, commit sufficient resources, employ suitably qualified personnel to ensure compliance.
- That the management of **OneBrik** will follow the guidelines and abide by the recommendation provided in the EMP.

Notwithstanding the above, Ekwaio is confident that these assumptions and limitations do not compromise the overall findings of the report.

1.6 Overall Objectives of the EIA

The EIA is intended to achieve these overall objectives during the construction and operation of the clay brick factory promoted by **OneBrik**.

- To subject the site identified for the brick factory to an impact and risk assessment process, focusing on the geographical, bio-physical, socio-economic, heritage and cultural aspects of the environment.
- To determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context.
- To describe in details the need and desirability of the proposed activity, including considerations for alternatives on how such needs could possibly be met as well as due consideration of the envisaged activity in the context of the preferred location.
- To determine the :
 - (i) nature, significance, consequence, extent, duration and probability of the impact occurring to inform identified preferred alternatives, and,
 - (ii) degree to which these impacts:
 - can be reserved,
 - may cause irreplaceable loss of resources, and
 - can be avoided, managed or mitigated.
- To conduct a comprehensive public participation process during which stakeholders such as the neighbouring community members are provided information on the envisaged project, to invite such stakeholders to participate in the EIA process, to make comments and or input on the project, etc.

2. PROJECT DESCRIPTION

2.1 Introduction

OneBrik is seeking an ECC for the construction and operation of a modern clay brick manufacturing plant to be developed in the town of Ruacana. The development will include the construction of the buildings to house the various machines and equipment required for the manufacturing process, boundary fence around the premises, a workshop in which to service and repair machines and equipment as well as an administrative office block and ablution facilities.

2.2 The Raw Materials

According to the brief from **OneBrik**, the brick factory will utilise two different types of shale clay as raw materials. This will be sourced and supplied from quarries operated by independent third parties within a radius of 30 km of the brick factory. The procurement of shale clay from third parties will be restricted to seven months each year, i.e. from April to November with no deliveries accepted by the factory between December and March.

The modern factory will have a designed capacity to process 40 000 m³ of shale clay materials per year, which equates to ±20 million standard brick size units. A huge stockpile area has been provided (24% of land allocated) to cater for those four months when no raw materials is delivered to the factory.

To avoid the possibility of exposing the stockpiles of raw materials to wind erosion and associated dust pollution, the height of each stockpile will be limited to a ,maximum height of 3.5 m. It is a further recommendation for raw material stockpiles to be sheltered or sited away from predominant wind direction.

It should be noted here that this EIA does not cover the activities related to the quarrying and transport of raw materials to the factory site by third parties. What has been considered in this EIA are environmental impacts associated with the factory construction and manufacturing of the clay brick. However, it is understood, that **OneBrik** will have a policy which compels the brick factory to only source raw materials from third parties whose operations are compliant with EMA and therefore in possession of valid ECCs.

2.3 Finished Products

The applicant is proposing to manufacture a range of clay fired bricks in line with market trends and demands. The envisaged brick range will consist of stock bricks (bricks which require plastering of external walls), face bricks (bricks requiring no plastering), Maxi or hollow bricks (bricks for single leaf walling) and paving bricks. The roofing tiles will include merseilles tiles, Roman tiles, flat tops, etc. Bricks will constitute about 85% of the product range hence the name, **Onebrik**.

Clay bricks are ideal walling materials and will be used in the construction of residential, institutional, commercial and industrial properties. Ceramic building materials are used extensively in most developed countries of the world essentially because clay bricks are:

- energy efficient;
- environmental friendly;
- fully recyclable;
- durable, hence houses built with clay bricks are known to last for hundreds of years, and
- aesthetically pleasing especially structures built with face bricks.

2.4 The Production Process

The manufacturing of clay bricks and related products is achieved in a number of steps involving several stages and processes. These are:

- preparation;
- shaping/extrusion;

- drying;
- firing, and
- sorting & packing of fired products.

2.4.1 PREPARATION

The preparation of the raw materials will start with the crushing of the shale clay reducing it from about 400 mm down to 1 mm in a three-stage crushing process. The two shale clays are mixed together in the correct proportion and water added to make a clay paste with a moisture content of 12-15%. To manufacture bricks of the highest quality, adequate preparation of the raw materials is crucial. For bricks fired in clamp kilns, a small amount of charcoal fines, not exceeding 3% of the wet weight of the brick is added to the mixture. The charcoal fines is meant to improve the firing efficiency and to reduce the energy required in the overall firing process.

2.4.2 SHAPING

Shaping comprises extrusion of the clay column under high pressure. From the double shaft mixer, the clay is fed into a vacuum chamber of the extrusion machine (**Fig. 3 (a)**) through which air is sucked out of the clay paste. The clay is then forced via a corkscrew shaped auger through a mouthpiece and extrusion die (**Fig. 3(b)**). In the case of bricks, perforation bars are used to create holes observed on clay bricks which improves firing efficiency and cuts down on energy used.

2.4.3 DRYING

Extruded bricks will contain some water which is what makes the clay plastic enough to shape. The proponent is planning to use a powerful extruder capable for stiff extrusion (at the lowest water content of 15%) hence allowing direct setting of products on to kiln cars. The water remaining after extrusion has to be removed by drying the products either mechanical or atmospherically.

Initially, the green bricks will be dried in open air followed by firing in clamps. Drying this way requires a considerable large surface area which is well graded and levelled and adequate provision has been made for this purpose. Once a tunnel kiln has been constructed, the area used for atmospheric drying will be freed up for a photovoltaic plant or other manufacturing activities.

With a tunnel dryer the products are stacked on kiln cars which are transported through the dryer on rail tracks with the dryer designed to create a drying profile along its length with cooling at the entrance, hot and dry towards the exit end.

2.4.4 FIRING

Firing is required in order to transform the dried clay product into a hard, strong and durable ceramic product. Over the years, the type of kilns and firing methods applied in the ceramic industry have evolved from clamps to state of the art firing methods (tunnel kiln).

During the initial stages, firing will be accomplished by a combination of coal, charcoal and woodchips. Once a tunnel kiln has been built, firing will be 100% biomass (woodchips) which is renewable energy. Woodchips from encroacher bush is becoming a vital source of fuel energy in Namibia and the Biomass Power Station which is constructed by Nampower on the outskirts of Tsumeb has the potential to substantially upscale the production of woodchips. The biomass power station will consume in excess of 200 000 tons of woodchips per annum.

A flexible firing system will be installed which allows the brick factory to switch over to firing with hydrogen with minimal cost, when the production of green energy in Namibia becomes a reality.

2.4.5 SORTING AND PACKING

Clamp firing is a labour intensive operation because the bricks are packed and unpacked on clamps using manual labour. During the unpacking or declamping, bricks are visually inspected for quality, colour and uniformity. Any substandard or unfired bricks are also removed during the sorting process.

Based on brick factories in South Africa and Botswana, manual packing can handle anything between 20 000 and 40 000 bricks per day. Depending on the size, fired clay bricks are often packed in cubes of 500 units per cube.

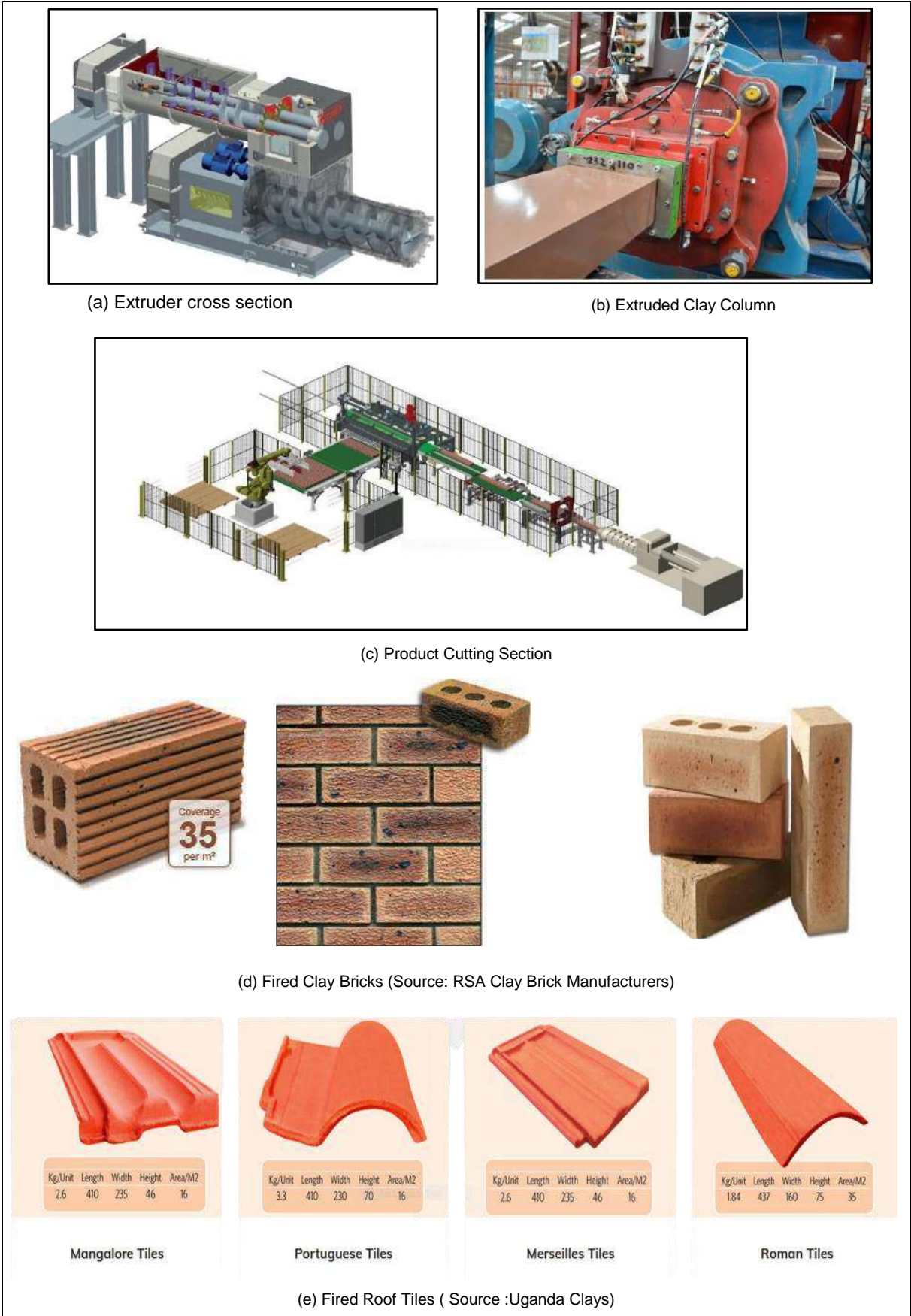


Figure 3: Brick Factory Machinery and Products

2.5 Need for the Project

2.5.1 INTRODUCTION

According to a research conducted by the Friedrich Ebert Stiftung Namibia (FSN) and published in the Namibian newspaper of 21 September 2020, the housing shortages in the country was estimated at 300 000 units - 'Derek Klazen, Deputy Minister in the Ministry of Urban and Rural Development (MURD). It should be pointed out here that the said national housing shortages of 300 000 units does not take into account into the housing needs of the rural population who are expected to fend for themselves. Staggering statistics presented in the report by FSN are indicated in table below.

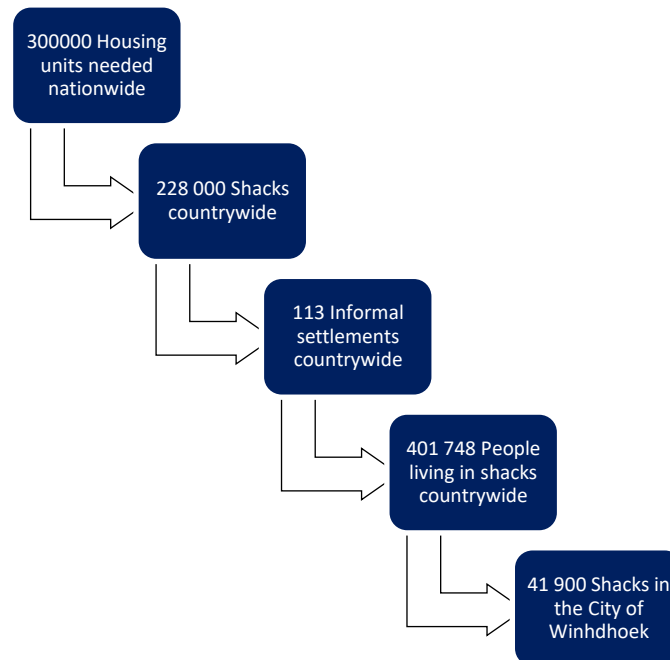


Figure 4: Housing Shortage in Namibia

2.5.2 COST OF BUILDING MATERIALS

The factory will manufacture clay bricks and roofing tiles – which are basic building materials used in the build environment, i.e. residential (houses), institutional (schools, hospitals, etc.), commercial and industrial properties. In the latest research study released by First Capital Namibia (FCN), titled 'Building Cost Index' - Volume 10 of 2022, a comprehensive analyses on the price trends of building materials in the domestic markets has been provided. FCN has analysed the cost of building materials needed to construct a standard three bedroom house with a floor area of 76 m² in six local authorities in Namibia, viz: Keetmanshoop, Windhoek, Swakopmund, Rundu, Katima Mulilo and Ondangwa. Based on the research of FCN, the cost of a three bedroomed house at Ondangwa (without land) which is within the target market of **OneBrik** is N\$258 848. 34. The number of bricks required and various other costs are as shown in **Fig. 5**, below.

At N\$3.22 per super brick used in the research paper, the cost of bricks is quite high. The reason for the high brick cost is the main ingredients used in the manufacturing of such bricks which are sand, stones and cement. More often such ingredients are procured at great cost which makes the end products more expensive. The ingredients required in the manufacturing of clay bricks is 100% shale clay. The single biggest input cost is the solid fuel used to fire the brick kilns. However, even with cost of biomass at N\$1 700 per ton delivered at Ruacana, clay brick will still be cheapest to manufacture than conversional concrete bricks used in the market today.

Building with clay bricks has numerous benefits which cannot be derived from concrete bricks. This is the choice which **OneBrik** intends to present to prospective home builders in its target market (**Fig. 6**). The applicant is not proposing to solve the housing shortage in the country, but its initiative will go a long way in addressing the huge shortages both in the rural and urban areas.

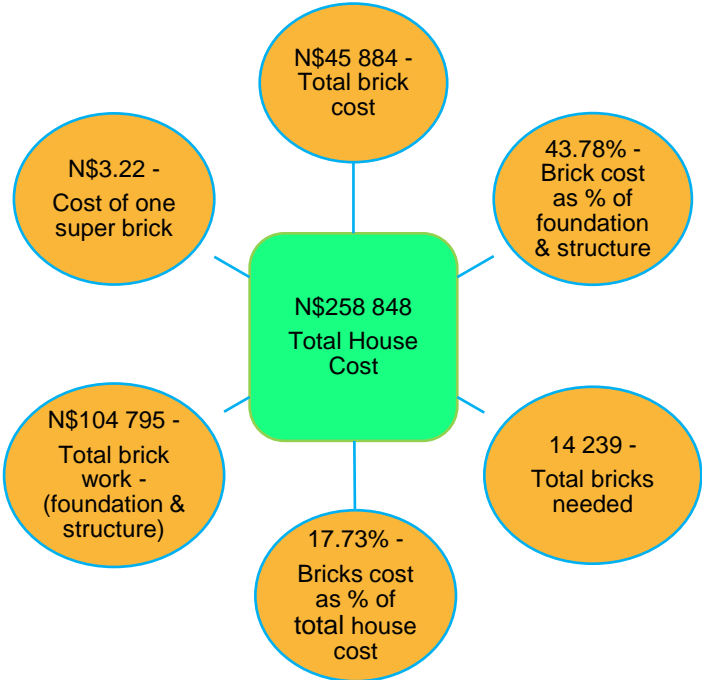


Figure 5 : Cost of Build Materials

2.5.3 NEED FOR CLAY BRICKS

The majority of the residents in the five regions listed in **Fig. 6**, are living in traditional homesteads constructed mostly with timber materials, predominantly, harvested from mopane trees. The region of Omusati is named after this tree species. However, this is rapidly changing with young people, moving from traditional homesteads in the rural areas to modern houses in urban areas. The impact of this migration is demand for housing units which translates into increased demand for bricks and other building materials.

2.5.4 DESIRABILITY

Clay bricks and roofing tiles are tried and tested building materials that have been used by mankind since the 5th century (**Fig. 3 (d) & (e)**). In the bible, the first reference to clay bricks is found in the Book of Genesis 11:3. *“They said to one another: come, let’s make bricks and fire them well”*.

Clay bricks are recognised for their strength, durability, ageless beauty, thermal-, acoustic- and fire-resistant properties. In fact, there are no building materials which match the performance of clay bricks in terms of meeting the social, economic and environmental responsibilities of sustainable development.

With today’s property developers, especially in developed countries of the world, becoming more environmentally conscious, there is a realization on the importance of developing low impact, energy efficient structures, that benefit both the environment and the occupants of buildings. Here, clay-based products are key.

Clay brick buildings enjoy a life span exceeding hundreds of years, and remain aesthetically constant and pleasing to the eye. Not only do clay face bricks and unplastered clay stock bricks ensure significant savings on maintenance and painting over the building’s life cycle, they also facilitate a reduction in greenhouse gas emissions.

Clay-based building products are also fully recyclable, and can be crushed for reuse or returned to earth; thereby also minimising waste. It is, therefore safe to say that building structures built with clay products are in perfect harmony with the environment. Clay bricks are desirable for their unique abilities and within the target market will help home owners through:

- Reduction of energy consumption of the whole building :
- Reduced sand requirements – no plastering is required for external walls
- Reduced usage of cement
- Recyclability of clay bricks/materials
- Possibility to achieve passive solar design
- Zero volatile organic compounds
- Opportunities to innovate
- Reduced lifecycle maintenance

2.5.5 TARGET MARKETS

The markets targeted by **OneBrik** are urban, peri urban and rural villages in the locations listed in **Fig. 6**, below. During the construction boom experienced between 2010 and 2016, end-users in these locations were estimated to consume ±4 million bricks per month. Over 90% of the bricks used in the said locations are concrete bricks.

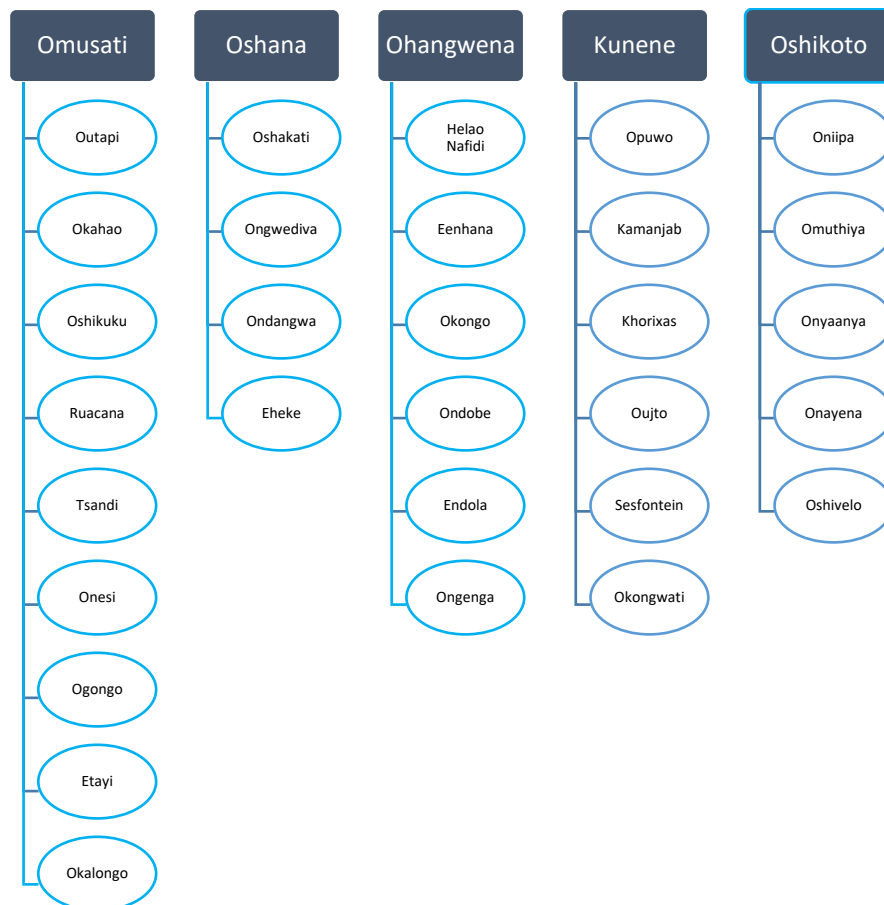


Figure 6:Target Markets

3. THE LEGAL FRAMEWORK

3.1 Introduction

The Republic of Namibia has five tiers of law and a number of policies relevant to environmental assessment and protection which includes the following:

- The Namibia Constitution
- Statutory law
- Common law
- Customary law, and
- International law

3.2 National Laws and Policies

To protect the environment and achieve sustainable development, all projects, programs and policies deemed to have adverse impacts on the environment are required to have an EIA conducted according to the Namibian legislation. The following legislations are applicable to the proposed developed:

Table 3-1: Legislative Framework

Legislation	Main Aspects
Environmental Management Act (Act. No. 7 of 2007)	<ul style="list-style-type: none"> a) It defines what the environment is and encourages sustainable management of the environment when natural resources are being exploited/extracted for the benefit of the residents/citizens. b) It also provides for a process of assessment and control of activities that are likely to pose significant effects on the receiving environment.
Environmental Management Regulations (Gazetted on 12 February 2012)	<ul style="list-style-type: none"> a) Heralded the implementation of the Environmental Management Act almost five years after the Act was approved by the legislature. b) Presents a list of activities that require an ECC prior to commencement. c) Regulates and provides guidelines on how EIAs must be conducted.
Local Authority Act (Act No. 23 of 1992)	<ul style="list-style-type: none"> a) The Act defines the powers, duties and functions as well as terms of office of local authority councils. b) Provides services such as water, electricity, sewage, waste removal, etc. to residents within a local area. c) Regulates effluent discharge into the sewer system. d) Issues Certificate of Fitness to all types businesses including factories operated within the town boundaries.
The Petroleum Products & Energy Act (Act No.13 of 1990 as amended)	<ul style="list-style-type: none"> a) The Act makes provision for the procurement, handling, storage and distribution of petroleum products. b) Empowers the line Minister to increase/decrease pump fuel prices in the country as well as for the imposition of levies on energy sources. c) Also provides for the issuing of various permits including Consumer Installation Certificate
Road Fund Administration Act	<ul style="list-style-type: none"> a) Regulates traffic and use of public roads including aspects related to road safety, vehicle licensing, roadworthiness, Mass Distance Charges, abnormal loads. b) Also administers and handles the fuel levy rebates to bulk users such as mining companies, farmers, etc.
Public and Environmental Health Act (Act No. 1 of 2015)	<ul style="list-style-type: none"> a) The Act provides for a legal framework for a structured more uniform public and environmental health system and for matters incidental thereto.

	<p>b) It deals and provides guidelines on noise generation and control thereof within an urban environment.</p> <p>c) Also deals with waste management, handling or collection, waste disposal, waste recycling, sanitation, etc.</p>
<p>Hazardous Substances Ordinance (No. 14 of 1974)</p>	<p>a) Provides for the control of hazardous substances with potential to cause harm, injuries and even death.</p> <p>b) Also provides for the manufacture, handling, storage, sale, use, disposal, etc. of hazardous substances.</p>
<p>Atmospheric Pollution Prevention Ordinance (No. 11 of 1976)</p>	<p>a) Provides control of noxious or offensive gases and matters incidental thereto.</p> <p>b) Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process.</p>
<p>Water Resource Management Act (2004)</p>	<p>The following permits are required in terms of the Water Act:</p> <ul style="list-style-type: none"> o water abstraction permits; o domestic effluent discharge permits (site offices, construction camp); industrial effluent discharge permits; o water use for dust suppression; and water reticulation permits (pipelines). <p>Will be superseded by Water Resources Management Act 2013 once the regulations are implemented in the future.</p>
<p>The Soil Conservation Act No. 76 of 1969</p>	<p>a) The act makes provision for combating and prevention of soil erosion and promotes the conservation, protection and movement of soil, vegetation, sources and resources.</p> <p>b) Fuel storage and handling is more often associated with spillages which could end up contaminating the soil.</p>
<p>National Heritage Act No. 27 of 2004</p>	<p>a) No archaeological/heritage site or cultural remains may be removed, damaged, altered or excavated.</p> <p>b) Section 48 sets out the procedure for application and granting of permits, such as the permit required in the event of damage to a protected site occurring as an inevitable result of development.</p> <p>c) Part VI Section 55 Paragraphs 3 and 4 require that any person who discovers an archaeological site should notify the National Heritage Council</p>
<p>Atomic Energy and radiation Protection Act (Act No. 5 of 2005)</p>	<p>a) The Hazardous Substance Ordinance No. 14 of 1974 was repealed and amended by the Atomic Energy and Radiation Protection Act.</p> <p>b) The Act provides for the control of substances which may cause injury or ill-health or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature.</p> <p>c) Whilst the environmental aspects are not really explicitly stated, the Act provides guidelines with respect to importing, handling and storage, etc. of hazardous substances.</p>

3.3 Ruacana Town Council Regulations

The town of Ruacana is one of the 'youngest' towns in the country, having been proclaimed as a village council in 2005 and upgraded to a fully autonomous town council administered through the Local Authority Act. In terms of the said act, an area declared as a town is governed by elected councilors. In Table below, are some the functions and powers of the Ruacana Town Council in terms of the Local Authority Act that are applicable to the proposed development:

Table 3-2: Ruacana Town Council By-laws

Aspect	Main Aspects
Water	Supplies potable water which is clean and safe to the residents. This however will not apply to OneBrik because the factory will be supplied directly by Namwater.
Electricity	Provides or makes electricity available to residential and business premises/erven
Sewer	Provides sewerage and drainage
Roads	Provides street roads, tarred & gravel with adequate lighting
Land Sales	Buys and sells land (serviced and unserviced) for residential and business including institutional, industrial and social purposes (churches, sports, recreational, cemetery, etc.). Maintains streets and public open spaces.
Waste	Provides an integrated waste/refuse handling and disposal from residential, businesses, recreational, etc to a dedicated landfill site.
Fees	Sets fees for services provided (water, electricity, waste removal and handling, building of street roads and lighting, etc).
Tourism	Promotes tourisms and facilities for tourists including trade and business activities through the issuance of Certificate of Fitness.
Building Regulations	Regulates all building construction activities from submission of building plans, approvals and monitoring of construction.
Township Planning Scheme	Allows management of all property and related public sector functions across the city including the protection of groundwater and the environment.

4. THE BASELINE ENVIRONMENT

4.1 Introduction

This section presents an overview of the socio-economic and biophysical environments in which the proposed brick factory will take place. The bulk of the information provided here was derived from primary and secondary sources as well as from previous EIA work done in the district of Ruacana by the EIA Consultant. A visual investigation of the site which covers ±50 000 m² has been made and photographs taken.

4.2 The Socio-economic Environments

The demographics of the region (Omusati) and local (Ruacana) have been derived from the last Population and Housing Census conducted in 2011, and various other publications and have been presented in graphic formats in **Figures 6 & 7**, below.

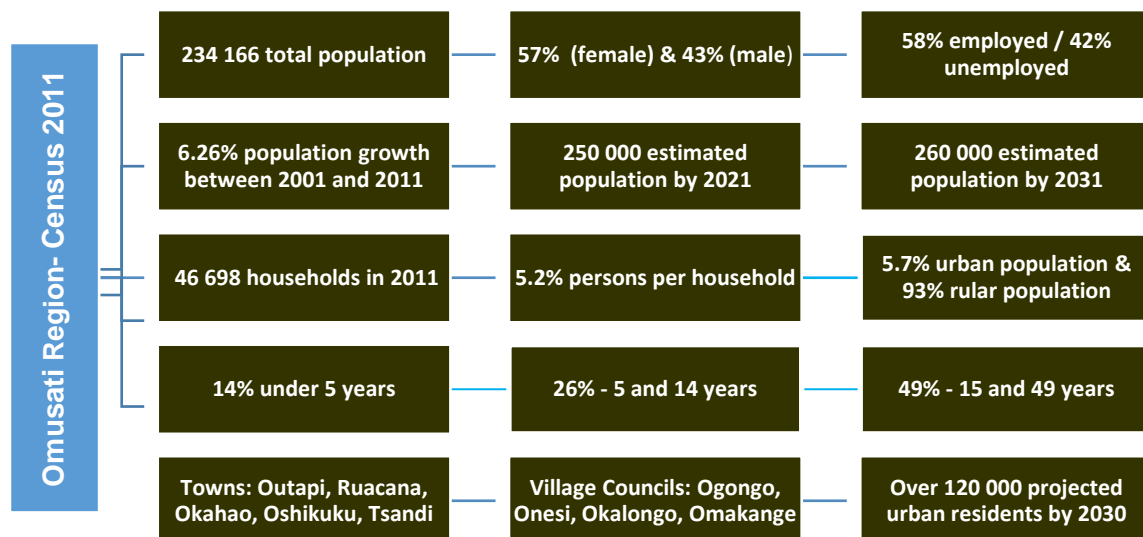


Figure 7: Demographic of Omusati Region

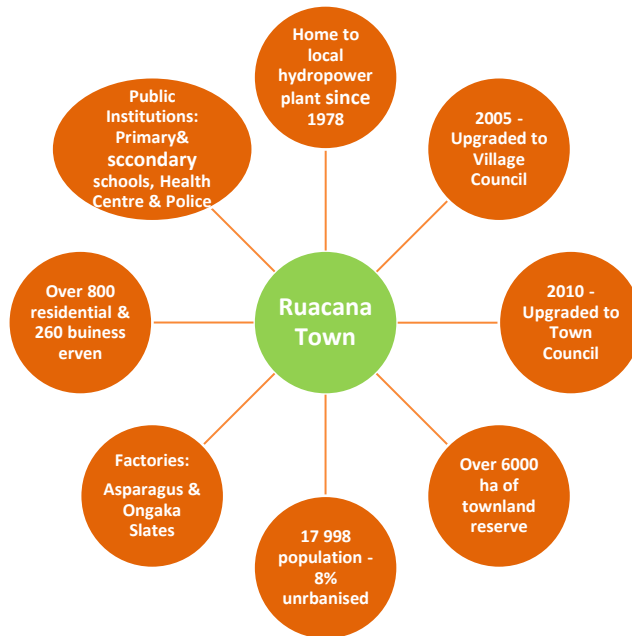


Figure 8 : Demographic of Ruacana

Potential Impacts

The project will have significant positive socio-economic impacts in the form of job creation, payment for services to the local authority (water, waste removal, etc.), revenue to the State through NamRA, contributions to the Social Security Commission (SSC), manufacturing of building materials that are considered environmental friendly and much needed to address acute housing shortage which has become a national challenge.

4.3 The Biophysical Environments

4.3.1 LAND USE, SURROUNDS AND ALTERNATIVES

The land in question is currently vacant, unutilized and not formalised. The applicant is therefore expected to shoulder all costs related to land formalization, i.e. rezoning, town planning and surveying.

A natural water stream or pond was observed to the south of the site (Fig. 9 (a) (d)). The pond is believed to hold rainwater for an extended period of time after the rainy season and livestock in the area would normal drink from there. C35 is elevated and about 1 m high above the natural ground level (Fig. 9 (d)). A ramp to exit and to access C35 is to the south, directing facing the water pond. It is recommended for the entrance to the factory to be sited to the south with the existing ramp serving as the exit from and entry to C35. The ideal entrance point should be at least 150 m from C35 in order to allow adequate room for the trucks entering and exiting the factory. As regards alternatives, the land could be used for a variety of commercial activities due to its close proximity to national highways which are tarred roads and in good conditions.

Potential Impacts

No impacts are envisaged with respect to land use. The land is owned by RTC and no people will be relocated as a result of the project. The applicant will have the land appropriately zoned (industrial) to fit the envisaged activity. There were no sensitive receptors observed within a 1 000 m of the site. In fact, the land is adjacent a similar factory which manufactures different kinds of building materials (slates).

4.3.2 GEOLOGY AND HYDROLOGY

In terms of the regional geology, the 'Owambo basin' is a sedimentary basin formed between 530 and 540 million years ago and sits on the Congo Craton which extends from southern Angola up to the Etosha Pan in northern Namibia.

At the local level, the geology of Ruacana is characterized by young sediments of the Kalahari Formation, predominantly comprising of clayey silts, sands and gravel, often underlain by well compacted silcrete and calcrete. Medium grained semi-consolidated sands are encountered at shallow depths, often occurring in bands from 100 cm to 300 cm thick which could be slightly pyritic.

There is no known geological faulting in the area. From the development perspective, the natural soil structure is strong enough to support any top structures which may be erected, as long as the concrete strength recommended for the foundation is adhered to.

Groundwater is reported to be shallow at depths ranging between 30 m to 90 m. The site has a thick surface cover consisting of sandy soil which is several meters deep. Groundwater flow is expected to take place through the primary porosity of this surface cover. A drilling permit is required to drill a private borehole for the purposes of extracting groundwater.

Potential Environmental Impacts

When the groundwater table is shallow, some activities at the proposed factory have the potential risk to contaminate groundwater such as poor handling of hazardous waste, poorly designed and installed sewage systems as well as when fuel or oil spills are not immediately contained and properly cleaned up.

4.3.3 NOISE POLLUTION

Noise is defined as 'unwanted sound'. Response to noise is not an empirical absolute, but often a psychological concept and does not need to be loud to be considered 'nuisance'. Generally, people are tolerant to noise up to a certain level of up to 65 dBA. Anything above that level is regarded as unacceptable.

The project site is located at the intersection of three national roads, but with the lowest traffic flows hence associated noise pollution is considered minimal. Another possible source of noise is the landing strip, but is used rather infrequent and is ± 2.5 km SW of the project site. The adjacent factory (Ongaka) is also another source of noise. From an environmental perspective, siting the factory adjacent to the slates processing facility is quite logical in that heavy industries are in the same location and not scattered all over the town.

During the operational phase, sources of noise will be machinery and equipment used in the operation as well as trucks collecting bricks. Given the rural setting of the project site, the current noise level is considered very low, during the day and night. In this regard, a noise impact assessment is not considered essential at the Environment Assessment scoping phase.

Potential Environmental Impacts

By their nature, industrial activities are often associated with noise pollution. The baseline condition is that there is noise pollution from three road networks (C35, C46 and D3700), Ongaka Factory and the landing strip, but its extent and intensities are very low and occurrences infrequent.

The brick factory is expected to contribute to the ambient noise level especially during working hours. However, there are no sensitive noise receptors within a radius of 1000 m of the factory site. Occupational noise pollution can be effectively mitigated and kept well within acceptable parameters.

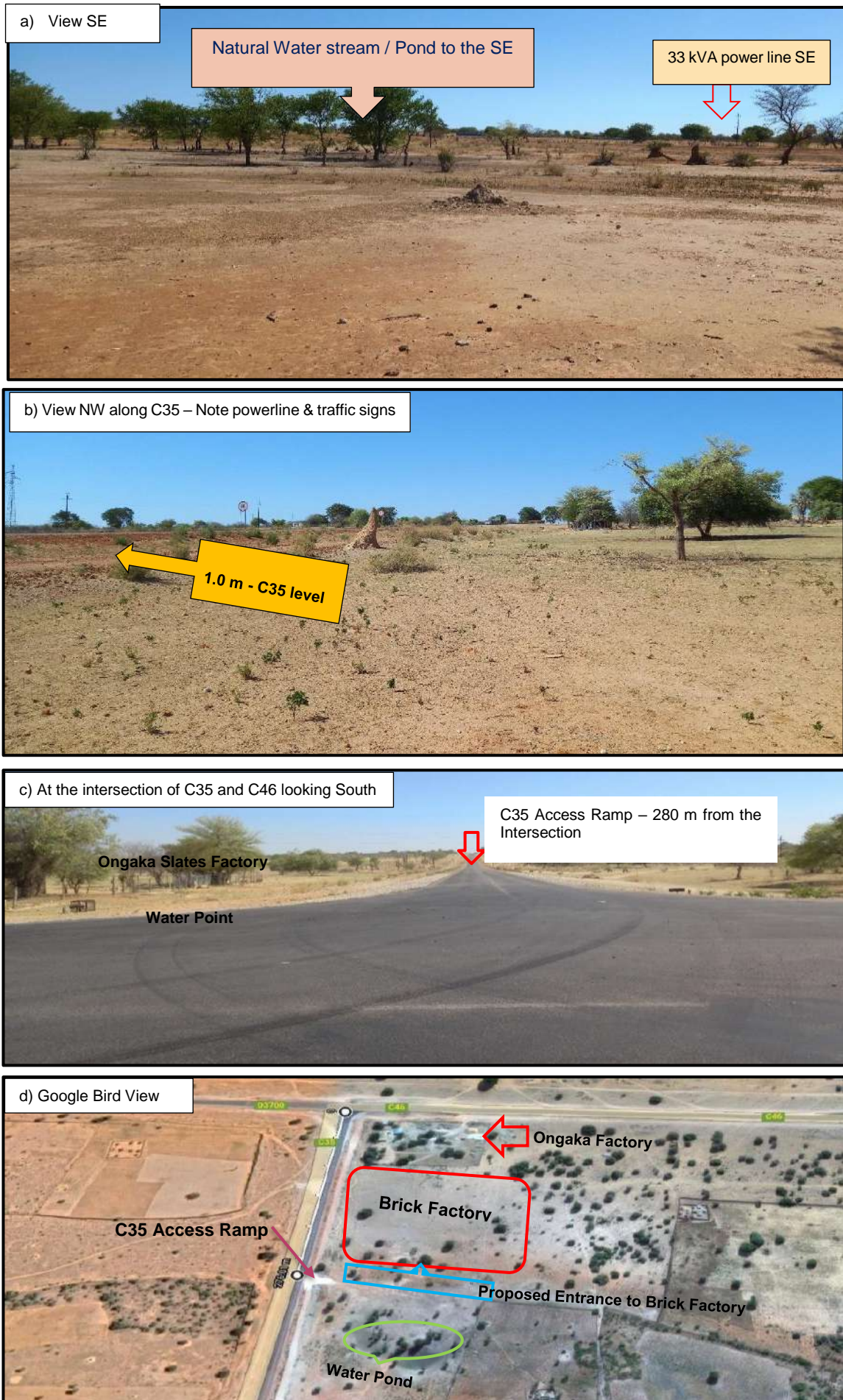


Figure 9: Views around the proposed brick factory site

4.3.4 AIR QUALITY – EMISSIONS AND FUGITIVE DUST

Within the proposed project site, Ongaka Slates is the only industrial operation whose activities have the potential to impact the ambient air quality. However, the factory is operated intermittently and the scale the is very small to have any significant impact on the air quality. Generally, atmospheric conditions around any clay brick factories are prone to airborne dust and other impurities, a situation which is enhanced by air movements. Dust is often generated when the raw materials are crushed and milled to required size fractions. When clay bricks are fired with solid fuel (biomass or coal), sulphur dioxide is emitted due to the combustion of sulphur contained in the solid fuel used in the firing process.

Four homesteads have been identified as possible sensitive receptors, but the potential for the transport of dust and other impurities via atmospheric pathways towards such homesteads in dependent on the direction of the homestead relative to the wind direction. In this regard only one homestead is relative to the prevailing wind direction, but it is about 1 200 m from the proposed site.

Potential Impacts

Dust is generated during the crushing, milling and handling of raw materials and fuel energy (coal, charcoal, etc.). The firing of products will result in gaseous emissions emanating from the combustion of the fuel energy used in the firing process.

The method of firing (clamp or tunnel kiln) has also a significant role to play and will influence the level gaseous emissions.

4.3.5 CLIMATIC CONDITIONS

The climatic conditions presented here in graphic formats were sourced from 'weather-atlas-com'.

(a) Temperature

At Ruacana, the hottest months are August through to April when the temperature could hit the 30 Degree Celsius mark. June and July are usually the coldest months. Frost may occur on 1-5 days per year. The temperature around the project site is indicated in **Fig. 10**, below.

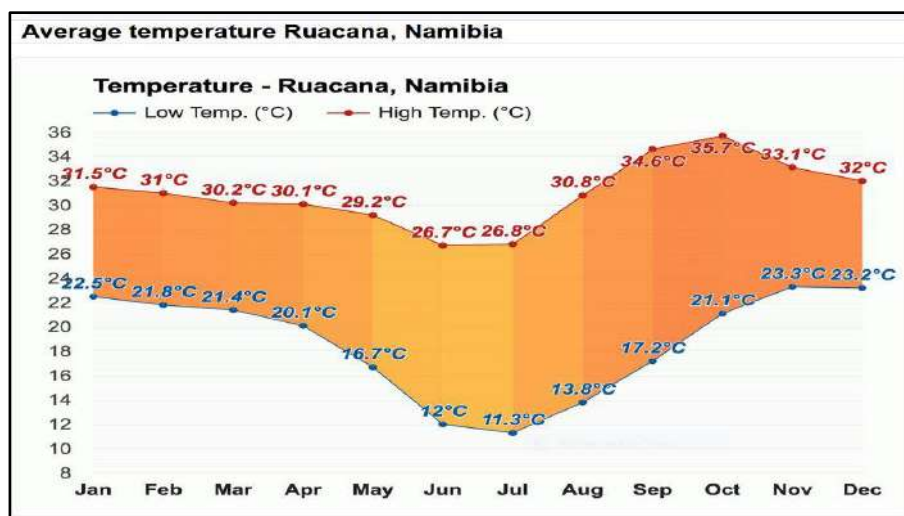


Figure 10: Temperature

(b) Humidity

From **Table 11** below, August and October are the driest months with the lowest humidity value at 18% and the highest at 21%. At 55%, March is the most humid moth followed by February and January. A high humidity could have some implications for the drying process of clay bricks, especially if drying in open atmospheric air is considered. Storage of solid fuel such as biomass (wood chips) and coal (fossil fuel) could also be detrimental to such high humidity.

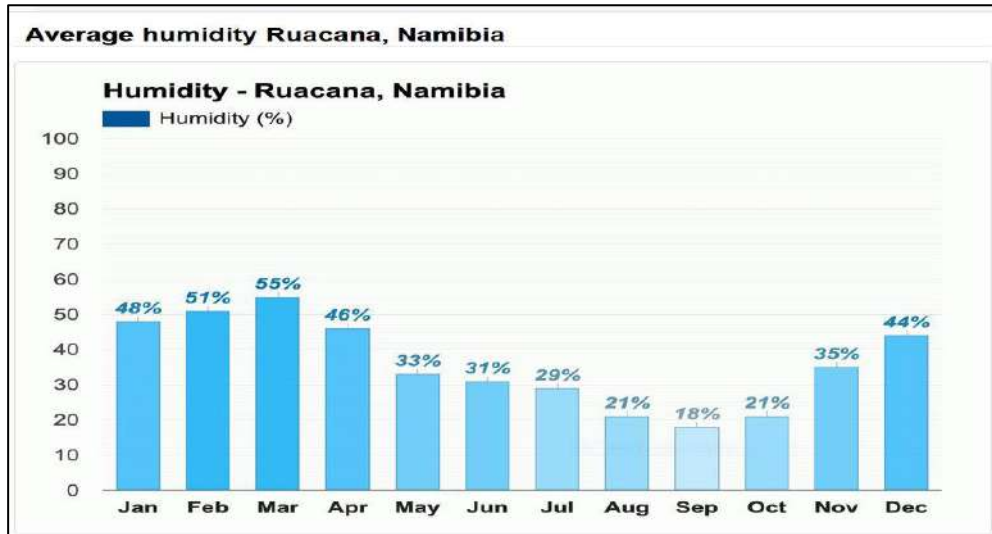


Figure 11: Average Humidity

(c) Rainfall

Based on **Fig. 12**, annual rainfall starts in October through to May, often peaking in January. Generally, the average annual rainfall at Ruacana is about 380 mm (lowest) and 550 mm (highest). Rainfall has implications to drying of unfired bricks in open air as well to the storage of any solid fuel used to fire the products. This is not a problem when drying and firing are performed in a tunnel kiln environment. Harvesting of rainwater from rooftops could be considered to supplement potable supplied from Namwater.

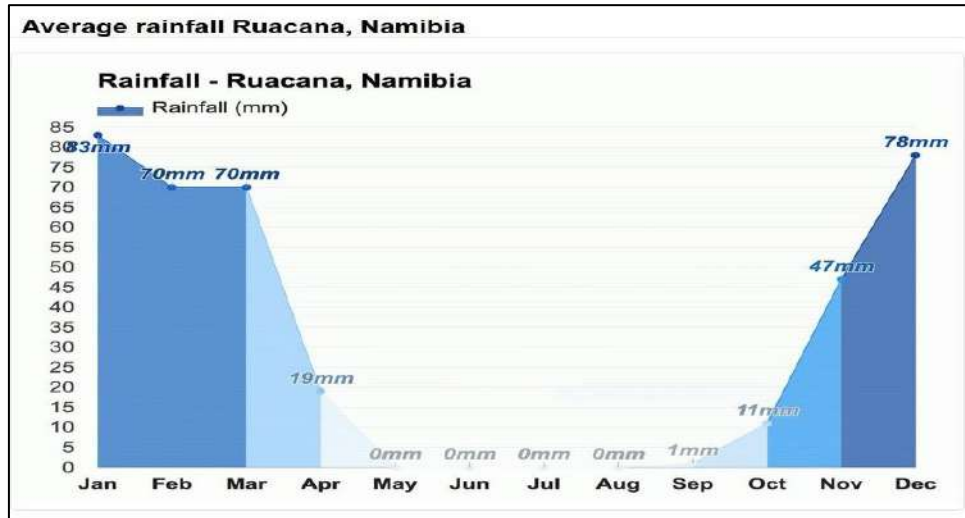


Figure 12: Average Annual Rainfall

(d) Winds

Average wind speeds around the project site are as presented in **Fig. 12**, above. The data from the source does not provide for prevailing wind directions in the area. However, the information from a local airfield operated by Nampower at Ruacana, is that the wind blows from any direction with a slightly greater frequency from the east. Calm conditions occur for about 60% of the time, mostly at night.

In Namibia, strong easterly winds are known to blow for several days a year, mainly in spring. These are known as 'Berg Winds'. They are hot and dry and often resulting in fire hazard ratings increasing considerably. It is important to know the prevailing wind direction to aid in directing fumes from firing activities in the factory.

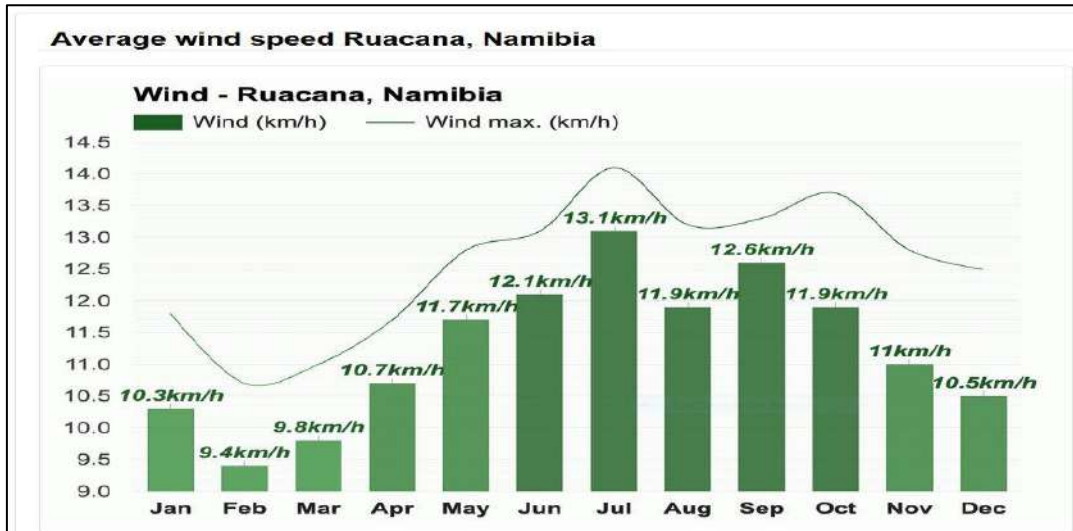


Figure 13: Average Wind Speed

Potential Environmental Impacts

Depending on the drying and firing methods adopted by the applicant, climatic conditions will present positive benefits and negative challenges for clay brick manufacturing at Ruacana. High radiation has a positive impact in that alternative energy in the form of solar energy can be harvested and utilised to reduce the energy requirement of the business. High temperatures have a negative impact in the sense that if green products are dried in open air, a significant quantity could develop cracks resulting in wastage. Low temperatures will result in products taking much longer to dry out.

4.3.6 BIODIVERSITY

(a) Impacts on Vegetation

Over 90% of the land has been cleared of vegetation, mostly by past human activities. Mature trees were preserved, but fresh logging was observed (Fig. 14 (a) & (b)). By planting functional trees during the operational phase for shade, wind breaks and aesthetics will give the site a pleasant feel and better look.

Potential Impacts

The project will not have any significant impacts on the vegetation and mature trees will be preserved. Poor management of hazardous waste such as hydrocarbon spills could disrupt the biodiversity on and outside the brick factory premises. It proposed to plant vast growing plants along the western side of the factory premises in order to shield the operation from the prying eyes of the public using the C35 highway. Fast growing plants will adapt well to the environment.

(b) Impacts on Livestock

Cultivation and communal grazing were the predominant land use prior to RTC acquiring the land for urban development. From time to time livestock (cattle, goats, sheep and donkeys) is still encountered grazing freely within the township land reserve but the numbers are gradually becoming smaller and smaller (Fig. 14 (c) & (d)).

Potential Impacts

The project is not expected to have any impacts on the livestock in the area. But the project could impact on the livestock in the surroundings if waste handling and management is neglected such that plastics and papers are blown out of the premises resulting in livestock eating such plastics.



(a) A Freshly Chopped Tree



(b) A Dead Tree on the Land



(c) Goats grazing



(d) Cattle grazing

Figure 14: Biodiversity

4.3.7 HERITAGE AND CULTURAL INTERESTS

No known, declared and or recorded heritage sites or items of cultural interests were identified from both available records and field investigations carried out on the portion of land allocated for the clay brick factory and the surroundings. In the event that any such items are found during the construction phase of the factory, the 'a chance find' described in the EMP section of the EIA must be followed.

4.3.8 VISUAL AND LANDSCAPE INTRUSION

As seen from **Fig. 1**, the project site is located about 10 km and 5.5 km from the two residential areas of Ruacana and Oshifo respectively. Several buildings and structures of varying sizes and heights will be constructed on the land to accommodate the clay brick manufacturing activities. Stockpiles of raw materials and finished products will also be visible to the general public using the adjacent three road networks. The general view of the landscape around the project site is therefore expected to be somewhat alternated. However, the factory structures and any lighting that may be installed are not expected to be visible from both townships.

Visual and landscaping impacts are therefore expected to be of low significance rating during the construction and operational phase.

4.4 EXISTING INFRASTRUCTURE AND SERVICES

4.4.1 WATER

A water pipeline is running along the western border of the site (**Fig. 9 (c)**), where water to the factory will be supplied from. Supplying water to the project site will therefore not result in any major impacts to the environment.

Potential Impacts

The project water requirement of about 3 000 m³ (3 million liters) per year and is not expected to impact negatively on the available water resource in the area.

4.4.2 ELECTRICITY

Two 33 kVA transmission power lines on timber poles are available around the project site (**Fig: 9 (a) & (b)**), one line is running to the west about 50 m away while another one is running to the south about 100 m. Supplying electricity to project site will thus not result in any impacts to the environment.

Potential Impacts

The energy requirement of the project is not expected to impact negatively on the available energy resource. Given the high radiation rate in the area, the project has the option to make use of alternative energy, i.e. solar energy by installing solar panels on the rooftops or to go completely off-grid by erecting its own solar photovoltaic plant at a designated site within the factory premises.

4.4.3 ROADS

There are three good road networks serving the town of Ruacana as described in other sections of this scoping report. Not only will good tar roads, make the factory development easier to execute, but will also facility in the delivery of finished products to all major towns in Namibia cost effectively and hassle free. The operation of brick factory is not expected to increase the traffic flow to the point where congestion on the road network in the area is experienced.

Potential Environmental Impacts

The development phase of the brick factory will only require the construction of a short access road (about 150 m – linking C35 to the factory entrance). Potential impacts to the road networks could take the form of damage due to overloading and or accidents, if the road regulations are ignored. Traffic congestion on C35 and C46 is not expected. Potential impacts associated with traffic can be effectively mitigated.

4.4.4 SEWERAGE

The promoter is expected to install a suitable green sewer system capable to handle the effluent generated by its factory. The brick factory is only expected to generate household sewerage from its ablution facilities for staff and personnel during working hours.

Potential Impacts

It is important that a green sewerage system for the factory is designed by a professional civil engineer and installed by a skilled and experienced contractor. Once installed, a high standard of housekeeping must be maintained which ensures that the sewer system is kept in a functional state, odour-free and well maintained since any leaks have the potential to contaminate both surface and groundwater sources.

4.4.5 COMMUNICATION

Communication both by mobile and physical line networks is available in the town of Ruacana. The project will therefore not require the construction of any telecommunication infrastructure such as poles or towers.

Potential Impacts

No infrastructure will be installed for the purpose of providing communication to the factory hence no environmental impact is foreseen.

4.4.6 WASTE GENERATION

Waste will be generated at the brick factory and has to be stored in a proper place, to prevent it from being blown away or accessed by scavengers/animals and to be disposed of at the RTC landfill site.

Hazardous waste which might be generated (used oil, oil filters, old batteries, etc.) has to be disposed of in accordance with the hazardous waste procedure recommended in the EMP section of the EIA.

Potential Impacts

Minimal solid waste is expected to be generated by the brick factory. Recommendations are provided in the EMP on how hazardous waste generated by the factory may be handled.

5. ASSESSMENT METHODOLOGY

5.1 Introduction

An assessment of potential impacts is presented in this section and the criteria used in making each assessment is explained. It is important to point out that a broad definition of 'Environment' is adopted which incorporates both socio-economic and bio-physical components. The EIA seeks to achieve a precious balance between positive and negative impacts and, between the bio-physical impacts and the social and economic gains to society.

Therefore, both negative and positive impacts on the environment are considered and to the extent that is practically possible, measures have been recommended to mitigate negative impacts and to optimise and enhance positive impacts.

5.2 Identified Impacts Associated with the Activity.

Listed in table 6-1 below are the potential impacts that are likely to be encountered during the construction and operational phases of the proposed development.






Table 5-1: Identified Impacts

Environmental Impacts	Construction Phase	Operational Phase
Socio-economic	✓	✓
Soil Disturbances and Drainage	✓	
Waste – Solid and Hazardous	✓	✓
Noise Disturbances	✓	✓
Dust Impacts		✓
Air Quality	✓	✓
Traffic Impacts on Road Networks		✓
Surface and groundwater		✓
Biodiversity - Flora and Fauna	✓	✓
Health, Safety & Security	✓	✓
Heritage and cultural Aspects	✓	
Visual and landscape Impacts		✓
Cumulative Impacts		✓

5.3 Impacts Assessment Methodology

The impacts listed in Table 6-1 above, have been evaluated using the assessment methodology detailed in **Table 6-2** below:

Table 5-2: Impact Assessment Methodology

CRITERIA	EXPANSION
Impact	A description or list of the expected impacts are given.
Nature	Describes the type of effect of the impact in terms:  Positive - the project will have a social economic impact or environmental benefit  Neutral - the project will have no effect  Negative - the project will have impacts that are likely to have harmful consequences
Extent	Describes the scale of the impact in terms of:  Site Specific: Impact expanding only as far as the activity itself, i.e. confined within the project site boundary.  Small : Impacts confined to the immediate environment of the site, i.e. within a radius of 1 km of the project site boundary

CRITERIA	EXPANSION
	<ul style="list-style-type: none"> ✚ Medium: Impacts extend beyond the immediate environment of the site, i.e. within a radius of 5 km of the project site boundary (local) ✚ Large: Impacts extend beyond the project site boundary and have a widespread effect i.e. beyond 5 km (regional)
Duration	<p>Predicts the lifetime of the impact:</p> <ul style="list-style-type: none"> ✚ Temporary: Impacts expected to endure for less than 1 year ✚ Short term : Impacts expected to endure for between 2 and 5 years. ✚ Medium term: Impacts expected to endure for between 5 and 15 years. ✚ Long term : Impacts anticipated to endure for over 15 years. Impact will only stop after the operational or running lifespan of the activity, either due to natural course or by human inference) ✚ Permanent: Impact will be where mitigation or moderation by natural course or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary.
Intensity	<p>Describes the magnitude (scale) of the impact</p> <ul style="list-style-type: none"> ✚ Very Low : Affects the environment in such a way that the natural and/or social functions/processes are not affected . ✚ Low : Natural and/or social functions/processes are slightly affected. ✚ Medium: The natural and/ or social functions/processes are notably altered but continue albeit in a modified way. ✚ High: The natural, cultural or social functions or processes are alerted to the extent that it will permanently cease
Probability of Occurrence	<p>Describes the probability of the impact actually occurring:</p> <ul style="list-style-type: none"> ✚ Improbable: Not at all likely that impact will occur. ✚ Probable: Distinct possibility for impact to occur. ✚ Highly Probable: Impact will most likely to happen. ✚ Definite: Impact will occur irrespective of any preventative measures or correction action taken.
Degree of Confidence in Predictions	<p>Degree of confidence in prediction is largely based on availability of information and any specialised knowledge:</p> <ul style="list-style-type: none"> ✚ Low : Less than 40% - little confidence regarding information available ✚ Medium: Between 40% and 80%% - Moderate confidence regarding information ✚ High: Over 80% - great confidence regarding information available.
Significance Rating	<p>The impact significance rating should be considered by authorities in the decision-making process based on the implications of rating ascribed below:</p> <ul style="list-style-type: none"> ✚ Very Low: the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity. ✚ Low: the potential impact may not have a meaningful influence on the decision regarding the proposed activity/development. ✚ Medium: the potential impact should influence the decision regarding the proposed activity/development. ✚ High: the potential impact will affect the decision regarding the proposed activity/development. ✚ Very High: The proposed activity should only be approved under special circumstances.

6. ASSESSMENT OF IMPACTS

6.1 Introduction

In this section the impacts listed in **Table 6-1** have been assessed in terms of the parameters presented in **Table 6-2**. The significant rating for each identified impact has been assessment without the recommended management measures (pre-mitigation) and with the recommended management measures (post-mitigation).

6.2 Assessment of the Socio-economic Environment



Unemployment is a serious problem in the country and is projected to reach levels of 49% amongst the youth, especially those living in the rural area where economic activities are rather limited. Once in full production, the brick factory is projected to create and to offer employment opportunities to ±100 people. However, the ultimate number of employment that will be created is subject to the level of automation of the brick manufacturing activities.

Overall, the development is projected to make a significant impact on the socio-economic front both upstream (supply of raw materials by independent third parties, procurement of factory services and good, etc.) and downstream in the sense that the manufactured building materials (clay bricks and clay roofing tiles) will make further economic impacts at the local, regional and national levels.

The assessments with respect to the socio-economic impacts are presented in this section and are applicable to both phases – **construction and operation**.

6.2.1 CREATION OF EMPLOYMENT

Table 6-1: Impact Assessment – Employment Creation

Description of Impacts	
<ul style="list-style-type: none">  Earning of an income /salary which is further spent in the local economy;  Employees will further support their families and relatives hence reducing poverty levels and improved standard of living. 	
Evaluation of Impacts	
Nature of Impact	Positive impacts
Extent of Impact	Medium to large depending on the degree of the factory mechanisation.
Duration of Impact	Long term – factory has a lifespan in excess of 50 years
Intensity of Impact	Medium
Probability of Occurrence	Highly Probable
Degree of Confidence	High
Significance Pre-mitigation	Medium
Significance Post-mitigation	High
Recommended Mitigation Measures	
Comply with the EMP.	

6.2.2 SOCIAL AND COMMUNITY IMPACTS

The brick factory has the potential to support economic activities for development over a wider geographical footprint which includes the urban, peri-urban and rural areas. Furthermore, there is a possibility to export clays bricks to the neighbouring Cunene province of Angola where the building sector there has a high propensity to building with clay bricks. Export to Angola will promote and enhance trade activities between the two neighbouring nations.

The assessment with respect to social and community impacts is presented in **Table 7-2**, below:

Table 6-2: Impact Assessment on the Community

Description of Impacts	
<ul style="list-style-type: none"> ✚ Supply of good quality clay bricks which are environmental friendly building construction materials. ✚ Increased local, regional and national trading opportunities with a potential for export hence earning the much needed foreign currency. ✚ Injection of income into the local and regional communities since employees. 	
Evaluation of Impacts	
Nature of Impact	Positive impact
Extent of Impact	Medium to large – employees will be drawn from all regions.
Duration of Impact	Long term – factory has a lifespan of over 50 years.
Intensity of Impact	High – economic benefits will accrue beyond those directly employed.
Probability of Occurrence	Definite – people will be employed once factory is established and commissioned.
Degree of Confidence	High
Significance Pre-mitigation	High
Significance Post-mitigation	Very High
Recommended Mitigation Measures	
Comply with the EMP.	

6.2.3 ASSESSMENT OF IMPACTS ON WORKING CONDITIONS

Working conditions and the work environments will have a significant impact on the productivity of the employees which will lead to the eventual success of the clay brick factory. The management of the brick factory should ensure that a good working environment is created for the employees to perform their duties to the best of their abilities at the brick factory. Poor working conditions and unclear defined roles could have these negative impacts on the brick factory. The assessment with respect to the above environmental aspect is set out in **Table 7-3**, below:

Table 6-3: Impact Assessment of Working Conditions

Description of Impacts	
<ul style="list-style-type: none"> ✚ Poor labour relations which ultimately lead to industrial actions (strikes). ✚ Bad corporate image could lead to the factory losing customs and ultimately failing as a business entity. 	
Evaluation of Impacts	
Nature of Impact	Zero impact
Extent of Impact	Small depending on management style and skills
Duration of Impact	Possibly short term depending on how soon challenges are addressed.
Intensity of Impact	Possibly low – not sure
Probability of Occurrence	Improbable
Degree of Confidence	Low
Significance Pre-mitigation	Low
Significance Post-mitigation	Insignificant
Recommended Mitigation Measures	
Mitigation measures are provided in the EMP.	

6.3 Assessment of the Bio-physical Environment

6.3.1 SOIL DISTURBANCES

Some soil disturbances will occur during the preparation of the site. This will include but not limited to the following activities: erection of a security perimeter boundary fence, installation of water, installation of a purpose-designed sewer systems, construction of internal routes, excavations for building foundations and related factory support infrastructure. It is important that the execution of such activities is well planned and carefully carried out so as to limit the impact on the natural environment. This impact will apply to the **construction phase** only.

The assessment related to the environmental impacts on soil disturbances is presented in **Table 7-4**, below.

Table 6-4: Impact Assessment on Soil Disturbances

Description of Impacts	
<ul style="list-style-type: none"> ✚ Soil erosion, especially if construction work is carried out during the rainy season. ✚ Sedimentation transport 	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Site specific but could extend beyond site boundaries
Duration of Impact	During the construction phase only
Intensity of Impact	Low
Probability of Occurrence	Improbable
Degree of Confidence	Medium
Significance Pre-mitigation	Low
Significance Post-mitigation	Very Low
Recommended Mitigation Measures	
Comply with the EMP	

6.3.2 WASTE – SOLID AND HAZARDOUS

Waste will be generated during the construction and operational phases of the brick factory. During the construction period waste will take the form of building rubble, cements bags, scrap metals, etc. and some household waste. Waste must be removed from the site on completion of construction activities and disposed of at the landfill site of RTC. The assessment for the waste impact has been presented in **Table 7-5** below and covers both phases, but with emphasis placed more on the operational phase.

Table 6-5: Impact Assessment on Waste

Description of Impacts
<p>The brick factory must develop an in-house waste plan to deal with all types of waste generated by the manufacturing activities. Some of the environmental impacts from lack of a waste plan and poor solid waste handling are:</p> <ul style="list-style-type: none"> ✚ Littering of papers & plastics ✚ Visual nuisance ✚ Odour (if food items are involved) <p>Poor handling of hazardous products (fuel, chemicals, etc.) could have these environmental impacts:</p> <ul style="list-style-type: none"> ✚ Soil contamination ✚ Destruction of habitats ✚ Pollution of surface water
Evaluation of Impacts

Nature of Impact	Negative
Extent of Impact	Site specific but could extend beyond the site boundary
Duration of Impact	Long term – factory has a design lifespan of over 50 years
Intensity of Impact	Low
Probability of Occurrence	Probable
Degree of Confidence	Medium
Significance Pre-mitigation	Medium
Significance Post-mitigation	Low
Recommended Mitigation Measures	
Mitigation measures are provided in the EMP section of the report.	

6.3.3 NOISE DISTURBANCE

Limited noise will be generated during the construction period and will mostly be from concrete mixers, compactors, welding activities and from the few construction vehicles used in the operation.

During the operational phase, sources of noise at the factory will be the machinery and equipment used in the manufacturing activities (frontend loader handling raw materials, forklifts handling raw and finished products as well as from trucks collecting bricks).

There are no sensitive noise receptors (lodges, hotels, homesteads, etc.) within a radius of 5 000 m of the factory. The airfield about 3 km is used infrequently and no cumulative impact is therefore expected.

Typical impacts from excessive noise could be hearing impairment, annoyance or nuisance, etc.

The assessment of potential noise impacts during both phases – construction and operation is provided in the **Table 7-6**, below.

Table 6-6: Impact Assessment on Noise Disturbance

Description of Impacts	
Potential noise impacts are disturbance to hearing and perhaps irritation.	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Site specific but could extend beyond site boundary depending on intensity
Duration of Impact	Long term – noise will be generated when factory is operational
Intensity of Impact	Low
Probability of Occurrence	Probable
Degree of Confidence	Medium
Significance Pre-mitigation	Low
Significance Post-mitigation	Very Low
Recommended Mitigation Measures	
Mitigation measures are provided in the EMP.	

6.3.4 DUST POLLUTION

(a) Construction Phase:

During the construction phase dust will be generated during site clearing, foundation excavations and from vehicle movements on unpaved roads. This can be effectively mitigated.

(b) Operational Phase:

The main sources of dust generation at the brick factory will be those sections where crushing and grounding take place followed by stockpiles of raw materials and solid fuel energy. Traffic movements in and around the factory will be confined to paved routes while the whole factory will be enclosed hence, fugitive dust will be minimal.

The assessment of potential dust pollution during both phases – construction and operation is provided in the **Table 7-7**, below.

Table 6-7: Impact Assessment on Dust Pollution

Description of Impacts	
Lack of effective dust management measures could result in windblown as fugitive dust, settling on surrounding structures as well as on trees and plants around the factory premises. Generally, dust tend to float in the air and staining may occur on nearby infrastructure becoming a visual nuisance and a health hazard.	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Site specific during the construction phase. Likely to be experienced beyond site boundary during the factory operation.
Duration of Impact	Short term for construction phase. Long term during factory operation.
Intensity of Impact	Low during construction. Medium during factory operation.
Probability of Occurrence	Improbable during construction. Highly probable during factory operation.
Degree of Confidence	Medium for both phases.
Significance Pre-mitigation	Low during construction. High during factory operation
Significance Post-mitigation	Very Low during construction. Low during factory operation.
Recommended Mitigation Measures	
Comply with the EMP.	

6.3.5 AIR POLLUTION

(a) Construction phase.

No air emissions are expected.

(b) Operational phase.

Clay bricks are fired in kilns which emit certain gaseous emissions into the atmosphere due to the ‘cooking action’ of the fuel energy used in the firing process. During the initial stages of brick production, firing of clay bricks will be in clamp kilns which are considered as being energy-inefficient. The firing energy will be biomass (fire blocks) and coal.

Air emissions from solid fuel (coal, charcoal and biomass) are more often associated with trace elements such as cadmium, arsenic, chromium, etc. emanating from the combustion of fuel that are released into the atmosphere. Firing with coal will result in sulphur dioxide as the main air pollutant

from the combustion of coal. However, the amount of solid fuel required per annum is of the order of 4 500 tons and therefore very small.

Once a tunnel kiln has been built, the brick factory will switch to using 100% biomass fuel energy (woodchips) which is a renewal form of energy. Woodchips will be sourced from third parties, harvested from encroacher bush on commercial farms. With the tunnel kilns, gaseous emissions are released through a single stack which directs emissions into the atmosphere. The height of the stack will influence the dispersion of pollutants and the concentration of any pollutants that reach the ground level is fairly minimal. The exact height of the kiln stack will be determined during the design phase of the tunnel kiln and will probably be between 15 and 30 m high.

The assessment of potential air pollution associated with the clay brick manufacturing is presented in **Table 7-8**, below.

Table 6-8: Impact Assessment on Air Pollution

Description of Impacts	
As described in the preceding section above.	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Low, brick operation is very small by world standard.
Duration of Impact	Long term as long as the brick factory is operational
Intensity of Impact	Very Low
Probability of Occurrence	Probable
Degree of Confidence	Medium
Significance Pre-mitigation	Medium
Significance Post-mitigation	Very Low
Recommended Mitigation Measures	
Comply with the EMP	

6.3.6 TRAFFIC IMPACTS ON PUBLIC ROADS

The factory premises is located 100 m to the southeast of the intersection of three roads networks. These public roads are tarred and in good condition. Traffic on all three roads can be described as low to very low. No significant impacts on traffic is expected during the construction phase.

Operation Phase:

The factory entrance will be to the south and accessed from C35 via a paved road of approximately 150 m long, to be constructed along the southern boundary of the factory. At full production the factory will process 40 000 m³ of shale clay, delivered over seven months or ±5 700 m³ per month which equates to ±380 trips per month or 19 trips per day over 20 days each month. The delivery of the raw materials will therefore result in an average of 2 670 trips over seven months when a tipper truck with a payload of 15 m³ is used.

The collection and delivery of bricks from the factory to clients will mostly be transported on C46 and C35 and such delivery is not expected to result in increased traffic flow. Potential impacts are: overloading, incidents/Accident and road spills.

The assessment of potential impacts on traffic is provided in **Table 7-9**, below.

Table 6-9: Impact Assessment on Traffic

Description of Impacts	
<ul style="list-style-type: none"> ✚ Potential risks are accidents and incidents on the roads ✚ Damage caused to the road due to overloading, ✚ Ignoring of traffic regulation by using vehicles which are not roadworthy. 	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Small
Duration of Impact	Medium term
Intensity of Impact	Low
Probability of Occurrence	Improbable
Degree of Confidence	Low
Significance Pre-mitigation	Low
Significance Post-mitigation	Very Low
Recommended Mitigation Measures	
<p>Delivery of raw materials:</p> <ul style="list-style-type: none"> ✚ Any tipper truck delivering raw materials to the factory must be correctly loaded without exceeding the legally permissible payloads. ✚ Shale clay should be correctly loaded into the tipper bucket without causing any spills during the haulage to the factory. Spills have the potential of becoming safety hazard to other road users. ✚ Trucks used by third parties to deliver the raw materials must comply with all road regulations, i.e. road worthy, licensed and operated by experienced drivers. ✚ Management must ensure that third parties are acquainted with the provision of the EMP relating to the brick factory. <p>Delivery of bricks to end users</p> <ul style="list-style-type: none"> ✚ Any trucks collecting bricks from the factory must not be overloaded so as to cause undue wear and tear or damage to national roads. ✚ Bricks must be safely and tightly secured on the truck without any bricks spilling over becoming safety hazard to other road users. ✚ Adequate road safety signs should be installed where the factory access roads inters C35 so as to warn other road users of trucks entering C35 from the factory. ✚ Drivers of the applicant delivering bricks to the clients must comply with road regulations: no over speeding, no overtaking at blind spots, no use of alcohol or drugs, drivers must be licensed, well experienced and comply with road signs. 	

6.3.7 SURFACE AND GROUNDWATER

The factory site has sandy soils of the Kalahari Formation with an overlying cover of dune sand. There is no natural or permanent water on site. However, a natural water stream or pond which tends to hold rainwater for up to four months post the rainy season was observed to the southeast of the site.

The sandy soil is quite thick and the chances for water logging occurring after heavy rainfall is a strong possibility because all the water is quickly absorbed into the soil. Surface water from the site will naturally drain towards the SE of the factory where the pond occurs. The water table is reported to be about 40 m deep.

The assessment with respect to surface and groundwater is presented in **Table 7-10**, below:

Table 6-10: Impact Assessment on Surface and Groundwater

Description of Impacts	
<ul style="list-style-type: none"> ✚ Potential contamination of downstream water from hydrocarbon (fuel, oil, lubricants, etc.) and hazardous products (coal, sewage, etc.) used at the brick factory plant. ✚ Potential downstream water contamination from erosion on receiving stormwater quality from destabilised soils on stockpiles and roads. ✚ Poor handling of construction related sedimentation and including non-removal of building rubble from the site could lead to contamination of surface water. 	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Site specific, applies mostly during the rainy period.
Duration of Impact	Short term, most during the wet periods.
Intensity of Impact	Low
Probability of Occurrence	Improbable
Degree of Confidence	High
Significance Pre-mitigation	Low
Significance Post-mitigation	Very Low
Recommended Mitigation Measures	
Further mitigation measure are provided in the EMP .	

6.3.8 FLORAL AND FAUNAL DIVERSITY

The land is within the townland reserve of the Ruacana Town Council and there are no known species with special status as being threatened or becoming extinct. As regards birds and reptiles – various species are found in the area, however, there are no species with special status as endangered species found within the village. Specific impacts that will come upon the faunal species are, loss of habitat, risk of getting stuck in silting ponds, and illegal hunting.

Over 90% of the site has been cleared of vegetation, mostly due to overgrazing and other human activities. Some trees cutting activities were observed having taken place fairly recently. Inevitably, the factory will result in the removal of some trees, however there are no plants and or trees with threatened species. Likely environmental impacts are displacement of flora, possibility for soil erosion and illegal tree felling/ cutting.

Table 6-11: Impact Assessment on Biodiversity

Description of Impacts	
As described in the preceding section	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Site specific
Duration of Impact	Temporary, mostly during the construction period only.
Intensity of Impact	Low
Probability of Occurrence	Improbable
Degree of Confidence	High

Significance Pre-mitigation	Very Low
Significance Post-mitigation	Very Low
Recommended Mitigation Measures	
Mitigation measures are provided in the EMP.	

6.3.9 VISUAL INTRUSION

By its nature, visual perception is a subjective experience which, to a large extent, is influenced by personal values. For instance, to a European tourist going to the Ruacana Waterfalls driving past the site, the factory plant and its infrastructure could be considered as a visual nuisance on the beautiful natural landscape. However, to the majority of rural residents, the same factory plant could be viewed as a positive sign of development.

To foreign tourists, the brick factory with its infrastructure (workshop, buildings, stockpiles of raw materials, stockpiles of finished bricks, firing bricks on clamps, lighting at night, etc.) built along a highway could be viewed as an unnecessary visual nuisance, but to the locals, the factory is viewed differently, i.e. it is a measure of development.

Such differences in perceptions are greatly influenced by cultures, education and socio-economic backgrounds. In most instances, a degree of uncertainty is therefore bound to influence the ratings of visual impacts.

The assessment with respect to visual impacts that the factory would have is presented in this section.

Table 6-12: Impact Assessment on Visual Intrusion

Description of Impacts	
As described above. Waste pollution in the form of plastics, papers and airborne dust particles are visual intrusion and should be managed.	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Site specific
Duration of Impact	Long term – factory will be there for many years
Intensity of Impact	Low
Probability of Occurrence	Improbable
Degree of Confidence	High
Significance Pre-mitigation	Very Low
Significance Post-mitigation	Very Low
Recommended Mitigation Measures	
Further mitigation measures are provided in the EMP.	

6.3.10 ARCHAEOLOGICAL & CULTURAL HERITAGE

When excavating in the rural environmental setting where humans once lived, there is always the possibility of stumbling upon heritage resources, such as human remains (in olden days graves were unmarked), war remnants (such as undetonated explosive devices), cultural significant landscape features or historical structures. The assessment with respect to potential impacts on archaeological and cultural heritage items is provided in the table below:

Table 6-13: Impact Assessment on Archaeological & Cultural Heritage

Description of Impacts	
<ul style="list-style-type: none"> ✚ Destruction of 'chance find' items ✚ Possible damage to graves of dead people ✚ Damage to an archaeological items ✚ Risk from undetonated landmines 	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Not sure, activities will be confined to the 5ha land
Duration of Impact	Applicable during the construction activities only
Intensity of Impact	Cannot be predicted
Probability of Occurrence	Improbable
Degree of Confidence	Low
Significance Pre-mitigation	Very Low
Significance Post-mitigation	Very Low
Recommended Mitigation Measures	
Comply with the measure presented in the EMP section of the report.	

6.3.11 HANDLING OF HAZARDOUS PRODUCTS

The brick factory will be required to procure fuel (diesel) in bulk for its diesel-powered vehicles and equipment. Storage and handling of such fuel and any hydrocarbon products (oil, lubricants, etc.) has to comply with the provisions of the Petroleum Products and Energy Act (No 13 of 1990). Poor handling and storage of hazardous products could have the impacts listed in the assessment Table 7.14 below:

Table 6-14: Impact Assessment on Handling of Hazardous Products

Description of Impacts	
<ul style="list-style-type: none"> ✚ Leaking could lead to possible groundwater contamination ✚ Fire hazard ✚ Toxic emissions ✚ Smoke and air pollution 	
Evaluation of Impacts	
Nature of Impact	Negative
Extent of Impact	Within factory premises unless a major leak or spill occurs
Duration of Impact	Throughout the factory lifespan
Intensity of Impact	Low
Probability of Occurrence	Improbable
Degree of Confidence	Medium
Significance Pre-mitigation	Low
Significance Post-mitigation	Very Low
Recommended Mitigation Measures	
Mitigation measures are provided in the EMP.	

6.3.12 CUMULATIVE IMPACTS

Cumulative impacts are the direct and indirect impacts that act together with existing and future potential impacts of other activities or proposed activities in the same area that affect the baseline environment and receptors. With respect to this project, the adjacent Ongaka slate manufacturing facility is the only significant activity taking place in the area, however, the scope and scale of the operation is such that the development of the brick factory will not result in any cumulative impacts on the receiving environment.

There are no other industrial activities being conducted within a radius of 3 km of the factory site and as such the development of the factory brick does not exert any pressure on the environment.

None of the lodges in the Ruacana district that are visited by tourists is in the radius of 4 km of the brick factory. The visual impact of the brick factory at the intersection of the three road networks has the potential to be a nuisance to travelling tourists passing by, but will not contribute to any cumulative impact because it can be mitigated if the recommendation presented in the EIA are followed.

Noise is not evaluated to be a cumulative impact if the activities are confined to standard daytime operational practice.

The cumulative effect from the adjacent slate processing activities and proposed brick factory have the potential to increase the levels of fugitive dust. This may negatively affect the scenic milieu and the health of residents in the fallout zone. However, if the mitigation measures as recommended in the EMP section of the EIA are implemented, no significant impact should be experienced.

Cumulative impacts must also consider the positive impacts presented by the proposed development, the creation of employment opportunities and economic contributions to the host town of Ruacana through payment of rates and taxes. The manufacturing and supply of clay bricks which are environmental friendly building materials and in strong demand for the construction of houses, schools, business, etc. This should also be considered a positive cumulative impact.

7. CONCLUSIONS AND RECOMMENDATION

The potential environmental impacts associated with the proposed clay brick factory promoted by **OneBrik** at the town of Ruacana were assessed for the construction and operational phases of the operation. The assessment was made on the socio-economic environment and biophysical environments. These can be summarised as follows:

Impacts on the socio-economic environment:

The project has the potential to create long term employment opportunities while the green bricks that will be manufactured will go a long way in addressing the housing shortage, at least in the northern regions of Namibia where most residents reside.

Impacts on the bio-physical environment.

To a large extent the site allocated for the factory has been cleared of vegetation by human activities in the past such that the impacts during the preparation for construction activities will involve minimal biodiversity disturbances. Most services are in close proximity of the site such the installations thereof will not require intrusive construction activities to the environment.

Adequate mitigation measure have been provided in the EMP both for the construction and operational phases of the factory on how to deal with topsoil, noise pollution, dust disturbances, waste management (both hazardous and non-hazardous), surface and groundwater, cultural resources, visual intrusions, traffic, etc. Should the recommended measures be implemented, the operation of the brick factory will have minimal environmental impacts.

It is recommended that an ECC be granted to **OneBrik** for the construction and operation of its clay brick factory at Ruacana.

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ANNEXURE A – ENVIRONMENTAL MANAGEMENT PLAN

ANNEXURE B: PUBLIC CONSULTATION REPORT

ANNEXURE: A



OneBrik (Pty) Ltd

Construction and Operation of a Clay Brick Factory, Ruacana Townlands, Omusati Region, Namibia

An Environmental Management Plan (EMP) in Support of an Application for an Environmental Clearance Certificate (ECC)

APP- 00137



Project Name	:	Clay Brick Manufacturing Factory at Ruacana
Type of Project	:	Manufacturing of Clay Fired Bricks and Roofing Tiles
Project Location	:	Industrial Plot Off C35 Highway RUACANA Omusati Region
Competent Authority	:	Ruacana Town Council Private Bag 508 RUACANA
ECC Application No.	:	APP- 00137
Date Report Prepared	:	October 2022
Project Promotor	:	OneBrik Pty Ltd Box 25021 WINDHOEK Atten: Mr Taapopi Shilongo Cell: 081 621 5260 Email:Onebrikpm@gmail.com
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ACRONYMS AND ABBREVIATIONS

ACRONYM	EXPANSION
AMSL	Above Mean Sea Level
COVID-19	'CO' - Corona, 'VI'- Virus & 'D' - Disease of 2019
EC	Environmental Commissioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Regulations
EMA	Environmental Management Act
EMP	Environmental Management Plan
FCN	First Capital Namibia
FSN	Friedrich Ebert Stiftung Namibia
GPS	Global Positioning System
GRN	Government of the Republic of Namibia
ha	hectare (1 ha = 10 000 m ²)
HPP	The Harambee Prosperity Plan
IAPs	Interested and Affected Parties
m ²	square meters
MEFT	Ministry of Environment, Forestry and Tourism
NamRA	Namibia Revenue Agency
NCCI	Namibia Chamber of Commerce and Industries
NHC	National Heritage Council
NSI	Namibia Standards Institute
ORC	Omusati Regional Council
PPE	Personal Protective Equipment
SHE	Safety, Health & Environment
SME	Small and Medium Enterprises
SSC	Social Security Commission

NAMES OF ROADS

ROUTE	DESCRIPTION
C35	The route number for the road starting from the coastal town of Henties Bay to Ruacana through the settlements/towns of Uis, Khorixas, Kamanjab and Omakange.
C46	The route number for the highway which starts from B1 in the town of Ondangwa to Ruacana via Oshakati, Oshikuku and Outapi.
D3700	The road leading from intersection of C35 and C46 to the Ruacana Waterfalls/Border Post up to Okongwati via Swartbooisdrift running along the Kunene River.
D3616	The route number for the district road from the town of Tsandi to C46 via the settlements of Onesi and Epalela.

DEFINITION OF TERMS

TERM	EXPANSION
Assessment	The process of collecting, organising, analysing, interpreting and communicating information relevant to decision making.
Cumulative Impacts	In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Environment	As defined in the Environmental Assessment Policy and Environmental Management Act - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values".
Environmental Clearance Certificate	A certificate and associated conditions issued in terms of the Environmental Management Act and related to Environmental Assessment Impact Regulations (as Gazette No. 4878 - February 2012) authorizing a listed activity to be undertaken.
Environmental Component/Aspect	An attribute or constituent of the environment (i.e., air quality; marine water; waste management; geology, soil and groundwater; marine ecology; terrestrial ecology, noise, traffic, socio-economic) that may be impacted by the proposed project.
Environmental Impact	A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.
Environmental Management Plan	A working document which contains site project specific plan developed to ensure that environmental management practices to eliminate and control environmental impacts are followed during the developmental phases of that site, project and or facility.
Environmental Monitoring	The collection, evaluation and summarization of environmental data by continuous or periodic monitoring of certain qualitative and quantitative indicators characterizing the state of environmental components and their modification as a result of the impact of natural and anthropogenic factors.
Hazard Waste	Waste that contains organic or inorganic elements that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and environmental.
Industrial waste	Means any waste generated as a result of business, commerce, trade, wholesale, retail, professional, manufacturing, maintenance, repair, fabricating, processing or dismantling activities, but does not include general waste.
Infrastructure	The network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewerage, communication towers, etc.
Interested and Affected Parties	Those individuals or organizations that have an interest in the proposed development or will be directly affected by the activities of the development, as defined in the Environmental Impact Assessment (EIA) process.
Mitigation Measures	Measures design to avoid, to reduce, to minimise or to remedy adverse impacts.
Non-compliance	Issues that are in direct non-compliance with the requirements, commitments and/or management measures as approved in the EMP.
Pollution	Means any change in the environment caused by any waste, substance or matter; or noise, odour, dust or heat, emitted from or caused by any activity including

	manufacturing, or matter and the provision of any service engaged in by any person which has the potential to have adverse effect on public health.
Public Participation Process (PPP)	A process of involving the public in order to identify issues and concerns, and obtain feedback on options and impacts associated with a proposed project. It refers to a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters
Sensitive Area	A sensitive area or environment is described as an area or environment where a unique ecosystem, habitat for plant and animal life, wetlands or conservation activity exists or where there is high potential for ecotourism
Storm water	Water that accumulates on land as a result of precipitation events, and includes runoff from areas such roads and roofs.
Surface Water	All water naturally open to the atmosphere such as rivers, oshanas, lakes, reservoirs, streams, impoundments, seas, etc. and includes springs, wells or other collectors that are directly influenced by surface water
Waste	Means any substance or matter whether solid, liquid or any combination thereof, and includes – (a) any undesirable, rejected, abandoned or superfluous matter, material, residue of any process or activity, product, by-product. (b) any matter which is deemed useless and unwanted; any matter which has been discarded, accumulated or stored for the purposes of discarding, processing, reuse, recycling or extracting a usable product from such matter.
Waste Management	Classifying, recycling, treatment and disposal of waste generated during construction, operation and decommissioning activities.
Waste Management Plan	Means a structured document that sets out to record/eliminate/reduce/reuse/recycle the amounts and the types of all waste that is generated in an area or facility.
Watercourse	Watercourse is one of the following: (a) river or spring' (b) a natural channel in which water flows regularly or intermittently' and/or (c) any collection of water which the Minister may, declare to be a watercourse, and a reference to a watercourse includes its beds and banks.

1. PROJECT OVERVIEW

1.1 INTRODUCTION

This is an Environmental Management Plan (EMP) compiled to serve as a standalone plan to manage and mitigate the environmental impacts associated with the **construction and operation** of a clay brick factory promoted by **OneBrik** (Pty) Ltd at Ruacana.

In the EMP, a series of individual management plans have been proposed with the purpose to meet the legal requirements, to avoid, to minimise as well as to manage the impacts associated with the development envisaged by the applicant. An EA scoping and a Public Participation Process (PPP) reports have been prepared and this EMP should be read with what has been presented in such reports.

1.2 PURPOSE OF THE EMP

The EMP is intended to ensure that all possible environmental impacts as identified during the EA scoping are clearly understood and appropriate mitigation measures developed for the two phases of the project. Since an ECC is only valid for three years and the proposed brick factory has a lifespan in excess of forty (40) years, the impacts associated with the factory decommissioning have not been considered in this EMP.

It should be noted that the EMP is a dynamic document, flexible and responsive to new and changing circumstances and should therefore be updated as and when required. Any major changes to the brick factory operations such as any renovations or upgrades outside what has been assessed and presented in the EIA report will require a separate assessment and approval by the office of the EC.

1.3 LEGAL REQUIREMENTS

The requirements of an EMP is provided for in Section 8 (j) of the EIA Regulations which states inter alia that the EMP must include:

- Information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of the rehabilitation of the environment and closure.
- As far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development, and
- A description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity, or process which causes pollution or degradation and migration of pollutants.

The EMP must also include a system of assessment of the effectiveness of monitoring measures post implementation of the project. The proponent has therefore a duty to ensure that the recommended measures and the EIA process, conform to the principles of EMA.

Some of the regulations applicable to the proposed activity are presented in **Table 1-1**, below.

Table 1-1: Legislation Applicable to the Activity

LEGISLATION	MAIN ASPECTS
Environmental Management Act (Act. No. 7 of 2007)	<ul style="list-style-type: none"> ○ It defines what the environment is and encourages sustainable management of the environment when natural resources are being exploited/extracted for the benefit of the residents/citizens. ○ It also provides for a process of assessment and control of activities that are likely to pose significant effects on the receiving environment.
Environmental Management Regulations (Gazetted on 12 February 2012)	<ul style="list-style-type: none"> ○ Heralded the implementation of the Environmental Management Act almost five years after the Act was approved by the legislature. ○ Presents a list of activities that require an ECC prior to commencement. ○ Regulates and provides guidelines on how EIAs must be conducted.
Local Authority Act (Act No. 23 of 1992)	<ul style="list-style-type: none"> ○ The Act defines the powers, duties and functions as well as terms of office of local authority councils. ○ Provides services such as water, electricity, sewage, waste removal, etc. to residents within a local area. ○ Regulates effluent discharge into the sewer system. ○ Issues Certificate of Fitness to all types businesses including factories operated within the town boundaries.
The Petroleum Products & Energy Act (Act No.13 of 1990 as amended)	<ul style="list-style-type: none"> ○ The Act makes provision for the procurement, handling, storage and distribution of petroleum products. ○ Empowers the line Minister to increase/decrease pump fuel prices in the country as well as for the imposition of levies on energy sources. ○ Also provides for the issuing of various permits including Consumer Installation Certificate
Road Fund Administration Act	<ul style="list-style-type: none"> ○ Regulates traffic and use of public roads including aspects related to road safety, vehicle licensing, roadworthiness, Mass Distance Charges, abnormal loads. ○ Also administers and handles the fuel levy rebates to bulk users such as mining companies, farmers, etc.
Public and Environmental Health Act (Act No. 1 of 2015)	<ul style="list-style-type: none"> ○ The Act provides for a legal framework for a structured more uniform public and environmental health system and for matters incidental thereto. ○ It deals and provides guidelines on noise generation and control thereof within an urban environment. ○ Also deals with waste management, handling or collection, waste disposal, waste recycling, sanitation, etc.
Hazardous Substances Ordinance (No. 14 of 1974)	<ul style="list-style-type: none"> ○ Provides for the control of hazardous substances with potential to cause harm, injuries and even death. ○ Also provides for the manufacture, handling, storage, sale, use, disposal, etc. of hazardous substances.
Atmospheric Pollution Prevention Ordinance (No. 11 of 1976)	<ul style="list-style-type: none"> ○ Provides control of noxious or offensive gases and matters incidental thereto. ○ Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process.
Water Resource Management Act (2004)	<p>The following permits are required in terms of the Water Act:</p> <ul style="list-style-type: none"> ○ water abstraction permits; ○ domestic effluent discharge permits (site offices, construction camp); industrial effluent discharge permits; ○ water use for dust suppression; and water reticulation permits (pipelines). <p>Will be superseded by Water Resources Management Act 2013 once the regulations are implemented in the future.</p>

The Soil Conservation Act No. 76 of 1969	<ul style="list-style-type: none"> ○ The act makes provision for combating and prevention of soil erosion and promotes the conservation, protection and movement of soil, vegetation, sources and resources. ○ Fuel storage and handling is more often associated with spillages which could end up contaminating the soil.
National Heritage Act No. 27 of 2004	<ul style="list-style-type: none"> ○ No archaeological/heritage site or cultural remains may be removed, damaged, altered or excavated. ○ Section 48 sets out the procedure for application and granting of permits, such as the permit required in the event of damage to a protected site occurring as an inevitable result of development. ○ Part VI Section 55 Paragraphs 3 and 4 require that any person who discovers an archaeological site should notify the National Heritage Council
Atomic Energy and radiation Protection Act (Act No. 5 of 2005)	<ul style="list-style-type: none"> ○ The Hazardous Substance Ordinance No. 14 of 1974 was repealed and amended by the Atomic Energy and Radiation Protection Act. ○ The Act provides for the control of substances which may cause injury or ill-health or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature. ○ Whilst the environmental aspects are not really explicitly stated, the Act provides guidelines with respect to importing, handling and storage, etc. of hazardous substances.

1.4 EMP OBJECTIVES

These are:

- To comply with all applicable national legislations and standards so as to limit potential impacts on biodiversity by keeping the factory footprint within the confines of the land allocated.
- To ensure that resources such as water, fuel, electricity and energy are used sparingly including consideration of alternatives i.e. switching over to firing 100% biomass or hydrogen instead of fossil fuel, considering water recycling and the use of solar energy instead of conversational power.
- To keep the stakeholders especially the surrounding communities informed of brick factory activities through the implementation of forums for communication and constructive dialogue. Any complaints received from any stakeholder with respect to any negative impacts on the environment should be investigated and corrective action taken.
- To ensure effective storage and handling of any hydrocarbons, by avoiding leaks and spills from entering the natural environment. Storage areas for hydrocarbons should have leak-proof sealed floors and bunded walls. Any spill of hydrocarbons must be immediately contained and thoroughly cleaned up.
- To develop, implement and manage monitoring systems to ensure good environmental performance with respect to dust emissions, noise pollution, surface water, air quality, biodiversity and rehabilitation;
- To avoid potential impacts on the safety of third parties through appropriate factory access control; awareness creation and ensuring third parties doing business with the company are well acquainted with the EMP.

- To support and encourage environmental awareness and responsibility amongst all employees and service providers including appropriate environmental education and training. Third parties supplying raw materials to the factory should operate their quarries in full compliance of applicable laws and regulations including having valid ECCs.
- To ensure that any recruitment for new employees is done in a transparent manner and in full compliance of the labour laws without discrimination on the basis of language, political affiliation, religious beliefs, culture and gender.
- To support worthy causes within the community including fostering relationships with likeminded organizations such as Shack Dwellers Association and Build Together Organisation who make use of the building materials manufactured by **OneBrik**.

1.5 LEGAL OBLIGATION

The acceptance of the EMP by the EC and the granting of an ECC will confer a legal obligation on the applicant to comply with the specifications and provisions of the EMP. Should the applicant fail to comply with such terms and provisions, it is deemed as a contravention of the EMA and as such is criminally prosecutable.

This EMP includes all relevant documentation contained therein or referred to within it, along with any amendments, appendices or annexures. This EMP is binding on **OneBrik** management, to any current and future employees as well as to contractors who may be hired to carry out maintenance work or renovations at the brick factory from time to time. It applies to any visitors as well as to any third parties doing business with **OneBrik**.

1.6 IMPLEMENTATION OF THE EMP

The implementation of the EMP is a recurring process that converts mitigation measures into actions and through monitoring, auditing, review and corrective action, ensures conformance with the overall aims and objectives of the project. This EMP has addressed impacts associated with these phases of the development:

Table 1-2: Implementation of the EMP

Phase	Description	Remarks
Construction	The measures proposed for this phase will include activities related to the planning, designing and construction of the factory infrastructure: buildings, boundary wall, internal routes, installation of water, electricity, sewerage and the removal of building rubbles.	The construction period if scheduled to take place over 18 months
Operation	The measures proposed for this phase are meant to deal with environmental impacts associated with the manufacturing activities: noise pollution, dust generated during the crushing and grinding of raw materials, waste generated by activities, gaseous emissions, pollution of surface and groundwater, etc.	With a tunnel kiln, the drying and firing of products will be operated on a 24 hour basis.
Decommissioning	The capital investment into the proposed brick factory will run into several millions of Namibia Dollars and the brick facility is projected to have a lifespan in excess of 30 years.	No provision for decommissioning has been made since the ECC is only valid for 3 years.

2. FUNCTIONS AND RESPONSIBILITIES

Naturally, the overall responsibility with respect to the implementation of the EMP will rest with the management of the project promoter, **OneBrik** PTY Ltd. However, throughout the lifespan of the brick factory, a number of individuals and entities are expected to fulfill various roles and responsibilities to ensure the effective implementation of the EMP. Listed in the **Table 2-1**, are some of the functions and responsibilities that various parties will play with respect to the implementation of this EMP:

Table 2-1 : Functions and Responsibilities

Party	Responsibilities
<p>The Environmental Commissioner (EC)</p>	<p>EMA is implemented by MEFT and the EC is the statutory official responsible for ensuring and enforcing compliance of the environmental legislations.</p> <p>Amongst the roles and responsibilities of the EC are:</p> <ul style="list-style-type: none"> • Reviewing the EIA, EMP and PPP reports and any revisions thereof • Granting or refusing to grant the ECC • Ensuring overall compliance with the terms of the ECC & EMP. • Reviewing any monitoring and auditing reports submitted on the project. • Undertaking site audits at their discretion. • Reviewing of incident report • Enforcing legal mechanisms for contraventions to the EMP and ECC.
<p>The Promoter (OneBrik)</p>	<p>Construction Phase:</p> <p>During this phase the overall responsibility will be vested in a Project Manager (PM) appointed by the Promoter who should be suitably qualified, skilled and experienced. Amongst the roles and responsibilities of the PM are:</p> <ul style="list-style-type: none"> • To oversee the day-to-day construction activities of the brick factory infrastructure ensuring that the provisions of the EMP are implemented. • To ensure that the necessary environmental authorizations and permits (water, fuel, fitness certificates, etc.) are obtained and kept on file at the site office. • To ensure that the contractor and all third parties involved in construction activities are made acquainted with the provisions of the EMP. • To report any significant environmental incidents, accidents and or emergencies to the relevant local authorities. <p>Operational Phase:</p> <p>Once the construction has been completed, the proponent must appoint a General Manager (GM) to be in charge of all factory activities. Amongst the roles of the GM are:</p> <ul style="list-style-type: none"> • To manage the day-to-day manufacturing activities in compliance with the EMP and applicable rules and legislations. • To appoint a staff member who is well experienced to be called an Environmental Control Officer (ECO) whose responsibilities are the following: <ul style="list-style-type: none"> ✚ To ensure that all employees are trained and well acquainted with the EMP and other conditions of their employment.

Party	Responsibilities
	<ul style="list-style-type: none"> <li data-bbox="509 247 1424 327">✚ To maintain good communication regarding the EMP with all stakeholders including ensuring that any complaint received is attended to, corrective action taken and, where warranted, feedback is provided. <li data-bbox="509 359 1424 411">✚ To ensure that the environmental values, potential impacts, management measures and emergency responses are understood and implemented. <li data-bbox="509 443 1424 495">✚ To check the effectiveness of prescribed mitigation measures in the EMP on quarterly basis. <li data-bbox="509 527 1424 1192">✚ To conduct site inspections and to recommend minimum frequency of monitoring (whether weekly, monthly, annually, etc.) regarding aspects related to: <ul style="list-style-type: none"> <li data-bbox="565 604 773 632">• Dust pollution; <li data-bbox="565 663 784 690">• Noise pollution; <li data-bbox="565 722 829 749">• Gaseous emissions; <li data-bbox="565 781 1008 808">• Conditions of raw material stockpiles; <li data-bbox="565 840 1263 867">• Conditions of fuel energy stockpiles (biomass, charcoal, etc.); <li data-bbox="565 898 1317 926">• Conditions of workshop areas, vehicle & equipment parking areas; <li data-bbox="565 957 1235 984">• Ablution facilities at the factory including sewerage system; <li data-bbox="565 1016 1203 1043">• General cleanliness in and around the factory premises; <li data-bbox="565 1075 1252 1102">• Condition around the aboveground fuel storage tank facility; <li data-bbox="565 1134 870 1161">• Incidents and accidents; <li data-bbox="565 1192 987 1220">• Onsite waste storage and handling. <li data-bbox="509 1230 1424 1278">✚ To monitor and audit the implementation of the EMP and to report annually to MEFT on compliance or non-compliance thereof.

3. POTENTIAL IMPACTS TO BE MITIGATED

The appreciation of the biophysical and human environments in which the propose factory will be developed and operated is the first critical step in understanding the potential environmental impacts associated with the development. The next step and equally important is to identify such environmental aspects that give rise to such impacts. For example, the activity of crushing of shale clay (the raw materials) is associated with the generation of dust which has the potential to cause pollution of the ambient air quality.

Successful management measures will be ascertained by how well the proponent avoids, minimizes or mitigates those impacts associated with each environmental aspect. The full suite of the applicant's facilities have been described in the EIA scoping report and are therefore not repeated in this EMP report.

The environmental aspects for which mitigation measures have been recommended are listed in **Table 3-1**, below.

Table 3-1 : Environmental Aspects

Environmental Aspects	Potential Environmental Impact	Phase	
		Construction	Operation
Excavations for: <ul style="list-style-type: none"> • boundary fencing • factory building foundations • internal factory routes • sewerage installation, and • other factory infrastructure 	<ul style="list-style-type: none"> • Potential impact on biodiversity (physical impacts and general disturbances) • Loss of habitat • Loss of biodiversity • Loss of fertile soil 	Possible during construction	Minimal during the operation
	<ul style="list-style-type: none"> • Potential impacts on archaeological sites • Destruction of unknown graves • Detonation of landmines 		
Topsoil removal will cause disturbance of soil profile	<ul style="list-style-type: none"> • Loss through wind erosion • Seed decay • Soil contamination 	Construction phase only	Minimal
Construction of tall buildings and workshops	<ul style="list-style-type: none"> • Risk of injuries to employees/workers. • Risk of injuries to livestock falling into excavations (if site not fenced in) • Visual impact 	This phase only	Minimal
Use of diesel-powered machines, vehicles and equipment	<ul style="list-style-type: none"> • Oil leaks • Fuel spills • Contamination of surface water • Contamination of groundwater • Noise • Accidents/incidents • Injuries - even fatalities • Vegetation destruction • Overloading - damage to public roads 	Applicable throughout both phases	
Raw materials stockpiles (±15 000 m ³ or four months of raw materials to be kept)	<ul style="list-style-type: none"> • Windblown becoming fugitive dust if stockpile is too high • Can wash away as slurry • Visual annoyance - eyesore 	Operational phase only - minimal	
Stockpiles of fuel energy - a combination of coal, charcoal woodchips/biomass)	<ul style="list-style-type: none"> • Dust if not properly covered • Wind erosion • Visual impact if too uncovered 	Operational phase only – minimal	
Crushing and screening of Shale Clay (raw materials)	<ul style="list-style-type: none"> • Dust generation • Noise 	Not applicable	Operational phase only

Environmental Aspects	Potential Environmental Impact	Phase	
		Construction	Operation
	<ul style="list-style-type: none"> Visual nuisance if dust escapes into the atmosphere 		
Noise from crushing and milling activities as well as from machinery, equipment and vehicles	Increase in disturbing noise levels (nuisance to third parties)	Minimal	Moderate
Increase in vehicular movements	<ul style="list-style-type: none"> Increased traffic movements at the intersection of D3700, C35 and C46 Increased gaseous emissions Possibility for accidents Damage to roads Accidents/incidents 	Minimal	Low to moderate
Waste handling and disposal – (especially if handling is poor)	<u>Non-hazardous waste</u> <ul style="list-style-type: none"> Unhygienic conditions; Bad smell /odour; Breeding ground for rats – from food items; Windblown papers & plastics – eyesore <u>Hazardous waste</u> <ul style="list-style-type: none"> Potential surface water pollution Groundwater contamination from spills 	Minimal during construction	Moderate during operation
Firing of clay products using solid fuel energy (a combination of coal, charcoal & biomass)	<ul style="list-style-type: none"> Emission of gaseous pollutants in the atmosphere. Release of smoke Visual impact 	Operational phase only	
Sewerage management	<ul style="list-style-type: none"> Discharge/leak into the natural environment Contamination of groundwater Stench - odour Health hazard Sewage sludge 	Minimal	Moderate

3.1 EMP FOR IDENTIFIED IMPACTS

In this section management measures have been proposed to deal with those impacts considered to be associated with the construction and operational phases of the factory. The measures have been presented as follows:

- First, the environmental management plan for the particular environmental aspect is briefly described;
- Second, the potential impacts are listed;
- Third, the objective to deal the specific environmental aspect is presented, and
- Fourth, mitigation measures are presented in a table format which includes any monitoring that may be required followed by the party responsible for ensuring compliance.

3.2 EMP - COMMUNICATION WITH STAKEHOLDERS & IAPs

It is important that a culture of an open and transparent communication is developed and maintained between the management of the brick factory and all its stakeholders throughout the lifespan of the brick

factory. Clients of the brick factory, especially end users who will be buying clay bricks and roofing tiles will also become key stakeholders to whom communication has to be extended.

3.2.1 Potential Impacts

These are all positive impacts, namely:

- Help in building relationships that are mutually beneficial.
- Avoid conflicts and misunderstanding.
- Secure support of the local community.

3.2.2 Management Objective

Ensure that regular communication is provided on the brick factory's manufacturing activities, together with feedback on the environmental management performance and that opportunity is provided for IAPs to continue raising any concerns (complainants) about the operational aspects of the brick factory that are affecting such stakeholders.

Table 3-2 : EMP for Communication with Stakeholders

Aspect/Issue	Management Measures
Stakeholders	<p>Registry: Maintain and upgrade a registry of both statutory stakeholders and IAPs:</p> <ul style="list-style-type: none"> • Government Agencies: EC, MIT, MAWLR, etc. • Local Authority: CEO, Technical Manager, etc. • Regional Council: Governor, CRO, Constituency Officer, etc. • Local Police contact numbers • Local Clinic contact numbers • Emergency Services (Fire Brigade, etc.) • Nored – electricity provider • Namwater • Neighbouring residents, Ongaka, etc. community • Community based organizations (Shack Dwellers, etc.) • News media for advertising of products.
Cooperative working relationship with stakeholders	<ul style="list-style-type: none"> • Devise and implement a stakeholder communication and engagement strategy where information sharing meetings are held initially on a quarterly basis with the local council officials, regional council officials, neighbouring residents and key service providers. • Keep all stakeholders informed about the progress being made with the development of the brick factory. • Use appropriate communication channels to consult with, and disseminate information to identified group of stakeholders, i.e. architectures to promote the use of clay bricks, marketing strategies targeted at construction companies, etc.
Management of issues, perceptions or complaints	<ul style="list-style-type: none"> • Develop and implement a concerns/complaints (grievances) process for stakeholders and IAPs including the method/channel to use to ensure that the grievance or complaint is received by Factory Management: • All complaints must be in writing – where the complaint cannot write she/he must be assisted in getting his/her complaint presented in a written format.

Aspect/Issue	Management Measures		
	<ul style="list-style-type: none"> • An acknowledgement of the complainant receipt should be issued. • An investigation into the complaint must be carried out and, where warranted, feedback provided or the matter complainant about addressed. • Keep complete auditable records of complaints received as well as the action and responses taken. • In situations where an amicable resolution to a complaint cannot be achieved between the complainant and the Factory Management, the complaint must be referred to an independent mediation to be agreed upon between the parties. 		
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
Inform stakeholders when construction of the factory commences and continue providing information on the progress being made on quarterly basis. Complaints must be investigated when reported and addressed in the shortest time possible.	Share information with stakeholders on a regular basis. Deal with any complaints when reported promptly.	Contract Manager	Factory Management

3.3 EMP ON SOCIO-ECONOMIC TO THE COMMUNITY

Depending on the level of automation used in the manufacturing process, the brick factory has the potential to provide fulltime employment opportunities to a minimum of 60 people and a maximum of 100 people. Further employment opportunities will be created in building construction companies which will be procuring bricks from the brick factory.

3.3.1 Potential Impacts

- Creation of employment opportunities;
- Supply of high quality and environmentally friendly construction materials;
- Increased local economic activities;
- Injection of income into the Ruacana community;
- Increased regional trading opportunities; and
- Community support.

3.3.2 Management Objective

Optimize benefits to the local community by striving to become a responsible and caring corporation citizen.

Table 3-3: EMP on Socio-Economic Impacts

Aspect/Issue	Management Measures
Enhance positive economic impacts	<ul style="list-style-type: none"> • Pay market related salaries and wages for employees in the skilled and semi-skilled job categories. • Ensure that the factory's procurement policy favours local Namibian products and services. Source basic building materials such as bricks, stones and sand from local suppliers. • Make use of local small-scale building contractors who are experienced and with good references for the construction of boundary fencing, factory building and infrastructure, etc. • Partner with the local authority council to secure land where to build housing for the company employees.
Recruitment process or hiring of employees	<ul style="list-style-type: none"> • Ensure that employment is offered in compliance with applicable labour laws and regulations. • The recruitment process at the factory should be done in a transparent manner and that it is formal and well organized. The recruitment should also be gender and disability inclusive, i.e. qualified women should be given equal opportunity. • Adopt a 'local first policy' when hiring workers for non-skilled positions at the factory by giving preference to people who reside within a walking distance of the factory. • Hire employees from the local communities without discrimination on the basis of gender, race, language, background, religion or political affiliations. • People from marginalized communities such as the OvaHimba who live the area should also be considered and offered employment. • People with disabilities should likewise be considered for suitable employment opportunities in the factory.
Labour & Working Conditions	<ul style="list-style-type: none"> • The terms and conditions of each employee must be clearly spelled out in a written contract with a copy held on the file at the office and one copy given to the employee. The contract should amongst other things spell out job specifications, working hours, remuneration, etc. • All new employees joining the company have to undergo a structured induction program during which company policies with respect to safety, working hours, dress code, the EMP, housekeeping rules, grievances procedures, etc. are introduced. The induction is intended to assist the employees to adjust to their new roles, to make a smoother transition into the business and to assimilate the company culture. • Allow the employees to exercise their rights to join and belong to a trade union of their choice. Allow each employee charged with a misconduct the right to be represented during a disciplinary hearing • Proper records should be kept with respect to the number of people employed whether fulltime or part-time, contractors hired, payments made to contractors, salaries and wages paid to full-time and part-time employees, number of non-locals hired and the funds paid to non-Namibians, etc.
Employees' wellbeing	<ul style="list-style-type: none"> • Develop a policy on social ills to deal with aspects related to drug and alcohol abuse by the employees.

Aspect/Issue		Management Measures	
		<ul style="list-style-type: none"> Initiatives should be made with regard to raising awareness on the danger of unsafe sex practices which lead to HIV/AIDS and other sexual transmitted diseases. On-the-job training opportunities should be provided to help employees to improve their skills level which ultimately leads to high productivity, reduced wastage, high morale and efficiencies. All people in the employment of the company (whether fulltime or part time) must be trained and acquainted with the provisions of the EMP that are applicable for the construction and operational phases. 	
Housekeeping rules		<p>To ensure that that a harmonious relationship is maintained during working hours in the factory, the following housekeeping rules are recommended:</p> <ul style="list-style-type: none"> Coming to work under the influence of alcohol is strictly forbidden. No firearms or dangerous weapons such as knives & spears are allowed. No drugs No excessive noise is allowed. No unsocial behaviour will be tolerated Driving company vehicles while intoxicated is forbidden. Urinating in public while on company premises is forbidden. Employees are expected to wear safety wear and PPEs. Foul language and insults are not allowed. Abuse of resources (water, electricity, toilet papers, etc.) will not be tolerated. Theft of company assets is strictly forbidden and will lead to dismissal. No harvesting of firewood. No poaching of livestock around the premises. 	
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
<p>Prior to starting with construction activities the PM and the appointed contractor must assess the level of training that need to be provided to employees.</p> <p>Monitoring with respect to housekeeping (alcohol abuse, drinking on duty, abuse of resources, etc.) must be carried out throughout the construction phase.</p>	<p>Any compliant received and the action taken to address such a complaint must be recorded.</p>	PM	GM or as delegated to ECO

3.4 EMP ON SAFETY, HEALTH AND SECURITY

It is imperative that safety and security measures relating employees and to third parties are defined and implemented to adequately protect the factory site being accessed by unauthorized people. An emergency response plan for incidents is also essential.

NB: A separate Occupational Health and Safety (OHS) plan for the factory operations will be developed and does not form part of this EMP.

3.4.1 Potential Impacts

- Accidents leading to injuries
- Theft
- Fire

3.4.2 Management Objective

The management of factory must ensure that measures are put in place to prevent physical harm to employees and to third parties from operational hazardous associated with the manufacturing activities.

Table 3-4: EMP on Safety, Health and Security

Aspect/Issue	Management Plan
Access to the factory premises	<p>Recommended mitigation measures for safety and security are:</p> <ul style="list-style-type: none"> • The first activity that must be undertaken should be to fence in the entire 5ha land portion allocated for the factory development with a high security fencing such that access to the premises is provided via one entrance point which must be manned by security personnel at all times. This will prevent animals from entering the premises causing damage and injury to themselves. Unauthorized • All vehicles and people must access the factory premises via the security manned entrance. No unauthorized persons will be allowed to enter the premises unless security cleared. Any person entering the factory will be required to undergo a safety induction which includes the EMP. • To operate an alcohol-free and drug-free manufacturing facility, random testing will be performed on employees and any contractors on entry to the premises in the morning and at any time while on duty. Employees with alcohol levels above the norm will be denied access and loose a day's wage.
Safety	<ul style="list-style-type: none"> • Ensure that security personnel are vetted and well trained. • A detailed fire management policy should be developed and all employees and contractors regularly drilled. • Zones for smoking should be established around the factory and strictly reserved for smoking purposes. • An emergency response plan must be developed by management for the factory operations and all employees and contractors acquainted with such a plan. • No employee should be allowed to perform any activity which requires the use of PPE unless provided with suitable PPE. Employees provided with PPEs who are found performing activities without wearing such PPEs must be disciplined.
Third Parties and handling of hazardous products	<ul style="list-style-type: none"> • This area must be secured, out of bounds and far away from where the main activities are taking places. • All legal requirements must be in place when handling hazardous products (fuel, LPGs, etc.) on the factory premises. No fuel must be procured in bulk unless a Consumer Installation Certificate has been issued by MME. • Any third party doing business with the factory must be in compliance with applicable regulations. In this regard, any third party supplying shale clay (raw

Aspect/Issue	Management Plan		
	materials) to the factory should be in possession of a valid ECC for extracting such raw materials and its vehicles must be licensed and roadworthy. <ul style="list-style-type: none"> Major spills of hazardous products must be immediately contained and handled as provided for in the emergence response plan. Corrective action must be taken to avoid re-occurrence. 		
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
Monitoring of all aspects related to health, safety and security should be carried out on a daily basis throughout the construction phase.	All work areas on the brick factory must be cleaned and kept safe on a daily basis throughout the operational phase. Waste should be removed from the premises on a monthly or biweekly basis or otherwise as the quantities involved justify disposal.	PM in consultation with the appointed Contractor	Overall responsibility is with the GM while execution is vested in a duly appointed ECO.

3.5 EMP ON SURFACE AND GROUNDWATER CONTAMINATION

In terms of water drainage systems in Namibia, the project site is located within the Cuvelai-Etoshia which drains from the north to the south. On average, between 400 mm and 500 mm of rainfall is received per annum. Water has to be used sparingly and any willful wastage should be discouraged because water is a scarce resource in the country with the procurement from the national water utility company gradually getting expensive each year.

3.5.1 Potential Impacts

- Pollution of surface water
- Contamination of groundwater

3.5.2 Management Objective

The objective of the management measures is to ensure that the manufacturing activities conducted at the factory do not cause pollution and contamination of surface and groundwater

Table 3-5: EMP for Surface and Groundwater Resources

Aspect/Issue	Management Measures
Mitigation for allowing dirty and clean water to mix, i.e. rain water allowed to flow over stockpile areas (raw materials, coal, charcoal, etc.) and dirty roads.	<ul style="list-style-type: none"> • Surface water management facilities should be designed and operated so that dirty water is kept separate from clean water runoff. This can be achieved via the construction of berms, channels, trenches, flood protection measures and or erosion protection. • Berms must be constructed around stockpile areas to prevent runoff from rainfall to overflow and pollute surface water. • Suitable erosion protection measures should be developed around erosion prone areas by paving or interlocking such areas. • Non-contact water to be diverted around surface factory infrastructure and directed southwards.

Aspect/Issue	Management Measures
	<ul style="list-style-type: none"> Rainwater from rooftops can be harvested and stored in suitable water containers for use around the factory premises.
<p>Mitigation for potential contamination of downstream water from hydrocarbon and hazardous products used at the brick factory plant.</p>	<ul style="list-style-type: none"> Adequate sumps should be put in place to collect any fugitive hydrocarbons and/or chemicals resultant from leaks, spills and overfills of machinery and equipment used at the factory. Any area where hydrocarbons are handled, i.e. servicing, repairing, refueling of vehicles and machinery at the workshop should have impervious floors with adequate protective bund walls to ensure that any fuel spills or leaks is captured. Bulk diesel may only be stored in an aboveground fuel storage tank with banded side walls and impervious floor. Banded area to be 110% capacity of fuel tank. Also, a CIC is required prior to operating any aboveground fuel storage tank. Any movement of fuels around the factory premise must be kept in secure containers (jerry cans, etc.) so as to avoid any spills.
<p>Potential downstream water contamination from erosion on receiving stormwater quality from destabilised soils on stockpiles and roads.</p>	<ul style="list-style-type: none"> Management must develop and implement a Storm Water Management Plan (SWMP) at the factory which ensures that clean water and dirty storm water are not allowed to mix. The SWMP must ensure that dirty water surface flows from the factory footprint area is captured and deflected by berms and channels and directed into sump ponds constructed on the lowest section (southern) of the factory premises. Sump ponds must be designed to cater for 1:50 year 24 hour precipitation event. Sumps should be lined by simply spreading crushed shale clay to make them impervious to seepage. Clean water from the catchment areas up-gradient of the factory footprint area must be diverted around the factory footprint area using berms and channels keeping clean water out of the factory area and redirected back into drainage lines below the factory footprint. Ensure that the internal factory roads have erosion humps to deflect rainwater and reduce erosion of road surface.
<p>Poor handling of construction related sedimentation and including non-removal of building rubble from the site could lead to contamination of surface water.</p>	<ul style="list-style-type: none"> No stockpiles of construction materials should be placed outside the prescribed factory footprint. No construction is to move into recommended "No-Go" areas, which must be cordoned off during the construction phase. Building debris from construction should be contained and removed from the factory site on completion of all building activities to prevent such rubbles from reaching the water stream to the south of the site. Swales and berms could also be used to slow down, temporarily retain and filter the runoff from the brick factory. The water stream/pond to the south of the site should be inspected on a regular basis during and after rainy season for any signs of disturbance, pollution or sedimentation.
<p>Poor design, implementation and management of the onsite sewage system</p>	<ul style="list-style-type: none"> Ensure that a suitable sewer system is designed by an accredited professional service provider and installation done by an experienced contractor in accordance with applicable local standards.

Aspect/Issue	Management Measures		
	<ul style="list-style-type: none"> The sewer system must be designed with excess capacity so as to cater for increased effluent volume as the factory grows in the future. Regular monitoring of the sewage system should be carried out to ensure that effluent is not being discharged in the environment. In the event of domestic effluent discharged into the environment, the root cause must be found as soon as possible and the discharge remedied. In the event of soil or water pollution, the polluted area must be decontaminated using appropriate methodology. Ensure that the contaminated area is rehabilitated. 		
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
Any sensitive areas should be identified before the construction work for the brick factory starts and avoided. Monitoring of possible pollution or contamination of sensitive areas should be carried out on a monthly basis during this period.	During the rainy period, monitoring of areas prone to suffer erosions, pollution or contamination should be done on a weekly basis and restoration action taken immediately. Reports should be prepared monthly. Weekly during the rainy season otherwise quarterly after rainy period	PM in consultation with the appointed contractor	GM or delegated to the ECO

3.6 EMP ON TRAFFIC IMPACTS ON PUBLIC ROADS

The project site is located along the C35 tar road which intersects D3700 and C46 roads. The entrance to the factory will be on the southern side and reached via an access road of ±120 m long from C35. The distance from the C35-C36-C46 intersection to the factory turnoff is about 300 m. Once fully operational there will be traffic mostly consisting of heavy duty trucks loading finished products to end users in all main centers of consumption - Outapi, Opuwo, Oshakati, Ongwediva, Ondangwa, Okahao, etc. Traffic movements around the intersection will therefore increase but not to the point where congestion will be experienced.

3.6.1 Potential Impacts

- Overloading – hence damage to public roads
- Over speeding
- Unlicensed and non-roadworthy vehicles
- Incidents and accidents
- Spillage

3.6.2 Management Objective

Ensure that road traffic regulations are maintained and safeguarded at all times.

Table 3-6: EMP on Traffic Impacts on Public Roads

Aspect/Issue		Management Plan	
Road Regulations		<ul style="list-style-type: none"> • Liaise with Road Authority to have adequate and suitable traffic signs installed along the C35 highway to warn the general public of heavy vehicles entering and turn onto the factory from C35. • It is recommended that a hard surfaced access road be constructed linking the factory to C35. This can be achieved cost effectively – either using crushed stones or heavy duty interlock paving bricks. A stop sign should be installed along the access road leading to C35. • All company vehicles and LDVs used on public roads must be licensed and roadworthy and operated by licensed drivers with valid public permits. • No over speeding is allowed and drivers found over speeding must be reprimanded. • No overloading of delivery trucks is allowed. • All building materials transported from the factory must be safely secured on the truck such that products do not fall off from the truck becoming a safety hazard to road users. 	
General		<p>The factory operation is not expected to increase the traffic movements on three main adjacent roads:</p> <ul style="list-style-type: none"> • C35 which connects Ruacana to Henties Bay via Kamanjab, Khorixas and Unis. • C46 which links Ruacana and Ondangwa via Outapi, Oshikuku, Oshakati and Ongwediva. This roads also connects Outapi to Eenhana via Helao Nafidi & Oshikango. • D3700 leading from Ruacana to Okangwati along the Kunene River. D3700 is only tarred from Ruacana up to the Ruacana border post. 	
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
<p>Applicable parameters should be monitored on regular basis throughout the construction period.</p> <p>Carry out a detailed investigation whenever a complaint has been reported on traffic violations.</p> <p>Monitor traffic movements on a daily basis during the construction Not applicable during the construction period.</p>	<p>Renewal of vehicle licenses and fitness certificates to be carried out annually.</p> <p>Vehicle roadworthiness to be checked as often as possible and defects immediately repaired.</p> <p>Drivers to be tested for alcohol on a daily basis. Vehicle pre-start checks to be performed daily before using the vehicle.</p>	<p>PM in consultation with the Contractor Manager</p>	<p>The overall legal responsibility for compliance is with the GM.</p> <p>ECO must ensure implementation of the proposed mitigation measures or alternatives.</p>

3.7 EMP ON WASTE MANAGEMENT

Waste will be generated during all phases of the factory – construction and operation. Management measures for solid and hazardous waste have been described in this section.

3.7.1 Potential Impacts

- Visual nuisance
- Odour
- Health hazard
- Amenity nuisance

3.7.2 Management Objective

Management should strive to enhance and to protect amenity values by ensuring that waste is handled in an efficient manner and disposed of at designated sites of the town council.

Table 3-7: EMP for Waste Management

Aspect/Issue	Management Plan
Non-hazardous waste	<ul style="list-style-type: none"> • The management of the brick factory must develop a Waste Management Plan (WMP) to deal with non-hazardous waste generated by the operation. The plan must take into account the waste hierarchy of waste separation, waste recycling, waste re-use, effective onsite waste storage, waste handling and waste disposal. • Designated waste collection points must be established within the factory premises for various types of waste: household and hazardous waste. Care must be taken that there is adequate collection points with adequate capacity. Waste receptors must be safely secured with lids so as to prevent windblown litter and or scavenging by animals. • Recyclable waste must be separated at source and safely stored into suitable containers before being removed by recycling companies once sufficient quantity has been accumulated. • Store all non-recyclable waste in suitable bins and at designed locations on the factory premises and remove for disposal at the town council landfill at determined intervals. • Ensure that separate waste bins/skips are provided and must be clearly marked for ease of identifications by workers. • A special section on the factory premises must be developed for the storage of scraps that may be required by factory personnel for future repairs to the plant. The scarp yard section must be secured and access restricted. Scrap metals considered as redundant must be accumulated and offered to scrap dealers for sale. • Old tyres that cannot be retreaded and redundant conveyor belts should be discarded at the town council landfill site. • Only non-hazardous waste that cannot be recycled is to be disposed at the town council landfill site. Dry waste transported to the landfill which can become airborne from wind must be compacted or covered with a thin layer of soil. Any spoilt food items transported to the landfill must likewise be covered with earthen fill to avoid animals and birds being attracted and scavenging on such food scraps. Windblown papers must be picked up from fences and plants.

Aspect/Issue	Management Plan		
Hazardous Waste	<ul style="list-style-type: none"> The management of building manufacturing facility must develop a hazardous waste management plan to deal with hazardous waste generated by the operation. The plan must cover, handling, storage, handling and disposal of such waste. An inventory of hazardous waste must be compiled and quantities of such waste estimated. The inventory must be updated on a weekly or monthly basis. The factory premises must have a dedicated area where hazardous waste is temporarily stored until sufficient quantity has been accumulated for disposal once or twice yearly at an approved The floor of the dedicated storage area, especially where oil is stored must have an impermeable concrete slab, adequate bunding, an oil trap and sump. At all times, hazardous waste must be kept covered and secured in an impermeable bunded areas until it is removed for disposal to an approved offsite hazardous disposal facility. Place used oil into a leak-proof steel drum until sufficient quantity has been accumulated for disposal to an approved offsite hazardous disposal facility. Greasy cloths and rags used in the workshop must be placed in steel drums and accumulated until disposal once or twice annually at an approved offsite facility. Ensure that waste storage areas and/containers meet the risk needs for that specific waste (e.g. impervious floor, bunded areas with drainage/container system, lid to prevent light materials from blowing away or sealed containers for hazardous materials) Under no circumstance may hazardous waste be disposed of by burning or burying on the factory premises. Oil contaminated soil must be treated and handled as hazardous waste and should be bio remediated. Written records of hazardous waste disposed must be kept. 		
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
Waste must be removed from the site on a monthly basis during the construction period. Any spills must be contained as soon as it happened and the treated area monitored on a weekly basis to check the effectiveness of the cleaning process.	Cleaning of working areas including ablution facilities must be done daily. Waste must be placed in suitable containers on a daily basis and disposed from the factory site on a monthly basis. Reports on quantities of waste generated (solid and hazardous) should be compiled quarterly and reported to Management	PM /Contract Manager	GM has the overall legal responsibility for compliance. ECO must ensure implementation of the measures.

3.8 EMP ON FUEL STORAGE & HANDLING

The factory will require the use of fuel for its machineries (frontend loader, road trucks delivering products, forklifts, etc.) which will be procured in bulk and stored in an aboveground tank to installed on the factory premises.

3.8.1 Potential Impacts

- Leakage (leading groundwater contamination)
- Fire hazards
- Safety hazard

3.8.2 Management Objective

Protect amenity values, operational and business efficiency by ensuring that any adverse impacts from fuel storage and handling thereof are minimised.

Table 3-8: EMP on Fuel Storage and Handling

Aspect/Issue	Management Plan
An aboveground fuel storage facility	<ul style="list-style-type: none"> • Site the aboveground fuel storage in a designated area which is secure and away from where the main activities are concentrated. • The tank must be installed on a smooth impermeable surface (plastic or concrete) base with an earth bund. The floor of the bund must sloped towards an oil trap or sump to enable any spilled fuel or fuel-soaked water to be absorbed. • The fuel storage tank must be fitted with the lids which are kept firmly shut and the keys kept in the factory office. • Smoking and naked flames must not be allowed in the vicinity of the fuel storage areas. • Symbolic signage clearly depicting: 'Danger', 'No Smoking' No Naked Light/Fire' must be displayed and must conform to local standards. The volume of the fuel that can be stored (tank capacity) must be clearly displayed. • The tank installed must comply with applicable specifications and standards. This responsibility rests with the fuel agency providing the tank.
Fuel dispensing	<ul style="list-style-type: none"> • Any fuel dispensing pump (electrical or fuel-driven) must be equipped and positioned so as not cause danger of ignition of the product. • Firefighting equipment: Suitable and adequate firefighting equipment (fire extinguishers) must be kept at the refueling facility. The firefighting equipment must be regularly checked and inspected for functionality. Firefighting must be readily accessible but firmly secured. • The employee(s) responsible for fuel handling and dispersing must be well trained and experienced on how to operate the fuel dispersing devices (pumps). The employees must be supplied with suitable PPEs. • Any refueling must be done on a hard impermeable surface or drip pans to ensure spilled fuel is captured and cleaned up. Defective hoses, valves and containment structures should be promptly repaired. • The fuel tank and its surrounds must be inspected on a daily basis and the findings recorded on a daily inspection fuel sheet. • Accurate records of fuel dispersed must be kept on a daily basis and fuel reconciliation performed on a weekly basis.

Aspect/Issue	Management Plan		
	<ul style="list-style-type: none"> A designated area containing spill kits must be made available on the factory premises with adequate suitable spill devices and materials. 		
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
Any fuel spill occurring during this phase should be reported immediately and corrective action taken.	<p>The aboveground fuel storage tank should be visually inspected for leaks on a daily basis.</p> <p>Firefighting equipment should be monitored and inspected and their respective status recorded on a quarterly basis.</p> <p>The status of spill kits should be inspected on a quarterly basis and records kept on file at the office.</p>	PM /Contractor Manager	<p>GM has the overall responsibility.</p> <p>Execution is with the ECO</p>

3.9 EMP ON BIODIVERSITY

Biodiversity is best understood and appreciated when one considers its components which consist of plant species and animals as well as the different habitats in which they live (biodiversity patterns). It is also important to appreciate how important factors, such as wind, water, presence of pollinators affect the habitats and the species living in them (ecosystem process).

The project site consists of a footprint of 50 000 m² which had already suffered destructive activities inflicted on it by human activities. Most vegetation has been cleared with few mature trees left intact as described in the scoping section of the EIA report.

3.9.1 Potential Impacts

- Loss of faunal habitats
- Loss of floral species - vegetation, plants & trees
- Displacement of flora and fauna
- Possibility of soil erosion

3.9.2 Management Objective

Maintain and upheld existing biodiversity by ensuring that the minimal negative impacts are caused on the existing ecosystem.

Table 3-9: EMP on Biodiversity

Aspect/Issue	Management Plan
Floral diversity	<ul style="list-style-type: none"> The brick factory must be fenced in to ensure that trees and vegetation outside the allocated land are not impacted during the construction period. It is important that all factory permanent structures and buildings are sited away from any sensitive areas including avoiding of any mature trees on the premises. Foundation footprints for all permanent structures must be clearly demarcated and marked off with visible paint before excavation starts. Ensure

Aspect/Issue	Management Plan		
	<p>that excavation is confined to such marks and limited destruction is caused on vegetation.</p> <ul style="list-style-type: none"> Chopping down mature trees for purposes of harvesting firewood is forbidden. Construction workers who are residing on the premises during the construction phase must be provided with suitable cooking devices. Any area disturbed during the construction phase that is not required for the factory operation must be promptly rehabilitated. Open fire must be avoided, alternatively fire should be made at a dedicated area but under direct supervision at all times. Any foreign vegetation brought onto the site during the construction phase must be controlled. 		
Faunal diversity	<ul style="list-style-type: none"> The entire 5 ha land portion allocated for the factory must be fenced in to prevent any livestock in the area entering the premises resulting in injuries and causing destruction of construction materials and goods. Employees of the brick factory must be trained to understand and appreciate the importance of not interfering with agricultural livestock roaming around the factory and not to set up traps, capture, hunt down or harm livestock (cattle, goats, donkeys, pigs, etc.) Any birds that may be nestling in mature trees on the premises should be not be disturbed. Killings of reptiles such as snakes and scorpions is forbidden except where such reptiles pose a danger to the lives of people. There are no large wild fauna remnants in the area. Small wild fauna, insects and reptiles that can be disturbed during brick making process are likely to relocate and will also naturally re-enter the area post rehabilitation. Cement bags and plastics should not be given to livestock as feed. 		
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
Check weekly during the construction period	<p>Rehabilitated areas should be monitored post construction to ensure effectiveness.</p> <p>Monitor effectiveness of proposed measures at least quarterly and record findings.</p>	PM/Construction Manager	<p>GM has the overall legal responsibility for compliance.</p> <p>ECO must ensure implementation of recommended measures.</p>

3.10 EMP ON SOIL IMPACTS

The construction phase will involve some soil disturbances associated with the excavations for building foundations, installation of the boundary fence as well as the development of internal routes.

3.10.1 Potential Impacts

- Soil profile disturbance as a result of topsoil removal

- Integrity of seeds stored in topsoil compromised
- Soil compaction due to repeated movements of heavy vehicles
- Potential leaks and spills from machinery and handling of fuel
- Potential for soil erosion

3.10.2 Management Objective

Maintain a high standard of housekeeping by ensuring that minimal disturbance is caused on the soil profile.

Table 3-10: EMP on Soil Impacts

Aspect/Issue	Management Plan
Potential impacts on topsoil and soil profiles	<ul style="list-style-type: none"> • In situations and areas where topsoil removal is required for the construction of hard surfaces and buildings, such topsoil should be removed and stockpiled for later use as a rehabilitation medium. Topsoil stockpiled for future rehab should not exceed four months to avoid desiccant and seed decay. • In situations and areas where topsoil is compressed for factory activities but is not required for stripping and removing, i.e. internal road, parking areas, etc. the standard practice would be to keep such soil in situ. This will help to bind and hold the soil together and help toward natural long term rehabilitation. • Topsoil stockpiles should not exceed 1.5 m in height and should preferably be protected against wind erosion or wash away. and wind erosion. by bund walls against wind erosion, . Scarification of any compressed topsoil should be handled during the rehabilitation and restoration work. • Topsoil stockpiles should be well maintained, kept in an erosion free area with its fertility state safeguarded. Topsoil should be reintroduced back in nearby areas as construction activities progress to reduce storage time which leads to fertility being compromised. • Scarification of topsoil should be minimised and only carried out when full scale rehabilitation is undertaken. best done effected • Widths of internal routes on the premises should be limited to 4 m and limited to least requirement. • Turning circles and parking areas should be demarcated with short timber poles planted in the soil with ropes fastened between the poles to limit traffic over spilling to no-go areas. • Ensure that internal factory routes have erosion humps to deflect rainwater and reduce erosion of road surface as well as to ensure proper storm water berms are in place along the routes to deflect runoff. • Ensure that re-fueling, fuel storage and handling of fuel and oil products is to take place in a designated workshop areas and located on impervious bases with adequate protective bund walls. • Management must develop procedures and standards to deal with any fuel spills and or major leaks. The source of spillage must be immediately contained with correct control measures, the contaminated soil uplifted, correctly stored until disposed as recommended in the Fuel Handling Section of the EMP.

Aspect/Issue	Management Plan		
	<ul style="list-style-type: none"> By law any fuel spill in excess of 200 litres must be reported to MME and an incident report compiled and submitted. 		
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
Impact mostly associated with this phase	Monitor areas prone to erosion before the onset of the wet season	PM	GM / ECO

3.11 EMP ON NOISE DISTURBANCES

The manufacturing of building construction materials both inside and outside the factory will involve the use of machines and different types of equipment which generate noise and have the potential to cause noise pollution. As indicated in the EA scoping report, the factory is located at the intersection of three roads being D3700, C46 and C38, but is far away the two residential areas – Oshifo is about 5 km away while Ruacana is 10 km. There are no sensitive noise receptors within a radius of 500 m of the factory.

3.11.1 Potential Impacts

- Hearing impairment – when exposed to high noise levels over an extend period of time
- Annoyance and irritation
- Nuisance to sensitive receptors

3.11.2 Management Objective

Protect amenity values, operational and business efficiency by ensuring that noise levels are kept within acceptable parameters.

Table 3-11: EMP on Noise Pollution

Aspect/Issue	Management Plan
Noise is best controlled at the source	<p><u>General Noise Abatement Measures:</u></p> <ul style="list-style-type: none"> • All diesel-powered machinery and equipment should be well maintained and routinely serviced with any defective silences replaced. • Machinery and equipment that are used intermittently should be shut down between work period or throttled down to a minimum and not left running unnecessarily. This practice will reduce noise and at the same time conserve fuel. • Efforts should be made to minimise the need for trucks/equipment to reverse in order to reduce the frequency at which disturbing but necessary reverse warnings is activated. • Keep the access road from the C35 tar road to factory entrance as well as all internal routes well maintained without any potholes which would require vehicles to decelerate and accelerate when approaching and leaving such uneven potholed sections. • Limit traffic movements in and out of the factory between the hours of 06h00 and 18h00 specifically during the beginning stages of manufacturing activities until a full picture of the noise profile is established.

Aspect/Issue	Management Plan		
	<ul style="list-style-type: none"> Limit non-routine noisy generating activities such as maintenance of plants, machinery and equipment to day-time hours. Crushing of raw materials could also be limited to day-time hours especially during the starting stage of the factory operations. 		
Noise abatement measures	<ul style="list-style-type: none"> Employees working in areas of the factory where noise levels are considered higher should be provided with suitable PPEs and, where possible, wearing of such devices must be enforced. Any source of significant noise levels should be, as far as possible, enclosed and access limited to few personnel only. Machinery, equipment and methods used in the manufacturing process must be regularly reviewed and assessed so as to ensure that the quietest technology is utilised. Ideally, the factory buildings should be sited along the eastern side of the factory which is furthers point, away from the intersection of D3700, C35 and C46 roads. Plants and machinery from which noise generated is known to be particularly directional, should be oriented in such a manner that generated noise is directed away from where people are working. During the construction phase delivery of construction materials such as beams and bricks should be lowered as opposed to dropping. This will reduce noise and dust 		
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
No monitoring is required if construction activities are confined to day light hours of 07h00 to 18h00.	<p>Monitor effectiveness of noise measures at least quarterly during the operational phase.</p> <p>In the event of a complaint related to noise being made an investigation should be carried out promptly and corrective measures taken.</p>	PM/Contract Manager	<p>GM has the overall legal responsibility for compliance.</p> <p>ECO must ensure implementation of the proposed measures.</p>

3.12 EMP ON DUST POLLUTION

Dust will be generated at those sections of the brick factory where crushing and grinding of raw materials take place. Traffic movements in and around the factory will be confined to paved routes while the whole factory will be enclosed hence, fugitive dust will be minimal.

Lack of effective dust management measures could result in windblown as fugitive dust, settling on surrounding structures as well as on trees and plants around the factory premises. Generally, dust tend to float in the air and staining may occur on nearby infrastructure becoming a visual nuisance and a health hazard.

3.12.1 Potential Impacts from Dust

- Prolonged exposure can lead to lung problems

- Breathing problems
- Visual nuisance

3.12.2 Management Objective

Protect amenity values and human health by striving to operate a dust-free brick factory.

Table 3-12: EMP on Dust Pollution

Aspect/Issue		Management Plan	
Dust impacts		<ul style="list-style-type: none"> • All internal routes at the brick factory must be paved and movements of vehicles restricted to such routes. • Locate stockpiles in such a way that dust is blown in the predominant wind direction and picked up by the wind. • Key areas of the factory (i.e. crushing and milling sections) where dust is generated should be identified and dust suppression devices installed. • Employees working in areas of the factory where dust is generated must be provided with suitable dust masks and wearing of such PPEs enforced. • Any complaints related to dust from any stakeholder must be recorded, investigated and corrective measures taken. 	
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
Not much dust is expected during the construction phase if proposed measures are implemented.	<p>Monitor effectiveness of measures proposed at least quarterly and record findings.</p> <p>In the event of a complaint being made an investigation should be promptly carried out and corrective measures taken.</p>	PM/Contractor Manager	<p>GM has the overall legal responsibility for compliance.</p> <p>ECO must ensure implementation of the recommended measures.</p>

3.13 EMP ON AIR QUALITY

Clay bricks are fired in kilns which emit certain gaseous emissions into the atmosphere due to the 'cooking action' of the fuel energy used in the firing process. During the initial stages of brick production, firing of clay bricks will be in clamp kilns which are considered as being energy-inefficient. Air emissions from solid fuel (coal, charcoal and biomass) are more often associated with trace elements such as cadmium, arsenic, chromium, etc. emanating from the combustion of fuel that are released into the atmosphere. Firing with coal will result in sulphur dioxide as the main air pollutant from the combustion of coal. However, the amount of solid fuel required per annum is of the order of 4 500 tons and therefore very small.

3.13.1 Potential Impacts

- Noxious emissions from diesel-powered machinery and equipment
- Smoke from firing of product
- Dust generating from crushing and milling of raw materials
- Health issues – when exposed over an extended period.

3.13.2 Management Objective

Protect social health and amenity values by ensuring that gaseous pollutants from the manufacturing activities are minimised and kept within acceptable parameters.

Table 3-13: EMP on Air Quality

Aspect/Issue		Management Plan	
Dust generated from crushing and milling activities maybe windblown as fugitive dust resulting air pollution		<p>Recommended mitigation measures for air pollution:</p> <ul style="list-style-type: none"> • Vehicle movements on the factory premises must be confined to well-planned and clearly demarcated internal routes that are paved and regularly maintained. To prevent traffic movements from spilling over to no-go zones, poles should be planted along internal routes with cargo ropes tied between the pole spans. • Turning circles, parking bays and stockpile areas for raw materials, green products and finished products must be hardened and preferably paved. • Ensure that site drainage carries spillages of shale clay, coal, charcoal and or biomass fines away from traffic movement zones. Spillage from such stockpiles should be directed to a lined sump or into a settling pond to prevent loss beyond the premises boundary. • Covering or praying some water on the shale clay stockpiles and coal is advisable if wind erosion is experienced. • A speed of 10 km/hr must be maintained and enforced on all factory internal routes. Signage must be planted along all routes. • After the construction all compacted areas that are not required for factory activities must be scarified to allow for natural vegetation regrowth. 	
Sulphur dioxide is emitted from combustion of sulphur contained in fuel energy mostly coal and charcoal.		<p>Monitoring: It is recommended that four SO₂ monitoring points be erected along the main wind-axis NE-SE within the factory premises. Passive monitoring of SO₂ should be conducted from such points on a half yearly basis during the first two years of the manufacturing activities. The results obtained will form the baseline for the subsequent years.</p> <p>Cumulative impacts: There are no other operations in the immediate surrounds of the factory emitting SO₂ or within a radius of 10 km, so there are cumulative concentrations that could raise the ambient SO₂ level in the locality.</p>	
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
No impacts expected during the construction period hence to monitoring is required.	Monitoring of environmental aspects related to air pollution should be done quarterly during the first three years of the brick factory. Any complaint received should be investigated promptly and corrective action taken.	Not applicable	Compliance rests with the GM. ECO must ensure implementation of the recommended measures.

3.14 EMP ON VISUAL INTRUSION

The factory infrastructure which would consist of sheds with heights ranging between eight and ten meters is expected to alter the landscape character of the site, and surrounding areas. However, the specific and general area where the factory will be constructed has been disturbed and there is already another manufacturing facility. The landscape character around the intersection of C35, D3700 and C46 tar roads has been disturbed such that the visual resource in this area is already heavily impacted and extensively altered.

3.14.1 Potential Impacts

- Factory infrastructure (huge shed, workshop, etc.)
- Raw materials stockpiles
- Product stockpiles
- Light pollution
- Airborne dust particles

3.14.2 Management Objective

Ensure that measures are put in place to limit visual impacts of the brick factory. Where possible, the factory infrastructure must be developed in a manner which enhances the character of the site and preferably made to blend in well with the existing landscape.

Table 3-14: EMP on Visual Intrusion

Aspect/Issue	Management Plan
General	<ul style="list-style-type: none"> • Locate and site infrastructure away from sensitive and elevated areas. • Raw material stockpiles should be kept as low as possible in order to reduce visual nuisance. Where possible stockpiles should be sprayed with minimal water to prevent dust escaping into the atmosphere becoming a visual annoyance to the public using the adjacent roads. • Windblown papers and plastics around the factory premises should be regularly picked up to avoid visual nuisance. • Factory infrastructure must be well maintained on a regular basis with walls painted so as to avoid the structures becoming visual annoyance. • Areas where a high concentration of dust is generated such as the crushing and milling sections of the factory should have dust suppression devices fitted to prevent dust escaping into the atmosphere.
Light Pollution	<ul style="list-style-type: none"> • Light pollutions should be considered and kept to the minimum without comprising security and safety at the factory. • Install light fixtures that provide precisely directed illumination to reduce light spillage beyond the immediate surroundings of the factory. • Avoid using bright, white colour lights where possible. Preferably, use lights emitting a yellow light which travels less than white coloured lights. • Light movement areas such as pathways and internal routes with low level light and avoid post top lighting.

Aspect/Issue	Management Plan		
	<ul style="list-style-type: none"> Ensure that security light at the factory site does not offend the public using adjacent roads. The lighting layout should direct light inwards to the factory and not outwards to C35 tar road 		
Materials	<ul style="list-style-type: none"> Paint building and structures with a matte finish in a shade of grey or green that would reduce the colour contrast between the structures and the receiving landscape. Avoid the use of bright colours and shiny finishes especially roofs and taller structures. Reduce visual impacts of permanent structures by painting roofs and wall of such structures with paint of matte finish so as to reduce reflection. Plant vast growing plants or vegetation, preferably on the western and northern side of the factory for the purpose of screening away the brick yard from the public using the adjacent C35 highway. 		
Monitoring Frequency		Responsible Party	
Construction Phase	Operational Phase	Construction Phase	Operational Phase
Comply with the recommendations to improve visual impacts	Any complaint received from any stakeholder with respect to visual impacts must be investigated and corrective action taken.	PM /Contractor Manager	Compliance rests with GM

3.15 EMP ON ARCHAEOLOGICAL AND CULTURAL NATURE

There are no known archaeological artefacts or heritage sites on the land allocated for the development of the project and in its surrounds. No one of the neighbouring IAPs raised any such concerns during the public participation process.

3.15.1 Chance Archaeological Finds

While no heritage site is known to occur in the area, it is possible that sites or items of heritage significance may be found during the course of the project implementation especially during the construction phase which involves some excavations and trenching. It is therefore imperative that a heritage induction process is explained to construction personnel. This is to sensitize people so that they may recognize heritage 'chance finds' in the course of their work. The chance find procedure is intended to ensure compliance with the relevant provisions of the National Heritage Act (Act No. 27 of 2004), especially section 55(4) which reads as follows:

'a person who discovers any archaeological object must as soon as practicable report the discovery to the Council'.

The reporting procedure as set out below must be observed so that heritage remains identified in the field are reported to the NHC.

3.15.2 Potential Impacts

- Injuries from undetonated landmines
- Damage to archaeological items
- Damage to human remains
- Damage on artifacts

3.15.3 Management Objective

Any findings of archaeological or cultural heritage nature should be safeguarded and protected until directives are received from the NHC on what to do.

Table 3-15: EMP on Archaeological Items

Aspect/Issue	Management Plan			
Chance find procedure	<p>The 'chance find' procedure covers the actions to be followed from the discovery of a heritage site or item, to the necessary investigation and subsequent assessment by an archaeologist or any other qualified person:</p> <p>Action by the individual who discovers an archaeological site or item:</p> <ul style="list-style-type: none"> • If operating a machine, stop work immediately • Mark the site with flag tapes • Determine GPS reading if possible • Report finding to a supervisor or Manager <p>Action by management</p> <ul style="list-style-type: none"> • Visit site and ascertain if work can continue without any damage to the findings • Determine and mark exclusion boundary • Site location and details to be added to the project GIS for field confirmation by an archaeologist. <p>Action by archaeologist</p> <ul style="list-style-type: none"> • Inspect site and confirm addition to project GIS • Advise NHC and request written permission to remove findings from the working area • Recovery, packaging and labelling of finding for transfer to National Museum <p>If discovery is human remains proceed as follows:</p> <ul style="list-style-type: none"> • Actions as above • Field inspections by archaeologist to confirm that remain is human • Advise and liaise with NHC and NamPol 			
	Monitoring Frequency		Responsible Party	
	Construction Phase	Operational Phase	Construction Phase	Operational Phase
	This aspect is applicable to the construction phase only and does not require any monitoring post construction.	Not applicable during the operational phase	PM /Contractor Manager	GM/ECO

4. MONITORING AND REPORTING

The promotor, **OneBrik** is expected to develop a monitoring procedures for its manufacturing operation which should, amongst other things, comprise of the following parameters:

- Parameters which must be monitored and at what intervals.
- Suitable equipment to be used and should be appropriately calibrated.
- Where samples require analysis, such samples should be preserved according to laboratory specifications.
- Where practical, an accredited, commercial laboratory should undertake sample analysis.
- Monitoring data must be stored in a structured database.

- Data should be interpreted and reports on trends in the data compiled on an annual basis.
- The data and the reports must be kept by management for the duration of the project.

4.1 MONITORING

It is recommended that monitoring be conducted on the following aspects at least after the brick factory has been operated for a period of 12 months. This aspects should be reported on:

- Noise pollution
- Dust pollution/ Air quality
- Surface water

4.1.1 Noise Pollution

Noise monitoring should be carried out where noise impact is considered as an issue. During the full scale factory production, noise will be generated when material handling (both raw and finished products), crushing and milling actions as well as from movements of trucks and machines (forklifts, wheel loaders, etc.).

Based on a simple noise modeling and the absence of industries in the same location, the noise generated is not expected to exceed 65 dBA level which is considered acceptable and within the 45 dBA level requirement for the rural areas according to SANS 10103: 2003 regulation limits.

It is recommended for noise monitoring to be conducted around the factory premises annually. In the event that a noise related complaint is received, short term (24 hours) ambient noise measurements should be conducted as part of the investigating of the complaint. The results of the measurements should be used to inform any follow up interventions.

4.1.2 Air Quality

Performance indicators against which progress of implemented mitigation and management measures may be assessed constitute the basis for all effective environmental management practices. It is important that in the definition of performance indicators, careful attention should be paid to ensuring that progress towards their achievement is measurable and that targets as set are achievable given the available technology and experience.

Performance indicators are usually selected to reflect both the direct source of the emission (source monitoring) and the impact on the receiving environment (ambient air quality monitoring). For instance ensuring that no visible evidence of windblown dust exists is an example of a source-based indicator, whereas maintaining off-site dust fall levels to below 600 mg/m²/day is an example of an impact or receptor-based performance indicator.

As part of the project's air quality management plan, it is recommended that enough monitoring location points be established around the factory premises where dust fall and suspended particulate matters (PM₁₀) can be monitored. Monitoring does not apply during the construction phase.

During the operational phase, monitoring should be undertaken at least on a yearly basis after commissioning of manufacturing activities. This will give a general profile of the ambient air quality so that effective mitigation measures may be applied where deemed necessary. In the event of any dust related complaint received, an investigation should be carried out immediately and corrective measures employed.

4.1.3 Surface water

It is proposed that two rain gauges be installed at strategic locations on the factory premises to record rainfall received and how any silting ponds erected on the premises were holding up. In the event that rainwater from the factory working areas and or internal roads drains to the water pond on the south of the factory, samples should be taken, analyzed and tested to determine that pollutants from the factory do not contaminate the natural environment.

The results of the sampled water should indicate if the mitigation measures implemented by the factory management were indeed effective or whether improvements were necessary. Visual monitoring should be done before the onset of the wet season, throughout the wet season and soon thereafter.

4.2 REPORTS

As a minimum, an annual report on environmental aspects on the operation should be submitted to MEFT not later than three months after the end of the production cycle.

5. RECOMMENDATION

Ekwao is confident that the management measures outlined in this EMP to mitigate the environmental impacts associated with the brick factory promoted by **OneBrik** PTY Ltd are more than adequate, and if implemented will result in minimal impacts to the receiving environment.

It is recommended that an ECC be granted to **OneBrik** for the development and operation of its clay brick factory at Ruacana.

ANNEXURE : B



OneBrik (Pty) Ltd

Construction and Operation of a Clay Brick Factory, Ruacana
Townlands, Omusati Region, Namibia

A Public Consultation Process Report

in Support of an Application for an Environmental Clearance Certificate
(ECC)

APP- 00137

Project Name	:	Clay Brick Manufacturing Factory at Ruacana
Type of Project	:	Manufacturing of Clay Fired Bricks and Roofing Tiles
Project Location	:	Industrial Plot Off C35 Highway RUACANA Omusati Region
Competent Authority	:	Ruacana Town Council Private Bag 508 RUACANA
ECC Application No.	:	APP- 00137
Date Report Prepared	:	October 2022
Project Promotor	:	OneBrik Pty Ltd Box 25021 WINDHOEK Atten: Mr Taapopi Shilongo Cell: 081 621 5260 Email:Onebrikpm@gmail.com
EIA Consultant	:	Ekwao Consulting 4350 Lommel Street Ongwediva Cell: 081 127 3027 Email: ekwao@iway.na

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ACRONYMS AND ABBREVIATIONS

ACRONYM	EXPANSION
AMSL	Above Mean Sea Level
COVID-19	'CO' - Corona, 'VI'- Virus & 'D' - Disease of 2019
EC	Environmental Commissioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Regulations
EMA	Environmental Management Act
EMP	Environmental Management Plan
FCN	First Capital Namibia
FSN	Friedrich Ebert Stiftung Namibia
GPS	Global Positioning System
GRN	Government of the Republic of Namibia
ha	hectare (1 ha = 10 000 m ²)
HPP	The Harambee Prosperity Plan
IAPs	Interested and Affected Parties
m ²	square meters
MEFT	Ministry of Environment, Forestry and Tourism
NamRA	Namibia Revenue Agency
NCCI	Namibia Chamber of Commerce and Industries
NHC	National Heritage Council
NSI	Namibia Standards Institute
ORC	Omusati Regional Council
PPE	Personal Protective Equipment
SHE	Safety, Health & Environment
SME	Small and Medium Enterprises
SSC	Social Security Commission

NAMES OF ROADS

ROUTE	DESCRIPTION
C35	The route number for the road starting from the coastal town of Henties Bay to Ruacana through the settlements/towns of Uis, Khorixas, Kamanjab and Omakange.
C46	The route number for the highway which starts from B1 in the town of Ondangwa to Ruacana via Oshakati, Oshikuku and Outapi.
D3700	The road leading from intersection of C35 and C46 to the Ruacana Waterfalls/Border Post up to Okongwati via Swartbooisdrift running along the Kunene River.
D3616	The route number for the district road from the town of Tsandi to C46 via the settlements of Onesi and Epalela.

1. INTRODUCTION

Public Participation Process (PPP) is an integral part of the EIA process as outlined in Section of 27(1) (h) of the Environmental Management Act and Section 32 of Environmental Impact Assessment Regulations. One of the objectives of the Environmental Scoping Assessment is to identify all possible stakeholders – those people or institutions who may be impacted in one or another or those who may have an interest in the proposed project so as to involve such stakeholders in the EIA process.

Generally, the public participation process is a platform which affords an opportunity to the stakeholders, who are classified either as Interested or Affected Parties (IAPs) to the proposed development. Such stakeholders are given an opportunity to express their views, comments and or to voice any concerns which they might have with regard to the proposed development. In broader terms, the objectives of the public participation are, amongst others the following:

- To increase awareness and public confidence and in so doing to maximize benefits and minimize risks.
- To ensure transparency and accountability in decision-making and therefore less conflict, since decisions are deemed to have been made through consensus.
- To secure approval from stakeholders which gives some form of assurance and a sense of partnership with the proposed development and prevents unnecessary disputes and costs associated with litigations.

With respect to this specific EIA, the stakeholders have been split in two categories – statutory and non-statutory stakeholders.

2. PROJECT ANNOUNCEMENT

The EIA was announced in the local newspapers on the dates as shown in the table below in line with the provisions of the Environmental Management Act (Act No. 7 of 2007) and Environmental Management Regulations (Regulation of 2012).

Table 1: Newspapers Adverts

Date	Publication	Distribution	Language	Publication Rate
19- 25 November 2021	Confid�nte	Nationwide	English	Weekly, Fri-Thu
26 Nov - 2 Dec 2021	Confid�nte	Nationwide	English	Weekly, Fri-Thu
13 November 2021	New Era	Nationwide	English	Daily, Mon to Fri
23 November 2020	New Era	Nationwide	English	Daily, Mon to Fri

Proof of newspaper advertisements are attached at the end of this report. Additionally, EIA Notices were prepared and printed on an A3 paper and pasted around the proposed project site (**Fig. 1**).

3. IDENTIFICATION OF STAKEHOLDERS

One of the objectives of the PPP is to identify all possible stakeholders to the EIA. Listed in **Table 2** below, are the names of public officials representing Organs of State who have a direct bearing to the listed activity being assessed.

For this Scoping Assessment, interested and affected parties have been identified as, primarily neighbouring residents.

Table 2: Statutory Stakeholders

Names	Organisation	Role	Remarks
Mr T Mufeti	MEFT	Environmental Commissioner	
Dr C !Garus-Oas	MEFT	Deputy Eviron Commissioner	
Ms S Angula	MEFT	Deputy Director	
Mr D Nchindo	MEFT	Chief Environmental Officer	BID
Mr H Mbura	MEFT	Chief Environmental Officer	
Hon Uutoni	MURD	Minister	
Hon. N Goagoses	MURD	Deputy Minister	
Mr N Daniel	MURD	Executive Director	
Mr Uyepa	MURD	Director – Planning	
Hon. E Endjala	ORC	Governor	
Hon. A Shintama	ORC	Chairperson, ORC	
Mr G Kashindi	ORC	Chief Regional Officer, ORC	
Mr A Shaningwa	ORC	Director: Development, ORC	BID
Hon. E Mashina	RTC	Mayor	
Hon. S Seblon	RTC	Chairperson, Management RTC	
Mr. M lileka	RTC	Chief Executive Officer (Acting)	BID
Mr S. Shilumbu	RTC	Manager – Technical Services	BID
Dr. E Ndalikokule	NHC	Director, NHC	
Ms Meggy Shino	MME	Petroleum Commissioner	
Ms E Lumbu	Roads Authority	Road Legislation & Compliance	

BIDs were only made available to the official as indicated in the Table above either by email or through social media.

4. REGISTERED IAPS

Only five entities or individuals called and asked to be formally registered for the EIA as IAPs and their motives were primarily to find out more about the brick project, about the promoter, whether it was a foreigner or local based promoter and implementation essentially scouting for business opportunities.

The names and contact details of the registered IAPs are listed below in **Table 3**: All IAPs have expressed the need for good quality bricks which meet the local building standards since all bricks used in GRN funded projects in the town of Ruacana and the regions of Kunene and Omusati were sourced from one bigger producer who is based at Ondangwa.

Table 3: Registered IAPs

Name/Company	Representative	Contact Details
Ongaka Slates Enterprises	Mr Theo Ekandjo	theo@iway.na
Mavinga Trading Enterprises	Mr Fabianus Paulus	mavingatrading@gmail.com
Khumalo Paint Works	Mr Elias Mupandeni	kpaintworx@gmail.com
Africa Today Building Supplies	Mr A Handunge	Tjipena25@gmail.com
Ongete Stones	Mr Ben Hilukwa	ongetestones@gmail.com

5. PUBLIC MEETING

A public meeting was held as advertised in the newspapers listed in **Table 1**. Since most people in the vicinity of the project site do not have access to newspapers, a decision was made to have the EIA meeting announced on the local NBC Radio by the Constituency Councilor for the Ruacana Constituency, Hon Andreas Shintama. The announcement was aired on Friday, 19 November 2021, a day before the EIA meeting, held on Saturday 20 November 2021 at the project site. The names of those who attended is as per the attendance list attached to this report. Photos of the meeting are also presented in **Fig. 2**.

5.1 Questions Raised at the Meeting

Most questions asked by the meeting participants were focused more on the finished products and the manufacturing process rather than on those environmental aspects that are likely to have negative impacts:

How are the clay bricks made?

Where is the clay coming from?

Who owns the brick factory?

Are clay bricks better than cement bricks

Will the clay bricks be cheaper than cement bricks?

Will the clay bricks be same as those used in Angola – perforated hollow blocks?

How people will be employed?

Can prospective job seekers be registered already?

5.2 Answers to these questions

All questions were adequately addressed to the meeting participants by the EIA Consultant.

6. EIA NOTICE AT THE SITE

One EIA Notice was affixed on the fencing pole of Ongaka Slates Processing Facility - the neighbouring property to the north of the allocated site as depicted in **Fig. 1**, below.

Figure 1: Public Notice at the Project Site



Figure 2: Participants at the EIA Meeting



EKWAO CONSULTING CC

RUACANA





Public Information Sharing Meeting for the EIA being Conducted for OneBrik Pty Ltd

Date: 20 November 2021

Time: 17h00

Place: Project Site, Cnr C35 & C46 Highways, Ruacana Townlands, Ruacana

ATTENDANCE REGISTRY

Names	Organisation	Contact No.	Email	Signature
Joel Srafoshike	Ekwao	0811273027	ekwao@iwingine	
Dina Shonena	Ongaka	0814122410		
Mttheo Ekanjio	Ongaka	0812483307	theo@iwingine	
Amin Ushini	-	0812912465		
Elias Murgandeni	-			
Nestor korrad	-	0816210221		

DAVID MICHAEL RUACANA

ASINO MATIAS RUACANA

②

SELMA LITA	Oshiro	081 211 2467	-	She
Maha Shiponeni	Oshiro	081 739 6174	-	Makuripi
Asser Ansofo	-	081 299 7126	-	AA
Vano Shindume	Ruacana	081 277 5176	-	Shindume
Mina Shilongo	Ruacana	081 392 9357	-	M. Sulongo
Aina Katali	"	081 -	-	
LIT NDESHAKEVA	Ruacana	081 1279 954	-	Lindaka
Helena Helando	Oshiro	081 285 5697	-	Handa
Rosa Maria Filiguo	"	081 270 3280	-	R. Filiguo
Indra Johannes	Ruacana	081 261 0745	-	-

NOTICE**OKONGO VILLAGE COUNCIL**

CLOSURE OF ERF 345, OKONGO PROPER AS A PUBLIC OPEN SPACE (± 86 884m²) IN EXTENT AND WILL BE SOLD FOR THE DEVELOPMENT OF A MIXED-USE RESIDENTIAL DEVELOPMENT:

Notice is hereby given in terms of Section No.127 of the Urban and Regional Planning Act, 2018 (Act No. 5 of 2018), as amended that the Okongo Village Council proposes to permanently close the under-mentioned portion as indicated on the locality plan, which lies for inspection during office hours at the office of the Okongo Village Council. The purpose of the closure is to allow the proposed new owner to develop a mixed-use Residential development on Erf 345, Okongo Proper.

CLOSURE OF ERF 345, OKONGO PROPER AS A PUBLIC OPEN SPACE (± 86 884m²) IN EXTENT AND WILL BE SOLD FOR THE DEVELOPMENT OF A MIXED-USE RESIDENTIAL DEVELOPMENT:

Objections to the proposed closure are to be served on the Secretary: Urban and Rural Planning Board, Private Bag 13289, and the Chief Executive Officer, Private Bag 96003, Okongo, within 14 days of the appearance of this notice in accordance Section No.127 of the Urban and Regional Planning Act, 2018 (Act No. 5 of 2018), as amended.

V. NATHILE
ACTING CHIEF EXECUTIVE OFFICER

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PUBLIC NOTICE**ENVIRONMENTAL IMPACT ASSESSMENT (EIA)**

Notice is hereby given that an application for Environmental Clearance Certificate (ECC) will be made to the Ministry of Environment, Forestry & Tourism (MEFT) in terms of the Environmental Management Act (Act 7 of 2007) and applicable Regulations with respect to the following listed activity:

ACTIVITY: Factory for the manufacturing of construction materials for use in the built environment (clay face bricks, clay stock bricks, clay roofing tiles, clay paving, clay piping, etc.).

LOCATION : The factory is to be built on land located along the C35 tar road just behind Ongaka Slates in the Townlands of Ruacana Town Council, Omusati Region.

PROPONENT : OneBrik PTY Ltd

PUBLIC MEETING: A **PUBLIC INFORMATION SHARING MEETING** will be held at the site (open area behind Ongaka Slates) on Saturday, 20 November 2021 from 12h00. Further announcement will be made through the local NBC Radio via the Office of the Ruacana Constituency Councillor. A Background Information Document (BID) is available upon inquiry.

CLOSING DATE: 14 January 2022.

EIA CONSULTANT:
Ekwa Consulting
4350 Lommel Street, Ongwediva
Cell: 081 418 3125
Fax: 088 645 026
Email: ekwao@iway.na

Ekwa
Consulting



**NOTICE TO ALL INTERESTED AND
AFFECTED PARTIES**

**ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT FOR THE
EXPLORATION ACTIVITIES OF BASE AND RARE METALS,
DIMENSION STONE AND PRECIOUS METALS ON EXCLUSIVE
PROSPECTING LICENSE(EPL) 7125, OUTJO, KUNENE
REGION.**

Notice is hereby served to inform all potentially Interested and/or Affected Parties that an application will be made to the Environmental Commissioner in terms of Environmental Management Act (No. 7 of 2007) and the Environmental Assessment Regulations (2012) for the following intended activity:

Proponent: Calculus Commodities (Pty) Ltd

Project Name: Exploration activities of base and rare metals, dimension stone and precious metals on EPL 7125, Outjo, Kunene region.

Project Location: EPL 7125, Outjo, Kunene region

Environmental Consultant: Green Team Consultants has been appointed by Calculus Commodities (Pty) Ltd as an independent environmental practitioner to conduct an Environmental Impact Assessment for the exploration activities of base and rare metals, dimension stone and precious metals on EPL 7125, Outjo, Kunene region. **Schedule of public meeting is as follow:**

Date: 27th November 2021

Time: 10:30 AM

Venue: Gelbingen Lodge, Kamanjab

All Interested and Affected Parties (I&APs) are encouraged to register with this study. Submit all issues, comments and opinions before 30th November 2021.

Contact person: Sakaria H Nalusha
Tel: +264 85 225600
Email: geo@grncons.com

NOTICE

Take notice that **HARMONIC TOWN PLANNING CONSULTANTS CC, TOWN AND REGIONAL PLANNERS**, on behalf of the owner of the respective Erf, intends to apply to the **Divundu Village Council and the Urban and Regional Planning Board** for the:

- **Amendment of Title Conditions of Erf 509 from "Industrial" to "Business".**

Erf No. 509 Extension 2, Divundu measures approximately ± 4 631 m² in extent. The owners of Erf No. 509 Extension 2, Divundu intend to change the title conditions of their Erf for the purposes of a shopping mall development. Additionally, parking to the development will be provided in accordance with the requirements of the Divundu Village Council.

Further take notice that the plan of the Erf lies for inspection on the town planning notice board at the **Divundu Village Council** and at **Harmonic Town Planning Offices, 76B Pasteur Street, Windhoek West.**

Further take notice that any person objecting to the proposed use of the land as set out above may lodge such objection together with the grounds thereof, with the **Divundu Village Council** and with the Applicant in writing within 14 days of the last publication of this notice (**final date for objections is Friday, 03 December 2021**).



Contact: Harold Kisting
**Harmonic Town Planning
Consultants CC**
Town and Regional Planners
P.O. Box 3216 Windhoek
Cell 081 127 5879
Fax 088646401
Email: hkisting@namibnet.com

PUBLIC NOTICE

**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED DRYLAND TRUCKPORT PROJECT
DEVELOPMENT AT LISELO COMMUNAL AREA IN ZAMBEZI REGION**

Notice is hereby given to all Interested and Affected Parties (I & APs) that an application will be made to the Environmental Commissioner in terms of Environmental Management Act (No. 7 of 2007) and its Regulation (2012) for the following intended activity

Project Name: DRYLAND TRUCK PORT

Project Location: Liselo Communal Area, Zambezi region

Proponent: TRANS ZAMBEZI TRUCKPORT & INVESTMENT CC

Project Description: The Proposed project entails the proposed development and establishment of a truck port (Long distance truck resting place) in Liselo Communal Area on a 9.8 Hectare.

Consultant: NYEPEZ Consultancy cc

All Interested and Affected Parties (I & APs) are encouraged to register and raise concerns or provide comments and opinions on or before 20 December 2021. Background Information Document (BID) document will be provided upon indication as an I&AP. A public meeting will be held only if there is sufficient public interest

Public Consultation meeting date: 16 December 2021

Venue: Liselo area (Sub-khuta) @ 10h00-12h00

Should you wish to register as I & AP, please contact the NYEPEZ CC CONSULTANT.

Cell: +264814554221 /+264812317252

Email: gsinyepe@yahoo.co.uk



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Tel: (061) 2080844 Fax: (061) 220584 Email: Classifieds@nepc.com.na

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PUBLIC PARTICIPATION NOTICE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE ONGOING EXPLORATION AND PROPOSED SMALL-SCALE MINING ACTIVITIES ON EPL 6691, LÜDERITZ DISTRICT, KHARAS REGION

Notice is hereby given to all Interested and Affected Parties (I&APs), that an application for an Environmental Clearance Certificate will be submitted to the Competent Authority and the Ministry of Environment, Forestry and Tourism (MEFT) for the following activities.

Project title: Ongoing exploration and small-scale mining activities on EPL 6691.

Project location: Twyfeskuppe, Lüderitz District, Kararas region

Proponent: Borya Exploration (Pty) Ltd

Description: The proponent intends to continue with exploration activities and commence with the small-scale mining activities of base and rare metals, dimension stones, industrial minerals, precious metals, precious stones, and semi-precious stones. In terms of the Environmental Management Act 07 of 2007, the intended activities cannot be undertaken without an EIA study being carried out.

I&APs are hereby invited to register, request the Background Information Document (BID), attend the public meeting, and submit comments/inputs to eia@greengain.com.na. The last day to submit inputs is 03 December 2021.

The public and stakeholder meeting is scheduled as follows

Venue: Barnhof Conference Center, Aus.

Date: Friday, 19 November 2021

Time: 10:30

For more information
Call: +264 81 1422927 or +264 81 3380114
<http://www.greengain.com.na>

PUBLIC PARTICIPATION NOTICE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE ONGOING EXPLORATION AND PROPOSED SMALL-SCALE MINING ACTIVITIES ON EPL 6691, LÜDERITZ DISTRICT, KHARAS REGION

Notice is hereby given to all Interested and Affected Parties (I&APs) that an application for the Environmental Clearance Certificate will be submitted to the Environmental Commissioner for the following activities.

Project title: Establishment of a new Cemetery in Lüderitz

Proponent: Lüderitz Town Council

EAP: Green Gain Environmental Consultants cc

Background: The town of Lüderitz is served with three cemeteries; one has already reached its maximum capacity while the remaining two are also about to reach maximum capacity. Hence, the Town Council has identified two alternative sites within its townlands for the establishment of a new cemetery. In terms of the Environmental Management Act, No. 07 of 2007 and the EIA Regulations (GN No. 6 of 6 February 2012) the intended activities cannot be undertaken without an EIA study being carried out.

I&APs are hereby invited to register, request for the Background Information Document (BID), and send their comments to eia@greengain.com.na on or before 03 December 2021.

The public meeting is scheduled as follows:

Date: Thursday, 18 November 2021

Venue: Lüderitz Secondary School

Time: 16:30

For further information
Call: +264 81 142 2927
Email: info@greengain.com.na
<http://www.greengain.com.na>

• CHANGE OF SURNAME •

THE ALIENS ACT, 1937
NOTICE OF INTENTION
OF CHANGE OF SURNAME

I, (1) MR. JOMOSON HKELWA KAMHO SHAFUOLI residing at OHAKWEENYANGA VILLAGE, OSHANA REGION and carrying on business / employed, a (2) SELF-EMPLOYED BUSINESSMAN intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to change the name of the name(s) (4) JOMOSON HKELWA KAMHO SHAFUOLI. I intend also applying for authority to change the surname of my wife and minor children) SHAFUOLI JOHNSON TANGI, 21/4/2012 SHAFUOLI ELVIS MEKONDJO, 26/11/2013 SHAFUOLI DION LUMBILEM, 21/11/2016 SHAFUOLI EVA NELAO MERCY, 1/9/2020 SHAFUOLI GERTRUDE PAPAELI, 18/8/2016 SHAFUOLI MARTH TUVENIKELAO, 22/7/2017 to KAMHO. Any person who objects to my/our assumption of the said surname of KAMHO should as soon as possible lodge his/her objections, in writing, with a statement of his/her reasons therefor, with the magistrate of

WINDHOEK
2 NOVEMBER 2021

REPUBLIC OF NAMIBIA
MINISTRY OF TRADE & INDUSTRY LIQUOR ACT, 1998
NOTICE OF APPLICATION TO A COMMITTEE IN TERMS OF THE LIQUOR ACT, 1998 (regulations 14, 26 & 33)

Notice is given that an application in terms of the Liquor Act, 1998, particulars of which appear below, will be made to the Registrar of Liquor Licences

KAVANGO

1. Name and postal address of applicant:
MARIA M. E. SAMAHINA
PO BOX 657,
RUNDU NAMIBIA

2. Name of business or proposed business to which applicant relates:
DONKERHOEK MINI SHEBEN

3. Address/Location of premises to which application relates:
ERF 1008 AT DONKERHOEK, RUNDU CENTRAL

4. Nature and details of application:
SHEBEN LIQUOR LICENCE OFFICE

5. Date on which application will be lodged:
09 FEBRUARY 2022

6. Date of meeting of Committee at which application will be heard:
29 DECEMBER 2021

7. Date of meeting of Committee at which objection will be heard:
09 FEBRUARY 2022

Any objection or written submission in terms of section 28 of the Act in relation to the applicant must be sent or delivered to the Secretary of the Committee to reach the Secretary not less than 21 days before the date of the meeting of the Committee at which the application will be heard.

WINDHOEK
28 OCTOBER 2021

NOTICE OF LOST LAND TITLE NO. 513

Notice is hereby given that We, V T VAN WYK ATTORNEYS, intent to apply for a certified copy of:

CERTAIN:
PORTION 2 OF THE FARM HEITZWASIES WEST NO. 513 MEASURING: 1250,0040 (ONE TWO FIVE NIL COMMA NIL NIL FOUR NIL) HECTARES SITUATE: IN THE REGISTRATION DIVISION "M" HARDAP REGION DATED: 30 AUGUST 1993

THE PROPERTY OF: WILBUR OKKIE IZAAKS

ALL PERSONS WHO OBJECT TO THE ISSUE OF SUCH COPY ARE HEREBY REQUIRED TO LODGE THEIR OBJECTIONS WITH THE REGISTRAR WITHIN THREE WEEKS FROM THE LAST PUBLICATION OF THIS NOTICE.

DATED AT REHOBOTH THIS 9 NOVEMBER 2021.

NOTICE TO CREDITORS AND DEBTORS IN DECEASED ESTATES

Estate of the Late: **JAN HENDRIK CORNELIUS THERON**
Estate Number: **E 3211/2021**
Date of Birth: **21 APRIL 1937**
Date of Death: **3 AUGUST 2020**
Last Address: **ERF NO. REHOBOTH A 219**

All persons having claims against the estate specified above, are called upon to lodge their claims with the Executor concerned within a period of 30 (thirty) days from the date of publication hereof.

W I L H E L M I N A M A R I A THERON
Agent for Executrix
V T VAN WYK ATTORNEYS
Hebron House
Plot 129, Block A
P O Box 4953
Rehoboth
Tel: 062-523337

• CHANGE OF SURNAME •

THE ALIENS ACT, 1937
NOTICE OF INTENTION
OF CHANGE OF SURNAME

I, (1) HIJAKAERE UNOMBURO DINA residing at OTJOMUSE EXT 2, VIENNA STREET, ERF 206 and carrying on business / employed, a (2) CLEANER intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume the surname for the reasons that (3) MY SURNAME WAS MISPELLED AND MY ID HAS A DIFFERENT SPELLING WITH J. HIJAKAERE. I previously bore the name(s) (4) HIJAKAERE UNOMBURO DINA. I intend also applying for authority to change the surname of my wife and minor children) NIA to: HIJAKAERE. Any person who objects to my/our assumption of the said surname of HIJAKAERE should as soon as possible lodge his/her objections, in writing, with a statement of his/her reasons therefor, with the magistrate of

WINDHOEK
28 OCTOBER 2021

• CHANGE OF SURNAME •

THE ALIENS ACT, 1937
NOTICE OF INTENTION
OF CHANGE OF SURNAME

I, (1) JOSEPHINA KATUSHI residing at DIKANGO NO.2 OSHANA REGION and carrying on business / employed a (2) UNEMPLOYED intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume the surname KAMUTUFE for the reasons that (3) MY SURNAME WAS WRONGLY SPELLED AS KATUSHI. I previously bore the name(s)(4) NIA. I intend also applying for authority to change the surname of my wife and minor children) to NIA. Any person who objects to my/our assumption of the said surname of KAMUTUFE should as soon as possible lodge his/her objections, in writing, with a statement of his/her reasons therefor, with the magistrate of

WINDHOEK
12 OCTOBER 2021

PUBLIC NOTICE ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Notice is hereby given that an application for Environmental Clearance Certificate (ECC) will be made to the Ministry of Environment, Forestry & Tourism (MEFT) in terms of the Environmental Management Act (Act 7 of 2007) and applicable Regulations with respect to the following listed activity:

ACTIVITY:
Factory for the manufacturing of construction materials for use in the built environment (clay face bricks, clay roofing tiles, clay pipes, etc.).

LOCATION :
The factory will be built on land located along C35 tar road just behind Ongaka Slates Processing Ruacana Townlands Ruacana, Omusati Region

PROONENT:
OneBrik Pty Ltd

PUBLIC MEETING:

A public information sharing meeting will be held at the site on Saturday, 20 November 2021 from 12h00. Further announcement will be made through the local NBC Radio via the Office of the Constituency Councillor. A Background Information Document (BID) is available upon inquiry.

CLOSING DATE:
14 January 2022

EIA CONSULTANT:
Ekwao Consulting
4350 Lommel Street,
Ongwediva
Cell: 081 418 3125
Fax: 088 645 026
Email: ekwao@iway.na

Ekwao Consulting

NOTICE OF SALE IN EXECUTION OF MOVABLE PROPERTY IN THE HIGH COURT OF NAMIBIA (MAIN DIVISION) CASE NO: HC-MD-CIV-ACT-CON-2021/02439

In the matter between:
TECHDIAGNOSTICS SOLUTIONS CC PLAINTIFF
and
ONDANGWA PRIVATE HOSPITAL (PROPRIETARY) LIMITED DEFENDANT

NOTICE OF SALE IN EXECUTION OF MOVABLE PROPERTY

BE PLEASED TO TAKE NOTICE THAT the under-mentioned asset, in execution of a Judgment granted on 16 August 2021 against the Defendant, will be sold in execution by the Deputy Sheriff for the district ONDANGWA, on T HURS DA Y , 18 NOVEMBER 2021 at 12:00 at ADVANCED REFRIGERATION, MAIN ROAD, OSHAKATI:

1X ISUZU BAKKIE (N 123-732 W)

TERMS: VOETSTOOTS AND CASH TO THE HIGHEST BIDDER.

DATED AT WINDHOEK on this 26th day of OCTOBER 2021.

JERMAINE MUCHALI ATTORNEYS
LEGAL PRACTITIONERS FOR THE PLAINTIFF
PER: J. MUCHALI
11 STRAUSS STREET WINDHOEK-WEST WINDHOEK (REF: MAT08/JM/21)

TO:
THE REGISTRAR OF THE HIGH COURT OF NAMIBIA
Judge J P Karuaithe Street WINDHOEK, NAMIBIA

Employment Offered

Namibia Serenity Industrial and Trading cc

We are looking for a **Store Manager**; He/She must have at least 4 years store management working experience, well management and leading skills, computer literacy. The applicant who can both speak English and Chinese is preferable.

Please send CVs to: ambler@126.com

Closing date:
15 Nov. 2021

PUBLIC NOTICE ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED DRYLAND TRUCKPORT PROJECT DEVELOPMENT AT LISELO COMMUNAL AREA IN ZAMBEZI REGION

Notice is hereby given to all Interested and Affected Parties (I & APs) that an application will be made to the Environmental Commissioner in terms of Environmental Management Act (No. 7 of 2007) and its Regulation (2012) for the following intended activity

Project Name: DRYLAND TRUCK PORT
Project Location: Liselo Communal Area, Zambezi region
Proponent: TRANS ZAMBEZI TRUCKPORT & INVESTMENT CC

Project Description: The Proposed project entails the proposed development and establishment of truck port (Long distance truck resting place) in Liselo Communal Area on a 9.8 Hectare.

Consultant: NYEPEZ Consultancy cc

All Interested and Affected Parties (I & APs) are encouraged to register and raise concerns or provide comments and opinions on or before 20 December 2021. Background Information Document (BID) document will be provided upon indication as an I&AP. A public meeting will be held only if there is sufficient public interest

Public Consultation meeting date: 16 December 2021
Venue: Liselo area (Sub-khuta) @ 10h00-12h00

Should you wish to register as I & AP, please contact the NYEPEZ CC CONSULTANT, Cell: +2648 14554221 /+264812317252
Email: ginyepe@yahoo.co.uk

NYEPEZ CONSULTANCY CC

Employment Offered

VACANCIES

D AND H MEDICAL CLINIC

Looking for:
+ 2 General Practitioners to be based in Ongwediva and Grootfontein

Requirements:
- HPCNA
- 5 Years' Experience

Email to: dnhmedicalclinic@gmail.com

Contact 0814508902 / 0811473387
Closing date:
26 November 2021

Vacancy for a Commercial Helicopter Pilot

Namibia Helicopter Services is looking for a commercial helicopter pilot with

1. Current valid CPL license,
2. Minimum of 300 hours turbine time
3. Current Class 1 medical certificate
4. Current 407 type rating
5. Current 206 type rating
6. Current Dangerous Goods certificate
7. Salary - experienced related

Closing date: 05 November 2021

Only shortlisted candidates will be contacted.
Email CV to: ops@nhs.na

SHACMAN INVESTMENT NAMIBIA CC

Position:
Spare Parts Stock Control Manager x 1
Station: Walvis Bay

Requirements:

1. Six to Eight years in related experience
2. Proficiency in English and Chinese
3. Working Knowledge of Guanjiapo Auto Parts & Repair Management software system
4. BSc In Logistics , Business Administration or relevant field
5. Good communication skills

Key Responsibility :
Tracking shipments, overseeing inventory audits and maintaining reports of purchases and pricing. To be successful in this role, you should have good communication skills in Chinese to interact with the Chinese speaking vendors ,clients and management.

Only short -listed candidates with required experience will be contacted for interviews.

Email resume to shacmanafica03@gmail.com

Closing date:
19th November 2021

Ekwao Consulting

Classifieds

Contact: Mandy

• T: 061 24 6136 • C: 081 895 8296 • E: mandy@confidentenamibia.com

PUBLIC PARTICIPATION NOTICE
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE ESTABLISHMENT OF A NEW CEMETERY IN LÜDERITZ, IKHARAS REGION.

Notice is hereby given to all Interested and Affected Parties (I&APs) that an application for the Environmental Clearance Certificate will be submitted to the Environmental Commissioner for the following activities.

Project title: Establishment of a new Cemetery in Lüderitz
Proponent: Lüderitz Town Council
EAP: Green Gain Environmental Consultants cc

Background: The town of Lüderitz is served with three cemeteries; one has already reached its maximum capacity while the remaining two are also about to reach maximum capacity. Hence, the Town Council has identified two alternative sites within its townlands for the establishment of a new cemetery. In terms of the Environmental Management Act, No. 07 of 2007 and the EIA Regulations (GN No. 30 of 6 February 2012) the intended activities cannot be undertaken without an EIA study being carried out.

I&APs are hereby invited to register, request for the Background Information Document (BID), and send their comments to eia@greengain.com.na on or before **03 December 2021**.

The public meeting is scheduled as follows:
Date: Thursday, 18 November 2021
Venue: Lüderitz Secondary School
Time: 16:30

For further information
 +264 81 142 2927
info@greengain.com.na
<https://www.greengain.com.na>




PUBLIC PARTICIPATION NOTICE
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE ONGOING EXPLORATION AND PROPOSED SMALL-SCALE MINING ACTIVITIES ON EPL 6691, LÜDERITZ DISTRICT, KHARAS REGION

Notice is hereby given to all Interested and Affected Parties (I&APs), that an application for an Environmental Clearance Certificate will be submitted to the Competent Authority and the Ministry of Environment, Forestry and Tourism (MEFT) for the following activities.

Project title: Ongoing exploration and small-scale mining activities on EPL 6691.
Project location: Twyfelskuppe, Lüderitz District, Kharas region
Proponent: Bonya Exploration (Pty) Ltd.

Description: The proponent intends to continue with exploration activities and commence with the small-scale mining activities of base and rare metals, dimension stones, industrial minerals, precious metals, precious stones, and semi-precious stones. In terms of the Environmental Management Act 07 of 2007, the intended activities cannot be undertaken without an EIA study being carried out.


I&APs are hereby invited to register, request the Background Information Document (BID), attend the public meeting, and submit comments/inputs to eia@greengain.com.na **The last day to submit inputs is 03 December 2021.**

The public and stakeholder meeting is scheduled as follows
Venue: Bahnhof Conference Center, Aus.
Date: Friday, 19 November 2021
Time: 10:30


For more Information
 Cell: +264 811422927 or +26481 3380114
<http://www.greengain.com.na>



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PUBLIC NOTICE

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Notice is hereby given that an application for Environmental Clearance Certificate (ECC) will be made to the Ministry of Environment, Forestry & Tourism (MEFT) in terms of the Environmental Management Act (Act 7 of 2007) and applicable Regulations with respect to the following listed activity:

ACTIVITY: Factory for the manufacturing of construction materials for use in the built environment (clay face bricks, clay roofing tiles, clay paving, clay piping, etc.).


LOCATION: The factory will be along C35 tar road, just behind Ongaka Slate Processing Facility, Ruacana Townlands, Ruacana, Omasati Region.

PROponent: OneBrik PTY Ltd

PUBLIC MEETING: A **PUBLIC INFORMATION SHARING MEETING** will be held at the proposed site on Saturday, 20 November 2021 from 12h00. Further announcement will be made through the local NBC Radio via the Office of the Constituency Councilor. A Background Information Document (BID) is available upon inquiry.

CLOSING DATE: 14 January 2022

EIA CONSULTANT:
 Ekwao Consulting
 4350 Lommel Street, Ongwediva
 Cell: 081 418 3125
 Fax: 088 645 026
 Email: ekwao@iway.na



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Info@ondangwa-carhire.com

www.ondangwa-carhire.com

ADVERTISE YOUR

VACANCIES, TENDERS, LEGAL NOTICES, DEATH & FUNERAL NOTICES

0818958296



CLASSIFIEDS

Tel: (061) 2080844 Fax: (061) 220584 Email: Classifieds@nepc.com.na

Services

General

CLASSIFIEDS

Rates and Deadlines

- To avoid disappointment of an advertisement not appearing on the date you wish, please book timeously
- Classifieds smalls and notices: 12,00
- two working days prior to placing
- Cancellations and alterations: 16,00, two days before date of publication in writing only

Notices (VAT Inclusive)
 Legal Notice NS460,00
 Lost Land Title NS402,50
 Liquor License NS402,50
 Name Change NS402,50
 Birthdays from NS200,00
 Death Notices from NS200,00
 Tombstone Unwelling from NS200,00
 Thank You Messages from NS200,00
Terms and Conditions Apply.

Employment

Offered

ZAMBEZI PRIVATE SCHOOL

VACANCIES 2021

ZPS is looking for the following teachers Experienced, Energetic, Enthusiastic, Multitasked Team players with a love for children

- Sports Co-ordinator:** Cricket and Rugby including Tennis, basketball and volleyball expertise.
- Grade 0 Afrikaans speaking Class teacher
- Afrikaans Teacher Grade 4-7

Closing date for applications:
30 November 2021
zps@iway.na

ORAL HYGIENIST

Vacancy

Windhoek Orthodontic Practice

CVs to be forwarded to:
 hart2@oggie.com.na
 Closing date 25 Nov

PNOTICE TO CREDITORS AND DEBTORS IN DECEASED ESTATES

All persons having claims against the estate specified below, are called upon to lodge their claims with the executor concerned within a period of 30 days (or otherwise as indicated) from the date of publication hereof.

Registered number of Estate: E 959/2021
 Master's Office: Windhoek
 Surname: Ntesa
 First Names: Alfred Mowa
 Date of Birth: 24/07/1960
 ID Number: 6007240052
 Last Address:
 Erf 2075 Greenwell
 Katima Mulilo
 Date of Death: 20/04/2020

Authorized Agent:
 Isabella T Yakeya
 No 19 NDC Building,
 Maria Mwingere Street,
 Rundu
 Tel: 0812611797
 Advertiser and Address:
 Isabella Yakeya
 PO Box 3903 Rundu
 Date: 01 November 2021
 Tel: 0812611797
 (Isabella Yakeya)

Notice of publication in the Government Gazette on:
 19 November 2021

NOTICE TO CREDITORS AND DEBTORS IN DECEASED ESTATES

All persons having claims against the estate specified below, are called upon to lodge their claims with the executor concerned within a period of 30 days (or otherwise as indicated) from the date of publication hereof.

Registered number of Estate: E 2336/2021
 Master's Office: Windhoek
 Surname: Sheehama
 First Names: Jakobina
 Date of Birth: 02/04/1934
 ID Number: 38040200342
 Last Address: Oshakati East
 Date of Death: 09/11/2020

Authorized Agent:
 Isabella T Yakeya
 No 19 NDC Building, Maria Mwingere Street, Rundu
 Tel: 0812611797
 Advertiser and Address:
 Isabella Yakeya
 PO Box 3903 Rundu
 Date: 11 November 2021
 Tel: 0812611797
 (Isabella Yakeya)

Notice of publication in the Government Gazette on:

Notices

Legal Notices

• CHANGE OF SURNAME •

THE ALIENS ACT, 1937
 NOTICE OF INTENTION
 OF CHANGE OF SURNAME

I, (1) HIJAKAERE UNOBUIRO DINA residing at OTJOMUISE EXT 2, VIENNA STREET, ERF 208 and carrying on business / employed a (2) CLEANER intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume the surname for the reasons that (3) MY SURNAME WAS MISPELLED AND MY ID HAS A DIFFERENT SPELLING WITH J. HIJAKAERE. I previously bore the name(s) (4) HIJAKAERE UNOBUIRO DINA. I intend also applying for authority to change the surname of my wife and minor child(ren) NIA to HIJAKAERE. Any person who objects to my/our assumption of the said surname of HIJAKAERE should as soon as my be lodge his/her objection, in writing, with a statement of his/her reasons therefor, with the magistrate of

WINDHOEK
 28 OCTOBER 2021

• CHANGE OF SURNAME •

THE ALIENS ACT, 1937
 NOTICE OF INTENTION
 OF CHANGE OF SURNAME

I, (1) JOSEPHINA KATUSHI residing at OKANGO NO.2 OSHANA REGION and carrying on business / employed a (2) UNEMPLOYED intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume the surname KAMUTUFE for the reasons that (3) MY SURNAME WAS WRONGLY SPELLED AS KATUSHI. I previously bore the name(s) (4) NIA. I intend also applying for authority to change the surname of my wife and minor child(ren) to NIA. Any person who objects to my/our assumption of the said surname of KAMUTUFE should as soon as my be lodge his/her objection, in writing, with a statement of his/her reasons therefor, with the magistrate of

WINDHOEK
 12 OCTOBER 2021

• CHANGE OF SURNAME •

THE ALIENS ACT, 1937
 NOTICE OF INTENTION
 OF CHANGE OF SURNAME

I, (1) LINEA PEINGODJABI HAUFIKU residing at OKAKWA VILLAGE, OHANGWENA REGION and carrying on business / employed

NOTICE

Take notice that HARMONIC TOWN PLANNING CONSULTANTS CC, TOWN AND REGIONAL PLANNERS, on behalf of the owner of the respective Erf, intends to apply to the Divundu Village Council and the Urban and Regional Planning Board for the:

• Amendment of Title Conditions of Erf 509 from "Industrial" to "Business".

Erf No. 509 Extension 2, Divundu measures approximately ± 4 631 m² in extent. The owners of Erf No. 509 Extension 2, Divundu intend to change the title conditions of their Erf for the purposes of a shopping mall development. Additionally, parking to the development will be provided in accordance with the requirements of the Divundu Village Council.

Further take notice that the plan of the Erf lies for inspection on the town planning notice board at the Divundu Village Council and at Harmonic Town Planning Offices, 76B Pasteur Street, Windhoek West.

Further take notice that any person objecting to the proposed use of the land as set out above may lodge such objection together with the grounds thereof, with the Divundu Village Council and with the Applicant in writing within 14 days of the last publication of this notice (final date for objections is Friday, 03 December 2021).

Contact: Harold Kisting
 Harmonic Town Planning Consultants CC
 Town and Regional Planners
 P.O. Box 3216 Windhoek
 Cell 081 127 5879
 Fax 088646401
 Email: hkisting@namibnet.com



Notices

Legal Notices

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) NOTICE

Notice is hereby given that an application for an Environmental Clearance Certificate will be made to the Ministry of Environmental Forestry and Tourism in terms of the Environmental Management Act in order to undertake the following listed activity:

Activity:

Factory for the manufacturing of construction materials (clay bricks and roofing tiles) .

Location:

Along C35 tar road just behind Ongaka Slates Processing Facility, Ruacana Townlands, Omusati Region.

Proponent: OneBrik PTY Ltd

Public meeting

On 20 November 2021 at the site from 12h00. Further announcement to be made by the Constituency Councilor on the NBC Radio.

Closing Date : 14 January 2022

EIA Consultant:

Ekwao Consulting
 4350 Lommel Street, Ongwediva
 Cell: 081 418 3125
 Fax :00864 5026
 Email: ekwao@iway.na



a (2) PRIEST, CHAPLAIN, intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume the surname HAUFIKU-MUKETE for the reasons that (3) I GOT MARRIED AND WISH TO USE BOTH MY MAIDEN NAME AND THAT OF MY HUSBAND TOGETHER. I previously bore the name(s) (4) LINEA PEINGODJABI HAUFIKU. I intend also applying for authority to change the surname of myself NIA and minor child(ren) NIA (5) to HAUFIKU - MUKETE Any person who objects to my/our assumption of the said surname of HAUFIKU-MUKETE should as soon as my be lodge his/her objection, in writing, with a statement of his/her reasons therefor, with the magistrate of WINDHOEK

08 NOVEMBER 2021



Vacancy for a Commercial Helicopter Pilot

Namibia Helicopters is looking for a commercial helicopter pilot with

- Current valid CPL license.
- Minimum of 300 hours turbine time
- Current Class1 medical certificate
- Current 407 type rating
- Current 206 type rating
- Current Dangerous Goods certificate
- Salary - experienced related

Closing date:
 19 November 2021

Only shortlisted candidates will be contacted.

Email CV to:
 ops@nhs.na

Company:
 Dynacare diagnostic Laboratory
 (Otjozondjupa region)

Position:

MEDICAL LABORATORY TECHNOLOGIST/ SCIENTIST

Requirements:

- Registration with HPCNA.
- Relevant qualification in clinical pathology.
- Can work independently in all disciplines.
- Knowledge of Quality and Accreditation requirements
- Driver's licence

e-mail documents to:
 dynacarekh@gmail.com.