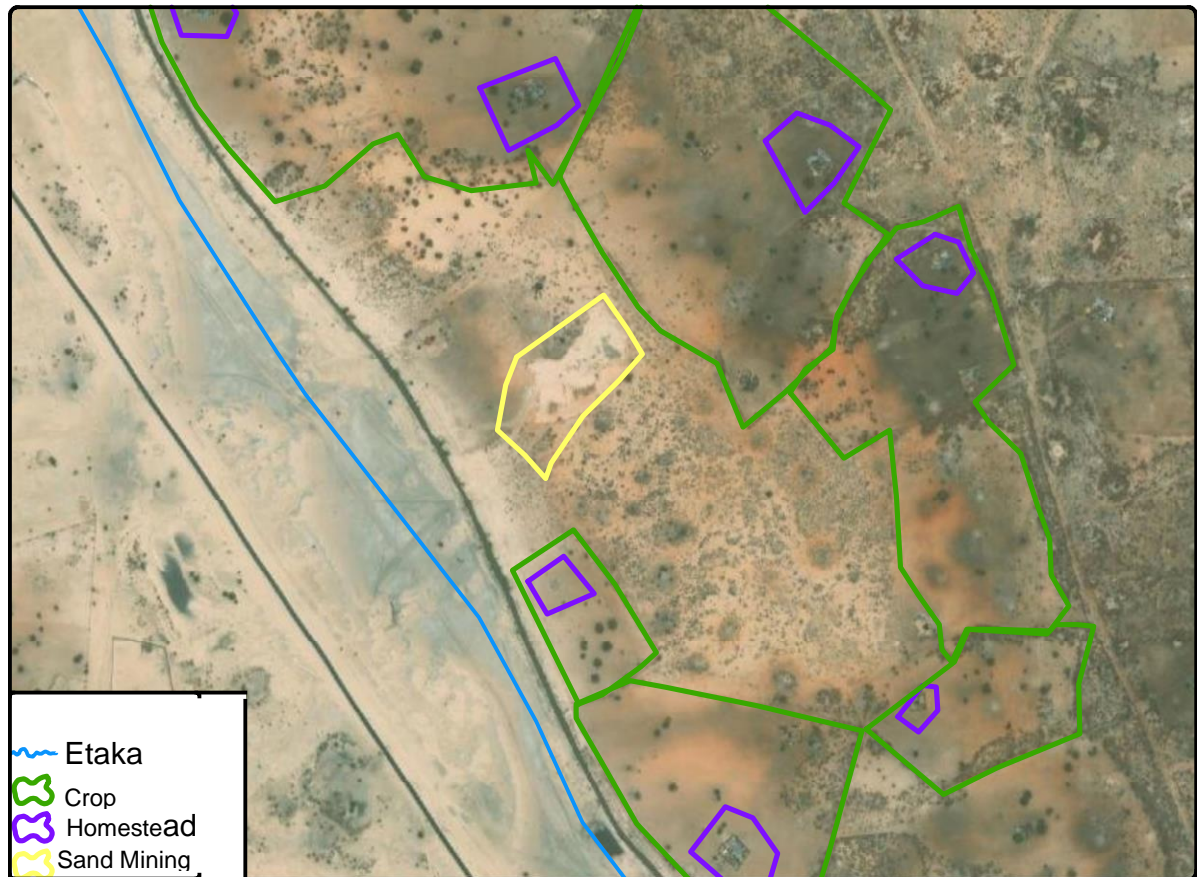


## ENVIRONMENTAL SCOPING REPORT (ESR)



Okathitukiiyambo Sand Mining Site

0 87 17 35 52 70 Meters

y	x	Site Name
15.0319		Okathituk

Scale: 1:7,000

## SAND MINING ACTIVITIES, FOR THE OKATHITUKIYAMBO VILLAGE, ONGANDJERA TRADITIONAL AUTHORITY, OMUSATI REGION




FEBRUARY 2021

+264 61 225 776 / +264 811 220 114

info@tec.com.na / www.tec.com.na

P.O.Box 35473, Kleine Kuppe, Windhoek

Unit 11, No 40, Elysium Fields Office Complex, Berg Street, Klein Windhoek, Namibia

<b>DOCUMENT INFORMATION</b>		
<b>Title</b>	Environmental Management Plan (EMP) for existing Sand Mining Activities	
<b>ECC Application Reference number</b>	APP-002376	
<b>Listed Activity</b>	Activity 3: Mining and Quarrying Activities  3.2 The Other forms of mining or extraction of any natural resources whether regulated by law or not.	
<b>Location</b>	Okathitukiiyambo, Omusati Region	
<b>Proponent</b>	Ongandjera Traditional Authority Contact person: Mr. Sakeus Amunyela POBOX: 2, Okahao, Namibia Mobile: +264 816021125	
<b>Author:</b>	<b>Signature</b>	<b>Date</b>
Mr. Helao Shipani (EAP) <sup>1</sup>		25 February 2021
<b>Reviewer:</b>		26 February 2021
Mr. Jonas Heita (EAP)		
<b>Copy Right:</b> <i>“This document is the intellectual property of TEC and may only be used for the intended purpose. Unauthorized use, duplication, plagiarism or copying without referencing is prohibited”</i>		
Office: +264 61 225 776 Mobile: +264 811 220 114 Email: info@tec.com.na Website: www.tec.com.na	 Tortoise Environmental Consultants (TEC) One Step @ a time	Unit 1B, Trift Place, 19 Schinz Street, Ausspannplatz Windhoek, Namibia

<sup>1</sup> EAP – Environmental Assessment Practitioner

## Executive Summary

Sand is an important element for township and village development (construction of roads, housing, landscaping, etc), and it is one of the key building blocks for socio-economic development, and hence sand mining is inevitable (cannot be avoided).

Socio-economic development is very important for our livelihood and provides services, income and employment opportunities, and hence activities such as sand mining are vital and necessary for development. However, such developmental activities should be conducted in a thoughtful and forward-looking manner. In other words, such developmental activities should consider the future land use after such activity has come to an end. Therefore, to ensure that the land remains valuable for other land uses in the future, rehabilitation should be part and parcel of such developmental activity right from the beginning and throughout the project lifespan.

The Environmental Management Plant (EMP) recommends mitigation measures in order to ensure that the recommended sand mining activities and associated activities are conducted in an environmentally friendly manner. Upon approval of the Environmental Clearance Certificate, the proponent (Ongandjera Traditional Authority) should comply with the Environmental Management Act of 2007 and EIA regulations of 2012 and adhere to the recommended mitigation and rehabilitation measures as prescribed in the Environmental Management Plant (EMP). Furthermore, the EMP outlines specific roles and responsibilities for the proponent (OTA and sub-contractors) and non-compliance is punishable.

The site has already been mined before with 1 ha already mined especially during the construction of the M123 gravel road between Okahao and Outapi, furthermore a test for good quality sand and gravel has been performed. The recommended sand mining area is 3 ha, and in order to limit environmental damages, it is recommended that borrow pit depth should only be as deep as necessary (the depth should depend on the depth of the required sand profile). In-principle, shallow borrow pit do not change the landscape significantly, they do not pose serious threats to the people and livestock and are much easier to rehabilitate (allows the natural process of sedimentation to take place as a natural rehabilitation phenomenon).

## ACRONYMS

BID	Background Information Document
DEA	Department of Environmental Affairs
DSR	Draft Scoping Report
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ECC	Environmental Clearance Certificate
ECO	Environmental Compliance Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act (No. 7 of 2007)
EMP	Environmental Management Plan
ESR	Environmental Scoping Report
I&APs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry and Tourism
PPE	Personal Protective Equipment
SM	Site Manager
TEC	Tortoise Environmental Consultancy

## Table of Contents

<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1. Terms of Reference.....	1
1.2. What is an EIA? .....	1
1.3. Demand for Sand .....	1
1.4. Sand Mining Rationale.....	1
1.5. Ongoing Sand Mining Activities and EIA Scope .....	1
1.6. EIA Process .....	2
1.6.1 Identification and Mitigation of Impacts .....	2
1.6.2 Purpose of the EIA Scoping Exercise .....	2
1.6.3 Rehabilitation .....	2
1.6.4 Scope and Purpose of this Report .....	2
1.6.5 Application for ECC .....	3
1.6.6 Environmental Assessment Practitioner .....	3
1.7. Alternatives Considered .....	3
1.8. Environment vs Economic Development.....	3
<b>2 PROJECT INFORMATION .....</b>	<b>4</b>
2.6 Project Location .....	4
2.7 Biodiversity and ecology of the area.....	4
2.7.1 Vegetation – Sand Mining Site.....	4
2.7.2 Wildlife .....	5
2.7.3 Climatic Conditions (rainfall and wind).....	5
<b>3 LEGAL and developmental FRAMEWORK .....</b>	<b>6</b>
3.6 Compliance to the EMP to the Environmental Management Act .....	6
3.7 Listed Activities.....	6
3.8 Additional Permits .....	7
3.9 Extended developmental and Legal Framework .....	7
<b>4 IMPACT ASSESSMENT METHODOLOGY .....</b>	<b>9</b>
4.1 Assessment of Impact Significance .....	9
4.2 Impact Assessment Criteria .....	9
4.3 Mitigation Measures.....	10
4.4 Mitigation Hierarchy.....	11
<b>5 ENVIRONMENTAL IMPACT ASSESSMENT .....</b>	<b>12</b>
5.1 Landscape Alteration.....	12
5.2 Access Roads.....	12

5.3	Borrow pit edges and steepness .....	13
5.4	Biodiversity (Fauna and Flora).....	13
5.5	Pollution: Noise and Dust.....	14
5.6	Oil Spills (Pollution) .....	14
5.7	Solid Waste Management .....	15
5.8	Socio-Economic Environment .....	15
4	<b>PUBLIC PARTICIPATION PROCESSES</b> .....	16
6.1	Local Authority Consultation .....	16
6.2	Public Meeting.....	16
6.3	COVID-19 Challenges .....	16
6.4	Comments.....	16
7	<b>CULTURAL HERITAGE</b> .....	17
7.1	Cultural Heritage – Legal Requirements .....	17
7.2	Archaeological Assessment Methodology .....	17
7.3	Cultural Heritage sites / artefacts within the Proposed Sand Mining Site 17	
7.4	Limitations .....	18
7.5	Recommendations .....	18
8	<b>REHABILITATION PLAN</b> .....	19
8.1	What is Rehabilitation?.....	19
8.2	Designing a Rehabilitation Plan.....	19
8.3	Rehabilitation Approach.....	Error! Bookmark not defined.
8.4	Recommended Measures.....	20
9	<b>CONCLUSION</b> .....	21
10	<b>References</b> .....	21
11	<b>APPENDICES</b> .....	21
7.1	I&AP Registration form.....	21
7.2	EAP CV.....	21

## FIGURES

Figure 2-1: Location of the sand mining borrow pit (existing) .....	4
Figure 2-2: Succulent Karro has high species richness & endemism.....	<b>Error!</b>
<b>Bookmark not defined.</b>	
Figure 2-3: Sand Mining Site comprises of kalahari sand and devoid of any vegetation.....	5
Figure 4-1.Mitigation Hierarchy .....	11

## TABLES

Table 3-1: Listed Activities triggered by the proposed project .....	6
Table 3-2: Policies, Plans and Strategies.....	7
Table 4-1: Assessment criteria for the evaluation of impacts .....	9



## 1. INTRODUCTION

---

### 1.1. Terms of Reference

This document is prepared as part of the Environmental Impact Assessment (EIA) and scoping exercise, aimed at obtaining an Environmental Clearance Certificate (ECC) for the proposed sand mining activities at Okathitukiiyambo village in the Okahao constituency of the Omusati region.

### 1.2. What is an EIA?

An Environmental Impact Assessment (EIA) is a tool to manage negative environmental impacts that may arise from the proposed development and is aimed at guiding the proposed activities to be more environmentally friendly and to comply with the provisions of the Environmental Management Act (Act No.7 of 2007).

The aim of the EIA is to reduce negative impacts (effects) and maximise positive impacts, through the adoption of best environmental practices and application of the precautionary principle

### 1.3. Demand for Sand

Like many other regions in Namibia, the region of Omusati of requires sand in-order to meet the demand for road network development and other developmental activities in the region. The proposed mining site is located within the Okathitukiiyambo village boundaries is located outside the town boundaries, and therefore on the outskirts of the current township infrastructure development (figure 2.1).

Pit location: GPS coordinates: Latitude: -17.50671 & Longitude: 15.01914

### 1.4. Sand Mining Rationale

To supply sand for:

- **Industrial:** Road upgrading and construction

### 1.5. Ongoing Sand Mining Activities and EIA Scope

The sand mining activity is already taking place and hence the scoping exercise is more of a remedial action to ensure compliance to the Environmental Management Act (Act No. 7 of 2207)



## **1.6. EIA Process**

An EIA is a systematic process of identifying, predicting, evaluating and mitigating the potential environmental and social effects that may arise from the activities of a proposed project.

### **1.6.1 Identification and Mitigation of Impacts**

The backbone of the EIA report entails identification of impacts (whether real or perceived) and recommendations on suitable mitigation measures to ensure compliance with the principles of environmental management and highlight risks and measures to ensure an environmentally friendly development.

### **1.6.2 Purpose of the EIA Scoping Exercise**

The purpose of this EIA scoping exercise is to:

- a) Provide description of the proposed activity;
- b) Describe the affected environment (proposed area),
- a) Identify potential environmental impacts / aspects of concern;
- b) Describe the methodology followed to assess the potential impacts;
- c) Mitigate negative impacts that may arise from the proposed project

### **1.6.3 Rehabilitation**

The EIA should not only focus on mitigating the impacts of the activity during the active operations but also should go further and recommend rehabilitation measures at project closure (when activities cease). Rehabilitation measures should not be parked waiting for project closure but should be implemented from the beginning and incrementally throughout the project lifespan.

### **1.6.4 Scope and Purpose of this Report**

The purpose of this report is to present the findings of the EIA for the proposed sand mining activities, as part of the application of the Environmental Clearance Certificate (ECC).

The environmental assessment has been undertaken in accordance with the requirements of the Environmental Management Act, 2007 and the EIA Regulations.

### **1.6.5 Application for ECC**

Upon completion, the EIA Scoping Report and Environmental Management Plan (EMP), will be submitted to the Environmental Commissioner in the Ministry of Environment, Forestry and Tourism (MET), for review and decision, in accordance with Section 8 of the EIA Regulations.

### **1.6.6 Environmental Assessment Practitioner**

Tortoise Environmental Consultants (TEC) has been appointed to carry out the requisite Environmental Impact Assessment (EIA) and develop an Environmental Management Plan (EMP).

## **1.7. Alternatives Considered**

As stipulated in the Environmental Management Act (EMA) and EIA regulations, alternatives should be considered during the project design, to determine if an alternative site (different locality) or alternative project (different activity) would yield better environmental and socio-economic benefits.

- The proposed sand mining site is within the Okathitukiiyambo village lands, comprising of deep kalahari sand and patches of small shrubs and bare land and hence, it is not highly sensitive to the proposed sand mining activities.

## **1.8. Environment vs Economic Development**

Namibia's economy is highly dependent on a healthy environment and striking a balance in meeting demands for economic development (e.g sand mining) and maintaining biological diversity can be a challenge. Therefore, the environment and development sectors should work together and identify synergies in order to ensure that natural resources are harvested in a sustainable manner.

Development takes place on land (in the environment) and hence the quest for economic development requires a trade-off with certain parts of the environment in-order for the development to be realized. Meaning, for development to take place, some part of the environment will be affected. However, such impacts should be mitigated through the EMP.

The aim of environmental assessments is to guide the sustainable utilization of natural resources and to mitigate negative impacts that would otherwise compromise the environmental integrity and future ecosystem benefits.

## 2 PROJECT INFORMATION

### 2.6 Project Location

The sand mining site is located within the village boundaries, on the outskirts of the current township infrastructure development (figure 2.1).

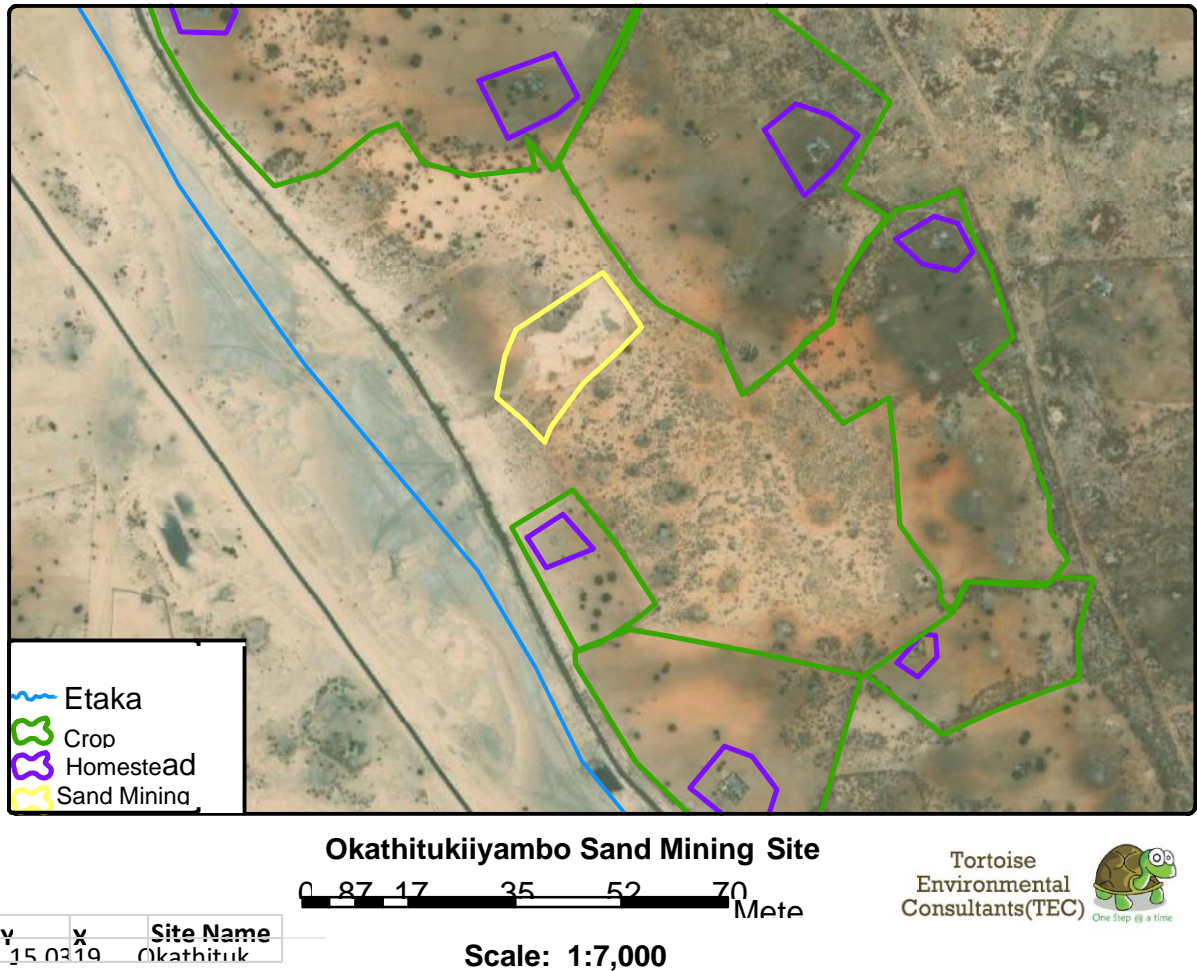


Figure 2-1: Location of the proposed sand mining site

### 2.7 Biodiversity and ecology of the area

#### 2.7.1 Vegetation – Sand Mining Site

There are few and scattered trees surrounding the mining site dominated by *Combretum collinum* and *Hyphaene Petersiana* (Palm Trees) species with shrubs and grass cover during the rainfall season. No trees shall be removed during the mining activities. (Figure 2.3).



Figure 2-2: Vegetation around sand mining site with patches of grass and shrubs.

### 2.7.2 Wildlife

Literature indicates that, large mammals such as kudu, springbok and duiker use to frequent the area, but due to changed land use over the years, which is presently crop production and livestock farming, these have since moved out of the area.

### 2.7.3 Climatic Conditions (rainfall and wind)

Okathitukiiyambo village falls within the broad-leafed savannah woodland, with highly variable summer (October-March) annual rainfall, 450-600mm and long dry spell during the winter months. The woodland savanna is characterized largely by sizeable woody trees canopy with sizeable shrubs layer, on a thick Kalahari sand deposit. Woody tree species in the area mainly include deciduous tree species such as *Terminalia Sericea*, *Colophospermum mopane*, *Boscia albitrunnga* and *Combretum collinum*.

The recommended sand mining area is 3 ha, with 1 ha already mined and in order to limit environmental damages, it is recommended that borrow pit depth should only be as deep as necessary (the depth should depend on the depth of the required sand profile). In-principle, shallow borrow pit do not change the landscape significantly, they do not pose serious threats to the people and livestock and are much easier to rehabilitate (allows the natural process of sedimentation to take place as a natural rehabilitation phenomenon).



### 3 LEGAL AND DEVELOPMENTAL FRAMEWORK

---

This chapter outlines the regulatory framework applicable to the proposed project. Table 2 provides an overview of applicable policies, plans and strategies and Table 3.1 provides a list of applicable national legislation.

#### 3.6 Compliance to the EMP to the Environmental Management Act

Section 27 of the Environmental Management Act 2007 (Act No. 7 of 2007) (EMA) provides a list of activities that may not be undertaken without an Environmental Clearance Certificate (ECC) (herein referred to as: listed activities). The proposed expansion of the hospital triggers the following listed activities.

The EMP should conform to the provisions of the Environmental Management Act (EMA), Act No. 7 of 2007 and EIA regulations of 2012 (Government Notice: 30).

The EIA Regulations defines a '*Management Plan*' as:

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

#### 3.7 Listed Activities

Listed Activities may not be undertaken without an Environmental Clearance Certificate (ECC), and hence an Environmental Impact Assessment (EIA) is required.

As the organ of state responsible for management and protection of its natural resources, the MET: DEA is committed to pursuing the principles of environmental management. The EMA provides a list of activities that require an EIA and the proposed sand mining is among the listed activities or activities that may not be conducted without at ECC. The purpose of listed activities for projects is to ensure that the associated impacts on the environment are carefully considered.

The proposed continuation of sand mining triggers a number of Listed Activities as set out in the Environmental Management Act, 2007 (Act No. 7 of 2007) (herein referred to as the EMA) and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) (herein referred to as the EIA Regulations).

*Table 3-1: Listed Activities triggered by the proposed project*

Activity	Applicability
<p>3. Mining and Quarrying Activities</p> <p>3.2 The Other forms of mining or extraction of any natural resources whether regulated by law or not.</p> <p>3.3 Resource extraction, manipulation, conservation and related activities</p>	<p>The project entails Sand Mining activities to support industrial and developmental activities in the Omusati region</p>

### 3.8 Additional Permits

Sand mining in river course requires permits from the Ministry of Agriculture, Water and Land Reform (MAWLR). However, this is not applicable here because the extraction of sand is not in the river course.

### 3.9 Extended developmental and Legal Framework

In addition to the EMA and the Environmental Assessment Policy, there exists a host of legal and policy documents and guidelines that must be considered when undertaking an EIA as indicated in table 3.2, below. The proponent has the responsibility to ensure that the sand mining operations conforms to all other National developmental plans and legal framework.

Table 3-2: Policies, Plans and Strategies

Policy / Plan	Relevance	Applicability to the Proposed Project
5th National Development Plan (NDP) and Vision 2030	Outlines the country's National Development Plans (NDPs), in line with the Harambee Prosperity Plan (HPP) and vision 2030	<p>The proposed project is a development that forms part of the bigger picture of achieving economic progression, social transformation and environmental sustainability.</p> <p>Agriculture as a pillar for social well-being, through food production, household income and improved livelihoods</p>

Table 3.2: Other Legal Instruments / National Statutes

National Statutes	Relevance	Applicability to the Proposed Project
Environmental Assessment Policy (1995)	Promotes Sustainable development and Environmental Conservation emphasize the importance of environmental assessments as a key tool towards environmental sustainability	Environmental Protection
Soil Conservation, 1969 (Act 76 of 1969) and the Soil Conservation Amendment Act (Act 38 of 1971)	Makes provision for the prevention and control of soil erosion	Monitor and apply the soil conservation mechanisms
Forest Act 12 of 2001 Forest Act Regulations 2015	To provide for the protection of the environment and the control and management of forest. Relevant sections: - Approval required for the clearance of vegetation on more than 15 hectares (Section 23, subsection 1 (b)).	Forestry permits maybe required for vegetation clearing
Public Health Act (Act No. 36 of 1919)	Advocates for Public Health and safety	Personal Protective Equipment (PPE)
The Occupational Safety and Health Act No. 11 of 2007	Advocates for employee and public safety, health	In the working context "SAFETY" implies "free from danger"
Local Authority Act No. 23 of 1992 Government Notice of No.116 of 1992.	Advocates for inclusive socio-economic development	Ensure communication and necessary approvals to township developmental activities
National Heritage Act, No. 27 of 2004.	The Act provides provision of the protection and conservation of places and objects with heritage significance.	No heritage features were observed within or around the site. Procedures and mitigation measures presented in the EMP should be applied



## 4 IMPACT ASSESSMENT METHODOLOGY

### 4.1 Assessment of Impact Significance

The significance of an impact is determined by considering and measuring the temporal and spatial scales and magnitude of the project and the specific activities associated with the project.

The assessment of the environmental impacts of development activities should strive to be objective and impartial at all times. However, environmental assessment processes can be exposed to subjectivity inherent in attempting to measure significance.

The determination of the significance of an impact depends on both the context (spatial and temporal scale) and intensity of that impact.

### 4.2 Impact Assessment Criteria

For each impact, the **EXTENT** (spatial scale), **MAGNITUDE** and **DURATION** will be described. These criteria would be used to ascertain the **SIGNIFICANCE** of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure/s in place. The mitigation described in the Scoping Report would represent the full range of plausible and pragmatic measures.

Table 4-1: Assessment criteria for the evaluation of impacts

CRITERIA	CATEGORY	DESCRIPTION
<b>Extent or spatial influence of impact</b>	<b>National</b>	Beyond a 20km radius of the site
	<b>Regional</b>	Within a 20 km radius of the site
	<b>Local</b>	Within a 2 km radius of the centre of the site
	<b>Site specific</b>	On site or within the boundaries of the property
<b>Magnitude of impact (at the indicated spatial scale)</b>	<b>High</b>	Natural and/ or social functions and/ or processes are <i>severely</i> altered
	<b>Medium</b>	Natural and/ or social functions and/ or processes are <i>notably</i> altered
	<b>Low</b>	Natural and/ or social functions and/ or processes are <i>slightly</i> altered
	<b>Very Low</b>	Natural and/ or social functions and/ or processes are <i>negligibly</i> altered

	<b>Zero</b>	Natural and/ or social functions and/ or processes remain <i>unaltered</i>
<b>Duration of impact</b>	<b>Zero</b>	Zero time
	<b>Short Term</b>	Up to 18 months
	<b>Medium Term</b>	0-5 years (after operation)
	<b>Long Term</b>	5- 10 years (after operation)
	<b>Permanent</b>	More than 10 years (after operation)
<b>Probability</b>	<b>Definite</b>	Estimated greater than 95 % chance of the impact occurring.
	<b>Very likely</b>	Estimated 50 to 95% chance of the impact occurring
	<b>Fairly likely</b>	Estimated 5 to 50 % chance of the impact occurring.
	<b>Unlikely</b>	Estimated less than 5 % chance of the impact occurring.
	<b>Zero</b>	Definitely no chance of occurrence
<b>Confidence</b>	<b>Certain</b>	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
	<b>Sure</b>	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
	<b>Unsure</b>	Limited useful information on and understanding of the environmental factors potentially influencing this impact.
<b>Reversibility</b>	<b>Irreversible</b>	The activity will lead to an impact that is permanent.
	<b>Reversible</b>	The impact is reversible, within a period of 10 years.

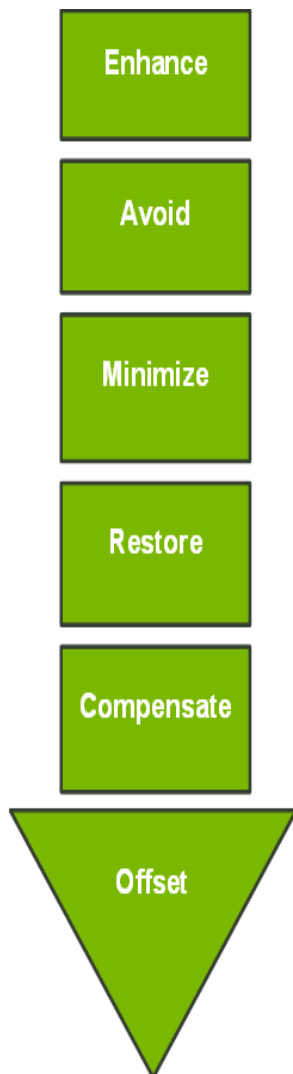
### 4.3 Mitigation Measures

For each impact assessed, mitigation measures should be identified to reduce and/ or avoid negative impacts. These mitigation measures are also incorporated in the Environmental Management Plan (EMP) to ensure that they are implemented throughout the lifespan of the proposed activity. The EMP forms part of the Scoping Report, and upon project approval, the implementation thereof, would become a binding requirement.

## 4.4 Mitigation Hierarchy

Actions to mitigate a potential impact can be done in a systematic manner as guided by what is referred to as Mitigation Hierarchy (Figure 4.1).

From the onset, the positive impacts of the proposed activity should be enhanced, however, where an impact is inevitable, the following sequence should be followed.



**Impact avoidance:** This step is most effective when applied at an early stage of project conceptualization and planning. It can be achieved by:

- Not undertaking certain projects or elements that could result in adverse impacts;
- Avoiding areas that are environmentally sensitive; and
- Putting in place preventative measures to stop adverse impacts from occurring.

**Impact minimisation:** This step is usually taken during impact identification and prediction to limit or reduce the degree, extent, magnitude, or duration of adverse impacts. It can be achieved by:

- Scaling down or relocating the proposal;
- Redesigning elements of the project; and
- Taking supplementary measures to manage the impacts.

**Impact compensation:** This step is usually applied to remedy unavoidable residual adverse impacts. It can be achieved by:

- Rehabilitation of the affected site or environment, for example, by habitat enhancement;
- Restoration of the affected site or environment to its previous state or better; and
- Replacement of the same resource values at another location (off-set), for example, by wetland engineering to provide an equivalent area to that lost to drainage or infill.

Figure 4-1. Mitigation Hierarchy

## 5 ENVIRONMENTAL IMPACT ASSESSMENT

This section presents the potential impacts that may arise from the proposed sand mining activities. The full mitigation measures are presented in the EMP.

### 5.1 Landscape Alteration

With the excavations and establishment of borrow pits, the sand mining activity has potential to alter (change) the natural view of the landscape

<b>IMPACT DESCRIPTION:</b>	<b>Vegetation clearing</b>		
<b>Predicted for (specific activity)</b>	<b>Cutting and Excavations</b>		
<b>Dimension</b>	<b>Rating</b>		
Duration	<b>Permanent</b>	<b>Reversibility:</b>  <b>Reversible</b>	Degree to which impact can be mitigated: <b>High</b>
Extent	<b>Site specific</b>		
Magnitude	<b>Low</b>		
Probability	<b>Fairly likely</b>		
<b>MITIGATION:</b>			
<ul style="list-style-type: none"> <li>If possible, rehabilitate the mining site by refilling the pit with overburden top soil, and revegetation</li> </ul>			

### 5.2 Access Roads

Establishment or creation of access roads to transport and from the borrow pit to the town.

<b>IMPACT DESCRIPTION:</b>	<b>Access Roads</b>		
<b>Predicted for (specific activity)</b>	<b>Establishment of Road Tracks</b>		
<b>Dimension</b>	<b>Rating</b>		
Duration	<b>Permanent</b>	<b>Reversibility:</b>  <b>Reversible</b>	Degree to which impact can be mitigated: <b>High</b>
Extent	<b>Site specific</b>		
Magnitude	<b>Low</b>		
Probability	<b>Very likely</b>		
<b>MITIGATION:</b>			
<ul style="list-style-type: none"> <li>Access roads to the borrow pit already exist</li> <li>Stick to existing tracks and no new tracks should be established</li> </ul>			

### 5.3 Borrow pit edges and steepness

Steep borrow pit edges presents potential danger to people and wildlife and should be smoothed to create gentle slopes.

<b>IMPACT DESCRIPTION:</b>	<b>Borrow pit edges and steepness</b>		
<b>Predicted for (specific activity)</b>	<b>Excavations</b>		
<b>Dimension</b>	<b>Rating</b>		
Duration	<b>Long term</b>	<b>Reversibility:</b>  <b>Reversible</b>	Degree to which impact can be mitigated: <b>High</b>
Extent	<b>Site specific</b>		
Magnitude	<b>Low</b>		
Probability	<b>Very likely</b>		
<b>MITIGATION:</b>			
<ul style="list-style-type: none"> <li>• Smoothen the borrow pit edges to ensure that the angles are not steep sloped, but rather gentle sloped at less than &lt; 30° slope angles.</li> <li>• The principle idea is for the borrow pit edges to be gentle so that there is no tipping point, where people or livestock can fall in. Meaning even if there is water, people and livestock can go in with minimal danger</li> </ul>			

### 5.4 Biodiversity (Fauna and Flora)

Although the sand mining site is barren (and devoid of any vegetation), due consideration should be made to ensure minimal disturbance to the general landscape of the area.

<b>IMPACT DESCRIPTION</b>	<b>Biodiversity (Fauna and Flora)</b>		
<b>Predicted for (specific activity / project phase)</b>	<b>Sand Mining Excavations</b>		
<b>Dimension</b>	<b>Rating</b>		
Duration	<b>Long term</b>	<b>Reversibility:</b>  <b>Reversible</b>	Degree to which impact can be mitigated: <b>High</b>
Extent	<b>Site specific</b>		
Magnitude	<b>Low</b>		
Probability	<b>Unlikely</b>		
<b>MITIGATION:</b>			
<ul style="list-style-type: none"> <li>• Stock pile the topsoil overburden, to be re-used during rehabilitation after sand mining operations and to aid the re-establishment of vegetation</li> </ul>			

## 5.5 Pollution: Noise and Dust

The proponent should ensure noise from excavator machinery and transportation trucks is kept below the recommended noise levels of -85dB (A).

IMPACT DESCRIPTION	Noise and Dust		
Predicted for (specific activity / project phase)	Extraction and transportations of the sand		
Dimension	Rating		
Duration	Short term	Reversibility:  <b>Reversible</b>	Degree to which impact can be mitigated: <b>High</b>
Extent	Local		
Magnitude	Medium		
Probability	Definite		
<b>MITIGATION:</b>			
<ul style="list-style-type: none"> <li>• Use dust suppression measures to mitigate dust impacts</li> <li>• Provide dust masks and ear muffs to machinery operators</li> <li>• Where possible, install silencer on exhaust to reduce noise levels</li> <li>• Avoid working during times with excessive wind</li> </ul>			

## 5.6 Oil Spills (Pollution)

Soil pollution may occur as a result of oil leakages, fuel, or lubricants from the machinery and vehicles.

IMPACT DESCRIPTION	Soil Pollution		
Predicted for (specific activity / project phase)	Oil Leakages from Machinery		
Dimension	Rating		
Duration	Short-term	Reversibility:  <b>Reversible</b>	Degree to which impact can be mitigated: <b>Medium</b>
Extent	Local		
Magnitude	Low		
Probability	Definite		
<b>MITIGATION:</b>			
<ul style="list-style-type: none"> <li>• There must be an oil spill response kit on site. Workers should be properly trained on dangers oil pollutions and response actions;</li> </ul>			

- If an oil spill occurs, collect the contaminated soil, store in drums or appropriate structures and dispose at approved waste disposal site;
- Ensure all vehicles / machinery are well service, install drip trays and conduct regular leak inspection

### 5.7 Solid Waste Management

Littering and any other unsightly waste at the site or anywhere around the village, as a result of sand mining operations will be an eye sore.

<b>IMPACT DESCRIPTION:</b>	<b>Solid Waste Management</b>		
<b>Predicted for (specific activity / project phase)</b>	<b>Mining Operations</b>		
<b>Dimension</b>	<b>Rating</b>		
Duration	<b>Short term</b>	<b>Reversibility:</b>  <b>Reversible</b>	Degree to which impact can be mitigated: <b>High</b>
Extent	<b>Local</b>		
Magnitude	<b>Medium</b>		
Probability	<b>Highly likely</b>		
<b>MITIGATION:</b>			
<ul style="list-style-type: none"> <li>• No disposal of solid waste on sight</li> <li>• Adopt the principle of what goes in, goes out</li> </ul>			

### 5.8 Socio-Economic Environment

Sand is an important element for township development (construction of roads housing, landscaping, etc), and it is one of the key building blocks for socio-economic development, which further contributes to employment creation, food security and improvement of community livelihood.

<b>IMPACT DESCRIPTION</b>	<b>Socio-economic</b>		
<b>Predicted for (specific activity / project phase)</b>	<b>Development and Employment Opportunities</b>		
<b>Dimension</b>	<b>Rating</b>		
Duration	<b>Long and Short- term</b>	<b>Reversibility:</b>  <b>Irreversible</b>	Degree to which impact can be mitigated: <b>Medium</b>
Extent	<b>National &amp; Local</b>		
Magnitude	<b>Medium</b>		
Probability	<b>Definite</b>		
<b>MITIGATION:</b>			



- Employ local labour as far as possible
- Establish on the job training and other capacity development training programs

## 6 PUBLIC PARTICIPATION PROCESSES

---

Public consultation is a requirement by law (EMA No 7 of 2007) to be incorporated into an EIA process, hence it is a fundamental part of the EIA. Public consultation ensures robust decision making by involving Interested and Affected Parties (I&APs). The PPP has therefore been structured to provide I&APs an opportunity to gain more information on the proposed project and for them to provide inputs through the review of documents/reports, and to flag any issue of concern during the PPP process.

### 6.1 Local Authority Consultation

Consultations were done with the ORTC during the EIA field assessment exercise, through which due information and documentation were provided to the Environmental Assessment Practitioner (EAP).

### 6.2 Public Meeting

- The sand mining activity is an already existing activity and the scoping exercise is more of a corrective measure to ensure compliance with the Environmental Management Act (Act. No,7 of 2007) and the Environmental Impact Assessment (EIA) regulations of 2012.
- Due to the fact that it is an existing activity, a public meeting is not mandatory.

### 6.3 COVID-19 Challenges

- As a result, comments on the EIA Scoping Report and EMP can be submitted to the EAP for response and, or incorporation accordingly.

### 6.4 Comments

- Although it may consider good practice, the probability of holding a public meeting was further limited to due COVID-19 restrictions.

## 7 CULTURAL HERITAGE

---

### 7.1 Cultural Heritage – Legal Requirements

The principal instrument of legal protection for heritage resources in Namibia is the National Heritage Act (27 of 2004), Part V Section 46, which prohibits the removal, damage, alteration or excavation of heritage sites or remains (defined in Part 1, Definitions 1), whilst Section 48 sets out the procedure for application and granting of permits as may be required in the event of damage to a protected site occurring as an inevitable result of the proposed development.

Furthermore, Section 51 (3) sets out the requirements for impact assessment. Part VI Section 55 Paragraphs 3 and 4 require that any person who discovers an archaeological site should notify the National Heritage Council.

In-addition to the National Heritage Act (No. 27 of 2004), international guidelines such as the World Bank OP and BP of 2006, particularly guideline no: 4.11 which refers to the “Physical Cultural Resources” (R2006-0049), and provide direction regarding project screening, baseline survey and mitigation.

Archaeological impact assessment is also a requirement of the Environmental Management Act (7 of 2007) and EIA regulations (Government Notice 30 of 2012) includes the mitigation of impacts on archaeological sites, remains or and artefacts.

### 7.2 Archaeological Assessment Methodology

The archaeological assessment carried out in and around the proposed horticulture project relies on the indicative value of surface finds for cultural and heritage artefacts.

Following standard practice both in Namibia and internationally, a chance-find procedure for cultural heritage should be recommended as a component of the Environmental Management Plan (EMP), and the necessary precautions should be taken throughout the project lifespan.

### 7.3 Cultural Heritage sites / artefacts within the Proposed Sand Mining Site

- a) **NO** cultural heritage sites or artefacts were observed within the proposed Sand mining site,

- b) **NO** cultural heritage sites or artefacts are known to occur in or around the sand mining site (local knowledge),
- c) **NO** cultural heritage sites or artefacts are registered by the National Heritage council in or around the proposed sand mining site.

#### **7.4 Limitations**

Although, there were no surface finds for cultural and heritage artefacts, there is a possibility that there could be cultural or heritage artefacts underground (e.g., unknown war graves, fossils etc), that could be uncovered during the operations of the sand mining activities.

#### **7.5 Recommendations**

Based on the limitations, it is recommended that:

- i. All employees, contractors or sub-contractors working on the establishment of horticulture project site should be made aware that it is a legal requirement under the National Heritage Act that if any items protected under the definition of heritage is found during the course of development should be reported to the National Heritage Council.
- ii. The establishment and management of the horticulture project should be conducted in a vigilant and cautious manner, and
- iii. If any cultural artefacts are found during the horticulture project activities, the necessary steps and due process as presented in the EMP should be followed.

## **8 REHABILITATION PLAN**

---

Socio-economic development is very important for our livelihood and provides services, income and employment opportunities, and hence activities such as sand mining are vital and necessary for development. However, such developmental activities should be conducted in a thoughtful and forward-looking manner. In other words, developmental activities, such as sand mining should consider the future land use after such activity has come to an end. Therefore, to ensure that the land remains valuable for other land uses in the future, rehabilitation should be part and parcel of such developmental activity right from the beginning and throughout the project lifespan.

The aim of the rehabilitation plan is to ensure soil conservation, prevent soil erosion, reduce safety risk (safety for both animals and people, particularly children) and to ensure that the borrow pit does not become an eye shore.

### **8.1 What is Rehabilitation?**

Rehabilitation is the process of repairing and taking all necessary actions to limit the damage caused by the developmental activity, to minimise potential danger, to make the land suitable for other uses or simply to beautify the affected area (so that it does not become an eyesore). Rehabilitation can also be referred to as the measures taken to repair damaged environments (example refilling of borrow pits with the overburden, re-vegetating, removal of unwanted infrastructure / cleaning up, etc).

### **8.2 Designing a Rehabilitation Plan**

A rehabilitation plan refers to a set of steps or measures to be taken in-order to ensure that negative impacts associated with the development at hand are mitigated. This however requires prior planning and integration of rehabilitation activities throughout the project lifespan. Meaning, rehabilitation measures should be taken right from the beginning of the project.

The environmental characteristics of an area where a project is located plays a vital role in designing a rehabilitation plan.

### **8.3 Recommended Measures**

As part of the mitigation, it is relatively easier to rehabilitate a shallower borrow pit, as opposed to a deeper one. The recommended sand mining area is 3 ha, and in order to limit environmental damages, it is recommended that borrow pit depth should only be as deep as necessary (the depth should depend on the depth of the required sand profile). In-principle, shallow borrow pit do not change the landscape significantly, they do not pose serious threats to the people and livestock and are much easier to rehabilitate.

## **9 CONCLUSION**

---

At present, the borrow pit is the only source of construction material to meet the developmental requirements of the town.

The Ongandjera Traditional Authority intent to conduct sand mining activities within the recommended mitigation and rehabilitation parameters. The proposed sand mining activities is vital in ensuring the development requirements of the region are achieved.

The Traditional Authority would like to conform to the Environmental Management Act of 2007 and EIA regulations of 2012. Upon approval of the Environmental Clearance Certificate, the proponent (Ongandjera Traditional Authority) should commit and abide to the recommended mitigation and rehabilitation measures as prescribed in the Environmental Management Plan (EMP).

## **10 REFERENCES**

---

- Burke, A. (2011). Eleven Steps to Mining Rehabilitation, Windhoek, Namibia
- Madyise, T. (2013) Case studies of environmental impacts of sand mining and gravel extraction for urban development, Gaborone, Botswana

## **11 APPENDICES**

---

### **7.1 I&AP Registration form**

### **7.2 EAP CV**