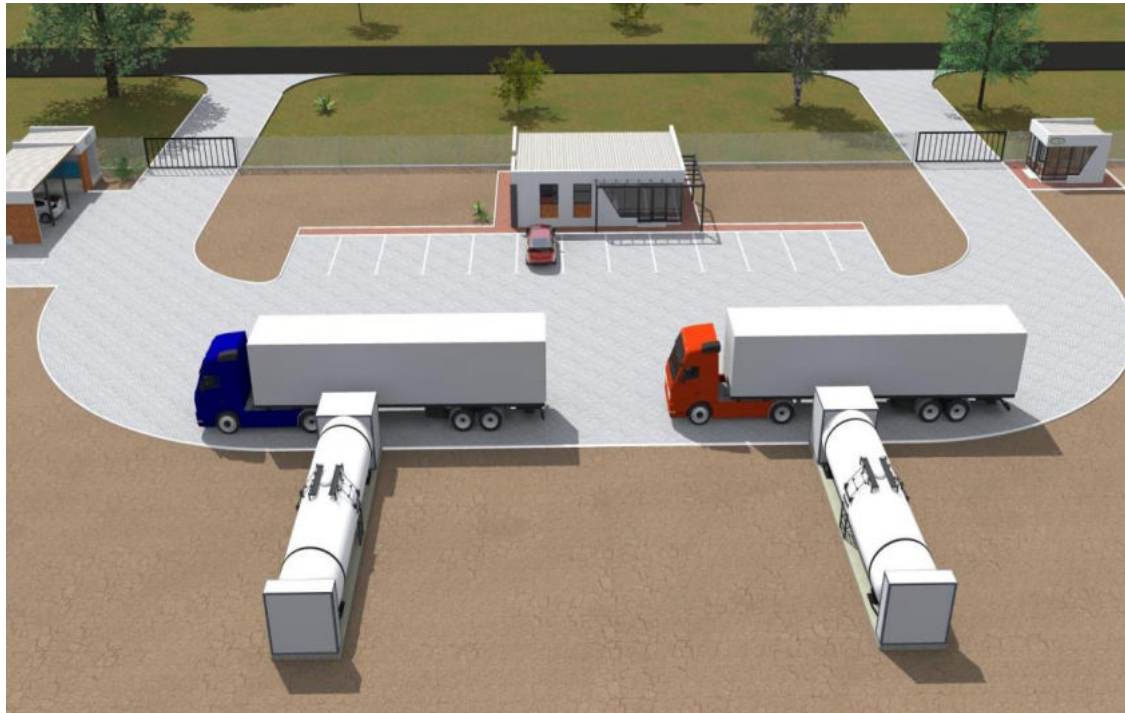


ENVIRONMENTAL MANAGEMENT PLAN (EMP)



FOR THE CONSTRUCTION AND OPERATION OF A FUEL DEPOT AND TRUCK-PORT FACILITY AT KATIMA MULILO, ZAMBEZI REGION.

FEBRUARY 2022



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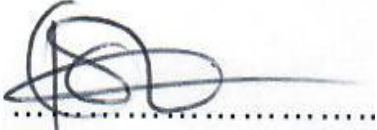


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DOCUMENT INFORMATION		
Title	Environmental Management Plan (EMP) for the construction and operation of the fuel depot and truck port facility at Katima Mulilo, Zambezi region.	
ECC Application Reference number	002743	
Listed Activity	Activity 9: Hazardous Substance Treatment, Handling and Storage 9.5 Construction of Filling Station or any other facility for the underground and aboveground storage of dangerous goods, including, petrol, diesel. Liquid, petroleum, gas, paraffin	
Location	Makaravan, RCC site, Katima Mulilo, Zambezi Region.	
Proponent	Erongo Petroleum CC POBOX 22762 Walvis Bay Contact Person Mr. Bruce 0817712029	
Author:	Signature	Date
Mr. Helao Shipani		08 February 2024
Reviewer:		11 February 2024
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Executive Summary

Economic activities such as the proposed fuel depot and truck-port facility forms part of the building blocks for socio-economic development and significantly contributes the local economic chain.

In-addition to employment creation, the fuel port and truck port facility to be established in the Katima Mulilo will serve as a strategic purpose for the town in particular and the region as a whole by contributing to an additional 160 M3 of fuel storage and supply to the local economy. The fuel port will further ensure the reliable supply of fuel (diesel) to various economic sectors (eg. Industries and commercial) including the local business community.

The Proponent has entered into a lease agreement with the Roads Construction Company (RCC) who currently owns the land to lease a total area of 7,475 M² to Erongo petroleum for the purpose of setting up a fuel storage and truck port facility.

However, such developmental activities should be conducted in a thoughtful and forward-looking manner. In other words, such activities should consider environmental and social sustainability of the land and surroundings. Hence, it is imperative that the principles and best environmental practices should be adopted for the day to day operation and management of the fuel depot facility.

ACRONYMS

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

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1. INTRODUCTION

1.1. Environmental Management Plan (Context)

This document constitutes the Environmental Management Plan (EMP) for the Construction, and Operation of a fuel depot and truck-port facility in Katima Mulilo, Zambezi region.

The EMP has been developed in accordance with the Environmental Management Act (Act No.7 of 2007), and any other relevant / applicable legislation.

The contents of this document is binding to all parties with who have a role to play in the **construction, and operation of** a fuel depot and truck port facility.

Location: GPS coordinates: Latitude: -24.16072 Longitude: 17.16072
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1.2. Motivation for Developmental Activities

Economic activities such as the proposed fuel depot and truck port forms part of the building blocks for socio-economic development and significantly contributes the local economic chain.

Project Justification

- Due to Trans-Caprivi highway (EPZ), Zambezi Region hosts Namibia's largest Transboundary logistics and Transportation, linking land locked countries to Namibia Major ports (Walvis & Luderitz);
- Demand to use Zambezi Roads & Infrastructures is constantly growing - with the growth in the development (industry) as well as transport industry.
- The diesel storage and handling facility will contribute towards a reliable supply in this demand.
- Its presence is also envisaged to reduce traffic congestion caused by large vehicles at Wenela Border Post and elsewhere in town.

Envisaged Project benefits for the Zambezi region

- Will serve a strategic purpose for the Katima Mulilo Town and Zambezi Region by contributing to an additional 160 m3 of diesel storage and supply to the local economy;
- Reliable supply of diesel to various sectors (e.g. industrial and commercial) and the local business community;

- Employment and skills training;
- Support for potential additional investments and development in town.

1.3. Environmental versus Economic Development

Namibia's economy is highly dependent on a healthy environment and striking a balance in meeting demands for socio-economic development and environmental sustainability.

Henceforth, it is of utmost importance that the environment and development sectors should work together and identify synergies in order to ensure that developmental activities such as establishment of the fuel depot and truck port are conducted in an environmental friendly manner.

1.4. Environmental management plan (EMP) Context

This document constitutes the Environmental Management Plan (EMP) for the construction, and operation a fuel depot and truck port facility in the Zambezi region.

1.5. What is an EMP?

The Environmental Management Plan (EMP) is a tool used to mitigate potential environmental risks associated with the proposed project / activity, and provides a risk management strategy and logical framework for implementation of the proposed fuel port activities, in order to mitigate potential environmental and social impacts identified during the EIA process, in accordance with the provisions of the Environmental Management Act (Act No.7 of 2007), EIA Regulations of 2012 and any other relevant / applicable legislation.

As a result, the EMP recommends mitigation measures in order to ensure that the recommended fuel port activities and associated activities are conducted in an environmental friendly manner, and in accordance with the provisions of the Environmental Management Act and EIA regulations

Furthermore, the EMP outlines specific roles and responsibilities for role-players against which they can be evaluated and non-compliance is punishable.

1.6. Purpose of the EMP

The purpose of the EMP is to identify potential environmental and social impacts associated with the fuel depot, in-order to ensure compliance to the EMA.

The aim of the EMP is to ensure that the activities undertaken during the renewal of the fuel port activities are conducted in accordance with the following:

- i. Environmental Management Act (No. 7 of 2007),
- ii. EIA regulations of 2012 (GN: 30), and
- iii. Best environmental practices (benchmarks)
- iv. Any other applicable legislation (*as presented in Table 3.1 to 3.3*)

The EMP provides environmental guidelines to be followed throughout the lifespan of the fuel depot and truck port activities and comprise of the following:

- a) Environmental Aspects,
- b) Management Objective,
- c) Mitigation Measures / Actions Required,
- d) Monitoring Indicators, and
- e) Party Responsible

1.7. Objective

The objective of the EMP is to prevent / minimize (where possible), unacceptable and adverse environmental, social or economic impacts that may arise from the proposed development. Overall, the EMP aims to prevent any negative impact/s (real, potential or perceived) that may result from the proposed fuel depot activities.

1.8. EMP Scope

The EMP does not only focus, and it is not limited to the margins of the water sources, but it includes the bigger picture, and serve as the guiding tool to protecting the natural, bio-physical and socio-economic environment on both the specific site in the surrounding area.

1.9. Possible adjustments to the EMP

The EMP is an open-ended document and maybe considered inconclusive. In other words, the EMP should allow room for adjustments if new information becomes available at a later stage, in which new / additional mitigation measures may become necessary.

The necessity of possible adjustments to the EMP at a later stage may be attributed to:

- a) Lack of information at the time of drafting the initial EMP,
- b) Evolution or addition of new activities, or
- c) Unintended omission of potential impacts during the initial EIA scoping exercise and development of the initial EMP.
- d) Development of industry best practice.

This implies that, in-addition to the information contained herein, any other relevant information that may surface during the construction operations, through internal monitoring or auditing by the Environmental Compliance Officers (ECOs), can be added to the EMP (evolution of activities), and such changes or inclusions will be binding to the proponent and all contractors / sub-contractors.

1.10. Implementation Framework and Accountability to the EMP

For effective implementation of the EMP, the Institutional roles are presented below. However, the specific roles and responsibilities are defined and broken down as presented in Sections 4 and 5, respectively.

Table 1-1: Role players, Institutional Framework

Role-player	Company / Institution	Role
Proponent	Erongo Petroleum CC	Compliance to the EMP
Environmental Consultant	Tortoise Environmental Consultants (TEC)	Development of the EMP
Environmental Compliance Officer/s (ECO)	Ministry of Environment, Forestry & Tourism (MEFT) – Department of Environmental Affairs (DEA)	Monitoring Compliance to EMP: <ul style="list-style-type: none"> ➤ Un-announced spot checks, ➤ Corrective measures, warning, penalties / fines, license suspension, etc
Public	Interested and affected parties (I&APs)	Report to the ECOs, any activity of environmental concern (e.g Pollution, safety risks, etc)

2. PROJECT INFORMATION

2.1 Project Location

The proposed project is located in Katima Mulilo, on the RCC site, along the B8 route on the trans-kalahari highway which is approximately 5 Km from the Wenela Border Post, bordering Namibia and Zambia, North-east Namibia. Access to the project site can be made via the main road from Katima Mulilo town towards the Wenela Border post. Regionally, the project site lies within the Zambezi Region, just near the Namibia-Zambia border Post (Wenela) (see Figure 1).

Area for Development



Fig 1 location of the proposed site for the establishment of a fuel depot

2.2 Biodiversity and Ecology of the area

Katima Mulilo comprises of mixed sub-tropical woodland, its terrain is well vegetated, mostly made up of swamps, floodplains and wetlands and deciduous woodlands. 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 *Baikiaea plurijuga*, *Burkea africana*, *Pterocarpus angolensis*, *Combretum collinum* and *Terminalia sericea*.

The region of Zambezi has a semi-arid climate prevailing, with an average annual temperature of 35 degrees and an annual rainfall ranging between 500 to 650 mm per year.

Generally, the woodland savanna provides a rich habitat range for various wild animals. Literature indicates that, large mammals such as kudu, springbok and Warthogs use to frequent the area, but due to changed land use over the years, which is presently townland comprising of industries, commercial settings and residential units.

3. COMPLIANCE AND LEGAL FRAMEWORK

This chapter outlines the regulatory framework applicable to the proposed rezoning and fuel port activities. Tables 3.1 to 3.4 provides an overview of applicable policies, plans and list of applicable national legislation.

3.1 Compliance to the EMP

The EMP is binding to the proponent, and all contractors / sub-contractors. This implies that each and every entity that may have any kind of engagement or involved in / with the rezoning and business operation activities should comply with the EMP throughout the project lifespan.

3.2 Environmental Management Act (No.7 of 2007)

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."

3.3 EMP Requirements

Table 3-1: EMP Requirements as outlined in Section 8 of the EIA Regulations

Requirement
<i>(j) a draft management plan, which includes – (aa) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the</i>

environment that have been identified including objectives in respect of the rehabilitation of the environment and closure;

(bb) 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

(cc) 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 environmental degradation remedy the cause of pollution or degradation and migration of pollutants.

3.4 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 rezoning 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 fuel port 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 3-2: Listed Activities triggered by the proposed project

Activity	Applicability
Activity 9: Hazardous Substance Treatment, Handling and Storage	The project entails the construction and operation of a fuel depot and truck port facility
9.5 Construction of Filling Station or any other facility for the underground and aboveground storage of dangerous goods, including, petrol, diesel. Liquid, petroleum, gas, paraffin	

3.5 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 operations conforms to all other National developmental plans and legal framework.

Table 3-3: 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	The proposed project is a development that forms part of the bigger picture of achieving economic progression, social transformation and environmental sustainability. Agriculture as a pillar for social well-being, through food production, household income and improved livelihoods

Table 3-4: 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	Makes provision for the prevention and control of soil erosion	Monitor and apply the soil conservation mechanisms

National Statutes	Relevance	Applicability to the Proposed Project
Conservation Amendment Act (Act 38 of 1971)		
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)). - Tree species and any vegetation within 100m from a watercourse may not be removed without a permit (Section 22, subsection 1 (b))	Forestry permits maybe required for vegetation clearing
Public Health Act (Act No. 36 of 1919)	Advocates for Public Health and safety	Protective clothing
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"
National Heritage Act, No. 27 of 2004.	The Act provides provision of the protection and conservation of places and objects with heritage significance.	Refer to handling procedures presented in the Scoping Report

4. ROLES AND RESPONSIBILITIES

This section outlines the roles and responsibilities of the key personnel responsible for the day to day management of activities to ensure effective implementation of the EMP.

4.1 Roles and Responsibilities

Assignment of responsibilities is necessary to ensure that key procedures are followed. Ultimately, the overall responsibility for the implementation of the EMP lies with the proponent (**Erongo Petroleum CC**).

To ensure accountability, it is necessary to assign responsibilities. The key role-players for project implementation are;

- a) The **Environmental Compliance Officer (ECO)** representing the Ministry of Environment, Forestry and Tourism (MET), or an appointed independent environmental officer, who is responsible for monitoring and auditing.
- b) **The Proponent:** (Erongo Petroleum cc).
- c) **The Site Manager** the person responsible for the management and operations of the fuel port

4.1.1 The Environmental Compliance Officer (ECO):

The ECO refers to the party responsible for the environmental monitoring and auditing to ensure that the provisions of the EMP are complied with.

The ECO shall have adequate environmental knowledge to understand and interpret the EMP and pertaining environmental aspects associated with the project. The specific tasks of the ECO are as follows:

- To undertake all monitoring and auditing activities in-order to ensure compliance with the EMP.
- Conduct inspections and monitoring at reasonable intervals (e.g. every month, quarterly or annually), throughout the duration of the project. Depending on the risks, some projects may require regular inspections.
- Issue compliance or non-compliance orders to the proponent, contractors / sub-contractors.
- Compile compliance Reports pertaining to any non-compliance incident/s, and a Rehabilitation Report following the conclusion a specific activity.

- Liaise closely with all key stakeholders i.e. the Site Manager and the Environmental Commissioner.
- Provide guidance on any environmental management issues, incidents or emergencies that may arise throughout the project lifespan.
- Assist in providing recommendations for remedial action in the event of non-compliance.
- Auditing or monitoring activities may involve investigation, as well as structured observation, measurement, and evaluation of environmental data over a period of time.

4.1.2 The Proponent (Erongo Petroleum cc):

The proponent, hereinafter referred to as **Erongo Petroleum CC**, shall assume overall responsibility to ensure implementation of the EMP and will be held accountable against the remedial measures outlined herein. It is recommended that the client should appoint a Site Manager who will be responsible for monitoring of daily operations.

The specific responsibilities of The Proponent are as follows:

- Appoint a Site Manager (SM) to oversee the daily onsite activities.
- Liaise closely with the SM and ECO on any environmental management issues, incidents or emergencies.
- Ensure that all activities on and around the site are conducted in accordance with the requirements of the EMP at all times.
- Ensure that all sub-contractors and visitors to the site are conversant with the requirement of the EMP, relevant to their roles on site.
- Shall develop a **communication strategy** between The Proponent, Project Manager, workers, the ECO and any other relevant stakeholder.
- Shall develop an **organisational structure** to ensure that:
 - There are clear channels of communication;
 - There is an organizational hierarchy for effective implementation of the EMP; and
 - Conflicting or contradictory instructions are eliminated;
 - Ensure that all instructions and official communications regarding environmental matters shall follow the organizational structure as determined.
 - Ensure that that EMP requirements are assigned to specific people / positions with the capacity and experience required for implementation.

4.1.3 The Site Manager:

The **Site Manager (SM)** should:

- Ensure that each team recruited to work at the sites, adheres to the EMP;
- Ensure that a **copy of the EMP is kept on site at all times and as it may be requested by authorities conducting spot checks at any time.**
- Ensure that all staff attend an induction session before commencement of any work on site and that they are adequately informed of the requirements of the EMP;
- Take special care to prevent irreversible damage to the environment

4.2 Instructions

All instructions and official communications shall follow the organisational structure as determined by the Proponent. Based on the adopted structure, it is essential that responsibilities outlined are assigned to specific parties with adequate capacity and experience required to implement the EMP.

4.3 Disciplinary Actions

The EMP is a legally binding document. Non-compliance with the EMP may result in disciplinary action being taken against the Proponent. Such actions may take the form of;

- Financial penalties, Legal action, fines, and/or Suspension of work.

The disciplinary action shall be determined according to the nature and extend of the non-compliance, and exact penalties are to be weighed against the severity of the incident.

5. POTENTIAL IMPACTS AND MITIGATION MEASURES

5.1 Approach to mitigation measures

The EMP has been categorised into different socio-economic and environmental themes and for each theme, specific aspects has been identified and for each aspect, specific mitigation measures have been recommended.

Table 5.1: EMP Impact Identification Themes and Associated Aspects

EMP Themes	Specific Aspects
A – Staff induction	Induction
	Site Demarcation
	Communication
B – Health and Safety	General safety at work place
	Road Safety
	Ablution facilities
	Dust and Noise
C – Pollution and Waste Management	General waste: <i>Material waste (off cuts), concrete rubble, garden & domestic waste,</i>
	Vehicle emissions (smoke)
	Oil Spills
D – Environment	Water
	Air Pollution
	Noise Pollution
E – Cultural Heritage	Heritage resources / artefacts
F – Socio economic	Employment opportunities for Locals
	Working hours
	HIV / AIDS
	Security

SECTION A: STAFF INDUCTION

Table 5.2: Mitigation measures pertaining to staff Recruitment and Induction

Potential Sources of Impacts:				
<ul style="list-style-type: none"> ✓ Workers working without employment contracts (recipe for labour disputes) ✓ Lack of adequate induction to inform the workers the Do's and Don'ts ✓ No formal orientation of the construction process and workers are often disoriented ✓ Poor Communication ✓ No presentation of the EMP and workers are not aware of the content and risks associated 				
Aspect	Environmental and Social Management Objective	Mitigation Measures	Indicators for Monitoring and Compliance	Responsible Party
Recruitment	To ensure that all workers have employment contracts (Labour Act No. 11 of 2007)	Formalize recruitment of all staff with Contracts, stating nature of employment, duration and remuneration to protect both parties and avoid labour disputes later on	Copy of staff contracts	Site Manager
Staff Induction	To ensure that all staff / employees are conversant with the requirements of the EMP	Induction for all workers on the provisions of the EMP before work commencement, covering but not limited to: Safety, Health and Environmental (SHE) measures, emergency response, reporting of incidents, HIV/AIDS awareness, alcohol and substance abuse, etc	Induction Minutes and Attendance Register, Signed by each and every staff member Staff members appointed at a later stage should also undergo induction	Site Manager

		Staff operating equipment (such as trucks, loaders, jack hammers, compressors etc.) shall be adequately trained and sensitized against potential hazards. Conduct Quarterly induction reviews and reflect on workers conduct	Quarterly minutes	
	Availability of the EMP on site for ease of reference	Ensure that a copy of the EMP is kept on site and accessible by team leaders	Availability of EMP on site and accessibility by team leaders	Site Manager
	Punitive measures for staff, to ensure compliance	Adopt a disciplinary system to discipline staff for non-compliance, for offences such as littering, speeding, safety risk both to themselves and to others, not using ablution facilities, etc.	Number of fines issued daily / per month	Site Manager
Communication	Ensure effective communication throughout the construction period (project lifespan)	Develop a communication strategy (Chanel & medium of communication) All correspondence should be written and signed off by witnesses (e.g Site Manager / team leaders)	Communication Strategy Letters, e-mail, Notices, Minutes	Site Manager
Notice Board	To warn the public of the construction activities	Erect a notice board at the site entrance to notify the public	Visible notice board	Site Manager

SECTION B: OCCUPATIONAL HEALTH AND SAFETY

Table 5.3: Mitigation measures pertaining to Health and Safety

Potential Sources of Impacts:				
<ul style="list-style-type: none"> ✓ Inadequate training of employees ✓ Safety hazards may occur if equipment is not handled in the correct manner ✓ Employees not receiving the correct Personal Protective Equipment (PPE) for their specific responsibilities. ✓ Employees not adhering to safety rules implemented at the site ✓ Noise generated by construction vehicles and equipment 				
Aspect	Environmental and Social Management Objective	Mitigation Measures	Indicators for Monitoring and Compliance	Responsibility
General Occupational Health and Safety of the employees (injuries)	To ensure safe working conditions and adhere to the Health and Safety Regulations, Government Notice 156/1997 (GG 1617)	<p>Develop a Health and safety Plan</p> <p>Identify potential hazards and minimize workers' exposure to hazards</p> <p>Provide adequate personal protective equipment for all workers</p> <p>Provide training to all workers on relevant aspects of occupational health and safety</p>	<p>Hazard risk report</p> <p>Safe work condition audit</p> <p><i>On-going</i></p> <p>Personal protective equipment issue (Distribution register)</p> <p>Adequate protective gear for all staff</p>	Site Manager

		<p>Provide fire extinguishers and train staff on how to use them</p> <p>Assign designated area for storage of construction material so that it does not pose danger to the staff</p>	<p>Training schedule and attendance register</p> <p>Availability fire extinguishers and evidence training (e.g minutes, training pictures etc</p>	
Accidents and incidents	To ensure safe working conditions	<p>Document and report occupational injuries, illness and fatalities, including near misses.</p> <p>Investigate causes and take appropriate action to eliminate risks where possible</p> <p>Provide adequate access to first aid and medical assistance in cases of work related accidents or injuries</p>	<p>Accidents and incidents register (including near misses)</p> <p>Root causes analysis report</p> <p>Incident review (cause and elimination of hazard)</p> <p>First aid kit availability and adequacy audit report</p>	Site Manager
Physical Hazards to workers	To ensure safe working conditions	Eliminate physical hazards to workers and mitigate any risks	Hazards risk report	Site Manager
Road Safety	To prevent traffic hazards / inconveniences from earth moving machinery during construction period (if any)	<p>Signage to warn motorists about the presence of earth moving machinery (if any)</p> <p>All trucks transporting construction materials (e.g sand / gravel) should</p>	Public Complaints / Incident report/s	Site Manager

		<p>be covered with suitable material (e.g net, tarpaulin, canvas etc)</p> <p>Adhere to traffic rules and speed limits both onsite</p>		
Ablution Facilities	<p>To reduce health risks and environmental pollution and ensure healthy working environment with appropriate and user friendly ablution facilities</p>	<p>Ensure adequate, hygienic (clean) and user-friendly ablution facilities for all staff. Mobile chemical toilets are recommended</p> <p>Ablution facility should be environmental friendly</p> <p>Waste should be discharged in accordance with the Town council Municipality effluent discharge regulations. No faecal waste should be discharged on site</p> <p>Acts of excretion and urination, other than at the toilet facility provided, shall be strictly prohibited.</p> <p>Appoint a cleaner or rotate cleaning responsibilities among workers. If necessary, designate Male and female toilets</p> <p>Provide toilet paper at all times, to avoid the use of other items (e.g</p>	<p>Availability of toilets, cleanliness / hygiene and provision for toilet papers</p> <p>Incidents or complaints of waste discharge into the environment</p>	<p>Site Manager</p>

		<p>newspapers) that may block sewerage pipes</p> <p>Inspect ablution facilities regularly (daily)</p>		
Dust and Noise	<p>To mitigate dust and noise impacts to both employees and the public</p> <p>To minimise noise disturbances during the construction phase.</p>	<p>Use dust suppression measures to mitigate dust impacts,</p> <p>Provide dust masks and ear muffs to all employees operating in a dusty or noisy environment</p> <p>Alert the public / neighbours of dust or noisy undertakings prior to carrying out such activity.</p> <p>Schedule activities that will generate the most noise during times of the day/ normal working hours that will result in least disturbance to adjacent industries.</p> <p>Regular maintenance of vehicles and equipment.</p> <p>Working hours should be restricted to normal working hours</p>	<p>Incident Report</p> <p>ECO to verify implementation of the mitigation measures proposed in this EMP and compile the report</p>	<p>Site Manager</p>

SECTION C: POLLUTION AND WASTE MANAGEMENT

Table 5.4: Mitigation measures pertaining to waste management

Potential Sources of Impacts:				
<ul style="list-style-type: none"> ✓ Disregard of the pollution impacts (often considered insignificant e.g littering, oil spills etc) ✓ Poor management, storage and disposal of concrete and cement or spillages from equipment used for construction (e.g. cement mixers), and general spillage of contaminated wash or wastewater ✓ Leaking and/or spillages of fuels, greases and oils ✓ Leaking or broken sewerage pipes ✓ Storage of unwanted waste 				
Aspect	Environmental and Social Management Objective	Mitigation Measures	Indicators for Monitoring and Compliance	Responsible Party
Vehicle emissions	Reduce greenhouse gas (GHG) emissions from poorly maintained or malfunctioning equipment (vehicles / machinery)	All vehicles and equipment shall be kept in good working order and serviced regularly (in accordance with the servicing frequency of the specific machinery), in order to prevent emission of poisonous smoke etc.	Vehicle servicing records Reports of smoke emissions from machinery	Site Manager
Oil Spills	Ensure waste oil is managed appropriately and pollution is prevented at all costs	Provide concrete bunding for oil / fuel storage and transfer on site. The bunding should be bigger than the oil / fuel storage tank/s to allow a bit of working space around tank/s (e.g 20% bigger than the tank/s)	Concrete bunding at all fuel storage and handling locations	Site Manager

		<p>Waste oil should not be stored onsite indefinitely and should be recycled (transfer to oil recycling companies)</p> <p>If an oil spill occurs, collect the contaminated soil, store in drums and dispose at appropriate waste disposal site (e.g Town council disposal site)</p>	<p>Drums or containers for oil recycling and proof of oil transfer to recycling companies</p>	
Solid Waste	To prevent pollution and maintain a clean environment	<p>Classify waste into different categories e.g Material waste (waste oil, Domestic Waste (food, cans, plastics, tissues etc)</p> <p>All waste produced on site should be disposed as per Municipal regulations</p> <p>Ensure waste collection and removal from the site and dispose at appropriate municipal waste disposal sites</p>	<p>Scattered waste, Littering and any other unsightly waste at the site (eyesore)</p>	<p>Site Manager / dedicated Waste Disposal Officer</p>
Waste Water	To avoid effluent discharge into the environment	<p>Refer to the Katima Mulilo Town council regulations on effluent disposal.</p> <p>Connect toilets to the town council sewer system.</p> <p>Be on the lookout and repair any leaking or broken sewer pipes (regardless of how small it might be perceived)</p>	<p>Connection to town council Sewer Systems</p> <p>No leakage of sewer pipes</p>	<p>Site Manager or dedicated Plumber</p>

SECTION D: ENVIRONMENT

Table 5.5: Impacts pertaining to environment and cultural heritage

Potential Sources of impacts:				
<ul style="list-style-type: none"> ✓ Disregard of environmental values, concerns and recommendations ✓ Lack of knowledge amongst workers and Proponents in terms of how their actions may impact on the environment ✓ Soil erosion due to the clearance of vegetation, excavations ✓ Loss of topsoil due to lack of rehabilitation and restoration measures ✓ Lack of adequate storm water management and drainage systems 				
Aspect	Environmental Objective	Mitigation Measures	Indicators for Monitoring and Compliance	Responsible Party
Ecological disturbances (both fauna and flora)	Remove plants only as necessary (if it obstructs the activity)	Acquire permits from relevant authorities for the removal of protected plants	Regular review of photographic records, before & after construction	Site Manager
Storm water	To ensure adequate storm water management and to prevent soil erosion	The site must have an adequate and effective storm water management system in place Storm water measures should be inspected on a regular basis	Regular Site inspections Shortcomings must be addressed	Site Manager

		in order to ensure that the storm water structures (eg gutters) are functional and not causing soil erosion. Where necessary, place culverts underneath road foundations.		
Water Pollution	To prevent contamination of storm water	Contaminated runoff must be prevented from entering the streams, measures include oil and grease traps, cleaning up spills immediately and proper disposal of contaminated material.	Drainage system/channel in place	Site Manager
Accidental spills of hazardous chemical substances including fuel, greases and oils used onsite.	To prevent and minimise soil and water pollution as a result of poor management and accidental spills of hazardous chemical substances including fuel, greases and oils used onsite.	<p>Identify all hazardous chemical substances used onsite including fuel, greases and oils. Train staff on the use of chemicals</p> <p>Keep a stock inventory register of all chemicals in the store.</p> <p>Proper storage of chemicals in a lockable, well-ventilated building.</p> <p>Ensure adequate access control for the storage area.</p>	ECO to verify implementation of the mitigation measures proposed in this EMP and compile the report	Site Manager

		<p>Storage areas for hazardous chemicals should comply with standard fire safety regulations. Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, are to be clearly displayed in areas housing chemicals.</p> <p>Appropriate equipment to deal with emergency spill incidents is must be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water.</p> <p>Chemicals are to be properly labelled and handled in a safety conscious manner.</p> <p>Personnel handling hazardous chemicals and hazardous materials are to be issued with the appropriate Personal Protective Equipment (PPE).</p>		
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		<p>Immediately clean all spillage of fuels, lubricants and other petroleum based products.</p> <p>No hazardous chemicals must be discarded in the sewage or storm water system.</p> <p>Soil contaminated with hazardous chemical substances shall be treated as hazardous waste and removed from site.</p>		
<p>Pollution due to poor waste management. Nuisance caused by odours and unsightly waste onsite</p>	<p>To prevent soil, storm and groundwater pollution due to poor waste management</p>	<p>Building and demolition waste must be disposed of at a licensed landfill site. If applicable, Steel should be taken to a licensed recycling facility.</p> <p>The management of waste must be in accordance with the regulations of the Katima Mulilo town council Solid Waste policy (if available)</p> <p>Installation of sufficient waste bins, skips or bulk containers. Containers must be present on site at all times.</p>	<p>Regular site inspections Internal audits against this EMP must be conducted every 3 months and records kept onsite Shortcomings must immediately be addressed</p>	<p>Site Manager</p>

		<p>All containers (bins, skips or bulk containers) shall be kept in a clean and hygienic manner.</p> <p>Containers (bins, skips or bulk containers) utilized for the disposal of general and hazardous waste must be demarcated accordingly.</p> <p>Waste material may only be temporarily stored at areas demarcated for such storage practices.</p> <p>General waste shall be stored in a manner that prevents the harboring of pests.</p> <p>General waste material should be stored or disposed of separately from hazardous waste material (e.g. oil, diesel), into appropriately demarcated bins Skips or bulk containers should be removed to a licensed landfill site on a weekly basis or more often if required.</p>		
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		No littering is permitted and site clean-ups must be undertaken regularly.		
Pollution due to unsanitary conditions	To prevent soil, stormwater and groundwater pollution from unsanitary conditions onsite.	Sufficient ablution facilities shall be provided – minimum of 1 toilet per 15 workers. Ablating anywhere other than in the toilets shall not be allowed. Ablution facilities are to be serviced weekly or more frequently if required.		Site Manager
Soil and groundwater pollution from leaking or broken sewerage pipes.	To prevent soil, stormwater and groundwater pollution from leaking or broken sewerage pipes	Ablution facilities should be maintained to prevent blockage and leakages. Should toilets become blocked, it should be reported and the cause investigated. This could be due to a blocked or broken pipe leading from the toilets to the sewerage system. Create employee awareness about the proper use of ablution facilities and hygiene. No cigarette butts, fats, oils, paper towels etc. may be disposed of into toilets or wash basins.	Regular site inspections. Internal audits against this EMP must be conducted every 6 months and records kept onsite. Shortcomings must immediately be addressed	Site Manager

		Toilets should have properly closing doors and be supplied with toilet paper and air refresher.		
Decommissioning Phase		Removal of all left overs, parts and pieces that do not form part of the final infrastructure		Site Manager

SECTION E: CULTURAL HERITAGE

Table 5.6: Potential impacts pertaining to cultural heritage

Sources of impacts:				
✓ Disregard of Cultural Heritage and artefacts				
Aspect	Socio-Economic Objective	Mitigation Measures/	Indicators for Monitoring and Compliance	Responsible Party
Heritage Resources / artefacts	Reduce the impacts of construction and associated earthworks on heritage resources / artefacts	Heritage remains or artefacts discovered on site must be reported to the National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461)	Sighting report/s of heritage resources / artefacts	Site Manager
		No artefacts must be removed or be interfered with prior to authorisation from the Namibian National Heritage Council (NHC) Recovery of heritage remains or artefacts discovered and removal thereof should be directed by the National Museum		

SECTION F: SOCIO-ECONOMIC

Table 5.7: Mitigation Measures pertaining to Socio Economic Impacts

Sources of impacts:				
<ul style="list-style-type: none"> ✓ Unfair labour practices ✓ Lack of awareness among the employees ✓ Unwillingness to support the locals 				
Aspect	Socio-Economic Objective	Mitigation Measures / Management Actions	Indicators for Monitoring and Compliance	Responsible Party
Employment opportunities for Locals	Promote benefits to the local community Promote benefits to local communities whilst preventing negative impacts.	Recruit locals for unskilled labour Positions should only be filled by non-local persons if it can be demonstrated that no suitable local persons must be identified (e.g. through local advertising) to fill these positions. Where possible, procure materials from local suppliers	Employee structure and proportion of local employment	Site Manager
Alcohol and Drug use	Prevent alcohol and drug use onsite	Ban and warn the employees against the use of alcohol and drug onsite	Drunk / Misbehaving employees	Site Manager

		Provide awareness on the dangers and health impacts of alcohol and drug use	Monitor presence of alcohol onsite	
Long working hours	Adhere to the Labour Act No. 11 of 2007	Operate within the prescribed working days and hours as per the Namibian Labour laws and regulations. Provision for overtime or compensatory time off for long hours worked	Verification of working hours against the labour Act	Site Manager
Internship for students	Provide internships to students from Technical institutions (e.g NIMT, VTC etc)	Provide internships opportunities where possible Advertise for student internships with NIMT, VTC etc	Student internship register, trade etc	Site Manager
HIV / AIDS	Provide HIV / AIDS awareness to employees	Provide HIV / AIDS awareness at induction Avail Condoms in Toilets at site	Availability of condoms onsite	Site Manager
Security	Orientation of workers about security for both equipment and themselves	Orientate all staff about the security of equipment and themselves & provide contact numbers for Police and other emergency services e.g. Ambulance	Proof of security orientation and emergency contact numbers	Site Manager

6. CONCLUSION

The EMP recommends measures to be implemented by Erongo Petroleum CC (or any other Proponent / sub-Proponent appointed by the proponent), in order to manage the fuel port in an environmentally friendly manner, and in accordance with the provisions of the Environmental Management Act and EIA regulations.

In-addition, the aim of the EMP is to ensure legal compliance to prevent environmental fatal flaws as mitigation for any impacts arising from the construction process to the end of the construction phase.

The Proponent has the sole responsibility to ensure that the EMP is implemented, and will be liable for penalties, if non-compliance against the EMP is detected. Therefore, the proponent, Proponent / sub-contractor:

- Should appoint a Site Manager to fulfil the EMP requirements,
- Read the EMP (particularly the site manager) and ensure that he/she is fully conversant with provisions of the EMP,
- Ensure implementation of the recommended mitigation measures, and
- Communicate defaults / challenges to the Environmental Compliance Officer (ECO)

It is recommended that an Environmental Control Officer (ECO) should monitor the construction process (periodic and unannounced EMP audits), in-order to ensure that compliance and mitigation measures prescribed in the EMP are adhered to.

7. APPENDICES

7.1 EAP CV

7.2 PROOF OF CONSULTATION