



RED-DUNE CONSULTING CC

APP-000757

**Social Environmental Management Plan Brick Manufacturing Project At
Omakuku Village in Tsandi Constituency, Omusati Region**



Photo: For illustration purposes

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PROJECT CONSULTANT	Mr. Ipeinge Mundjulu
LOCATION	Omakuku Village in Tsandi Constituency, Omusati Region

ACRONYMS

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DEA	Department of Environmental Affairs
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
MEFT	Ministry of Environment Forestry and Tourism
NAMWATER	Namibian Water Corporation
OTA	Ongandjera Traditional Authority
PPE	Personal Protective Equipment
RDC	Red-Dune Consulting CC
SEMP	Social Environmental Management Plan

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Executive Summary

Bricks are essential for property development. Unlike conventional bricks, modern bricks are manufactured under various compression ratio to achieve strengths required to build modern buildings. There are no modern brick manufacturing plants in areas of Tsandi and Okahao Towns. The existing bricks manufactures do not produce “super bricks” that meet the standard to build modern buildings or be used to pave roads.

The proposed brick manufacturing therefore bridges the gap of producing and supplying modern brick, often called “super bricks” and other products such as pavers to the nearby towns and to property developers. Besides the products, the plants is expected to contribute to socio economics through employment creation and generation of government revenues through taxes.

Generation of noise and dust are the main impacts by brick making process and maybe health hazard to human at high exposure. The assessment of these two critical impacts identified practical mitigation measures which brings these impacts to insignificant levels as follows;

Noise	Dust
<ul style="list-style-type: none"> • Vibrating table must be fitted with rubber material to ensure sound absorption • Vibrator Motor must be well maintained • Where metal are likely to collide, fit rubber material to avoid squeak noise • Proper maintenance and avoid friction against the floor • Pellets must be removed manually, so that there is no possible collision of pellets • If automated, pellets edges must be fitted with an impact absorbing material such as rubber. • If possible, only use forklift to pack bricks in the yard • Switch off vehicles and machinery when not in use 	<ul style="list-style-type: none"> • Trucks transporting dust must be covered during transportation • Use dust suppression measures such as water spraying to mitigate dust impacts. • The end of the conveyor belt must be fitted with a funnel to ensure sand is directed to the pile and avoid being brown away • Adhere to the Labour act, non-toxic human dust exposure levels may not exceed 5mg/m³ for respiratory dust and 15mg/m³ for total dust. • Avoid working during extreme windy times • Avoid unnecessary movement of vehicles on site

Noise	Dust
<ul style="list-style-type: none"> • The crusher plant needs proper sound absorption designs to limit the noise from escaping • Long term solution should be to enclose the crusher within a building with sound absorption quality • Proper maintenance, to avoid squeak sounds etc. 	<ul style="list-style-type: none"> • Provide employees with personal protective equipment such as dust mask, protective glass wear etc. • It is investable that noise level shall exceed the required maximum amounts, hence workers must have sufficient breaks and proper ear muffs to hearing conservation.

In addition to the above mitigation measures, it is recommended for the proponent to construct a boundary wall on the northern and eastern side of the site to limit dust escape and noise blockage.

Other impacts of high consideration include potential accident by the movement of heavy vehicles which is mitigated through low speed and installation of speed humps and land degradation which are successfully addressed by this SEMP.

The assessment concluded that, with adequate implementation of this SEMP, the objective of sustainable environmental management shall be met.

1. Overview

This Socio Environmental Management Plan (SEMP) is developed following a comprehensive scoping study that was undertaken for the proposed brick making factory by Mr. Gandja Ayihe Ndeshipanda Iyambo at Omakuku Village, Tsandi Constituency, Omusati Region.

2. Purpose of the SEMP

This Social Environmental Management Plan (EMP) is a risk strategy that contains logical framework, monitoring programme, mitigation measures, and management control strategies to minimize environmental impacts. It further stipulates the roles and responsibility of persons involved in the project. These strategies are developed to reduce the levels of impacts for the project.

3. Compliance to the EMP

This SEMP is a legally binding document under the provisions of the Environmental Management Act, 2007 (Act No. 7 of 2007). Mr. Gandja Ayihe Ndeshipanda Iyambo and its contractors must therefore adhere to the framework of this document.

4. Roles and Responsibility

4.1. Proponent

The proponent, Mr. Gandja Ayihe Ndeshipanda Iyambo, shall take overall responsibility for proper implementation of the SEMP. It remains the responsibility of the proponent to appoint key personnel for the implementation of the SEMP such as Site Manager and ensure that all employees and contractors are conversant with the SEMP.

4.2. Site Manager

The Site Manager (SM) represents the proponent on site. He/she shall be responsible for daily activities in ensuring environmental protection. All communication with regard to the implementation of SEMP must be channelled through the SM.

4.3. Employees

It shall be responsibility of employees to adhere to the provision of SEMP at all times when on site.

4.4. Environmental Compliance Officer (ECO)

Compliance to EMP is enforced by the environmental inspector as provided for under Environmental Management Act (No. 7 of 2007) (EMA).

4.5. Disciplinary Action

This EMP is a legally binding document, non-compliance to the SEMP is punishable in accordance to the provision of EMA.

4.6. The SEMP table

The SEMP is divided into sections addressing issues of Socio-Economic, Bio-Physical Environment, and Pollution and Waste Generation.

Part I: Socio-Economic Consideration

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Employment opportunities and knowledge transfer to Locals	Promote benefits to the local community	<ol style="list-style-type: none"> 1. Recruit locals for unskilled labour 2. Where possible, procure materials from local suppliers 3. Train and capacitate employees and local brick manufacture to become experts in brick manufacturing 	Employee structure and proportion of local employment and training record	Management or Site Manager
Staff induction	To ensure that all staff / employees are familiar with the requirements of the SEMP	<ol style="list-style-type: none"> 1. All employees must go through an induction course for the provision of the SEMP. 	Induction Minutes and Attendance Register, Signed by each and every staff member,	Management or Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		<ol style="list-style-type: none"> 2. Ensure that a copy of the SEMP is kept on site and accessible 3. Staff operating specialised equipment and heavy vehicle must be properly trained and informed of the potential risks associated with their tasks 4. There must be an annual induction course for all the workers. 	Physical verification of the SEMP on site	
Alcohol and Drug use	Prevent alcohol and drug use at the construction site	<ol style="list-style-type: none"> 1. Ban the employees against the use of alcohol and drug at construction site 2. Provide awareness on the dangers and health impacts of alcohol and drug use 3. All employees must be screen with the breathalyser to avoid intoxicated personnel on site 	<p>Monitor presence of alcohol at the construction site</p> <p>Breathalyser report</p>	Management or Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		4. Adopt a disciplinary system to discipline staff for non-compliance		
Working hours	Adhere to the Labour Act No. 11 of 2007	1. Operate within the prescribed working days and hours as per the Namibian Labour laws and regulations	Verification of working hours against the labour Act	Management or Site Manager
Employees and Public Health and Safety	To ensure public safety from the movement of trucks in the area	<ol style="list-style-type: none"> 1. Maintain low vehicle speed (30-40km/h) on site and at surrounding areas 2. All heavy vehicles must have a rotating flushing light installed for visibility 3. All drivers must be in possession of appropriated driver's licenses 4. Ensure construction / operation starts from 6am-5pm only and no night operation / construction / movement of heavy vehicles is allowed 	<p>Number of fatalities reported / reckless driving reported</p> <p>Physical verification of speed humps at designated areas</p> <p>Visible flushing lights on construction vehicles</p> <p>Reports of working outside recommended working hours</p>	Management or Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		<ol style="list-style-type: none"> 5. Adequate safety signs must be put at designated places. 6. Provide protective eyeglasses, dust masks and ear muffs to all employees 7. Employees must not stand for long hours near the crushing plant to protect their hearing 8. Ensure adequate, hygienic (clean) and user-friendly ablution facilities for all staff 9. Segregate Male and female toilets 10. Inspect ablution facilities regularly 11. Employees must be properly trained in using machine to avoid fatalities 12. Develop a Health and safety Plan (should be part of the induction) 	<p>Physical verification of safe ware for employees</p> <p>Physical verification of ablution facilities</p> <p>Training report for employees to operate specialized equipment</p>	

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		13. Train staff/employees on personnel safety and how to handle equipment and machinery 14. Provide sufficient fire extinguishers and train staff on how to use them and the applications thereof 15. Provide an adequate first aid kit to well-trained employee		
Heritage and Archaeology	To ensure protection of artefacts, heritage and archaeological materials	1. Employee must be trained on the possible find of heritage and archaeological material in the area; 2. Implement a chance find and steps to be taken for heritage and archaeological material finding (Heritage (rock painting and drawings), human remains or artefacts) are unearthed by;	Training records and attendance registers	

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		<ul style="list-style-type: none"> i. Stopping the activity immediately ii. Informing the operational manager or supervisor iii. Cordoned of the area with a danger tape and manager to take appropriated pictures. <p>16. Manager/supervisor must report the finding to the following competent authorities, National Heritage Council of Namibia (061 244 375) National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461).</p>		
HIV / AIDS	Provide HIV / AIDS awareness to employees	17. Provide HIV / AIDS awareness at induction	Availability of condoms at construction site	Management or Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		18. Avail Condoms at friendly areas on site		
Security	Orientation of workers about security for both equipment and themselves	1. Provide contact numbers for Police and other emergency services e.g. Ambulance	Visible emergency contact numbers	Management or Site Manager

Part II: Bio-Physical Environment

Aspect	Objective	Proposed Mitigation Measure	Monitoring Indicator	Party responsible
Land Degradation	To avoid soil erosion	1. Movement of heavy vehicles must be coordinated and restricted to be within the site and on designated access roads when delivering sand and other materials.	Physical Observation	Management or Site Manager
Visual Impact	To prevent eye sore and destruction of school kids during construction and operation of the project	<ol style="list-style-type: none"> 1. Construct a boundary wall to prevent visual of site activities 2. Ensure good housekeeping for material on site 3. Storage of material on site must be in a coordinated manner adhering to good house keeping 	Physical verification of the boundary wall, good house keep of material on site	Management or Site Manager

Aspect	Objective	Proposed Mitigation Measure	Monitoring Indicator	Party responsible
Biodiversity	To protect the flora and Fauna	<ol style="list-style-type: none"> 1. Although the site does not have trees, encourage the planting of shade trees to improve eye sight 2. Do not plant alien trees on site 3. Crawling animals such as lizards may be spotted on site, they must not be killed 4. Install a boundary fence to prevent domestic animal from entering the site 	Planted trees Reports on animal killings.	Management or Site Manager
Dust Pollution	To prevent dust pollution	<ol style="list-style-type: none"> 1. Trucks transporting sand must be covered during transportation 2. Use dust suppression measures such as water spraying to mitigate dust impacts. 3. The end of the conveyor belt must be fitted with a funnel to ensure sand is 	Physical observation Complaints of dust pollution	Management or Site Manager

Aspect	Objective	Proposed Mitigation Measure	Monitoring Indicator	Party responsible
		<p>directed to the pile and avoid being brown away by the wind</p> <ol style="list-style-type: none"> 4. Avoid working during extreme windy times 5. Avoid unnecessary movement of vehicles on site 6. Construct a boundary wall to curb dust from escaping during vehicle movement and offloading of sand/rock dust and aggregates 7. Adhere to the Labour act, non-toxic human dust exposure levels may not exceed 5mg/m³ for respiratory dust and 15mg/m³ for total dust. 8. Provide employees with personal protective equipment such as dust mask, protective glass wear etc. 	<p>Physical observation of the boundary wall PPE</p>	

Aspect	Objective	Proposed Mitigation Measure	Monitoring Indicator	Party responsible
Noise Pollution	To prevent noise pollution	<ol style="list-style-type: none"> 1. Vibrating table must be fitted with rubber material to ensure sound absorption 2. Vibrator Motor must be well maintained 3. Where metal are likely to collide, fit rubber material to avoid squeak noise 4. Ensure proper maintenance and avoid friction against the floor 5. Pellets must be removed manually, so that there is no possible collision of pellets 6. If automated, pellets edges must be fitted with an impact absorbing material such as rubber. 	Physical observation of Rubber fitted Enclosed crusher Public complaints of noise pollution	Management or Site Manager

Aspect	Objective	Proposed Mitigation Measure	Monitoring Indicator	Party responsible
		<ol style="list-style-type: none"> 7. If possible, only use forklift to pack bricks in the yard 8. Switch off vehicles and machinery when not in use 9. The crusher plant needs proper sound absorption designs to limit the noise from escaping 10. Long term solution should be to enclose the crusher within a building with sound absorption quality 		
Water Pollution	To prevent surface and ground water pollution	<ol style="list-style-type: none"> 1. Fuelling of heavy vehicle on site must be well coordinated at designated places 2. Stationary vehicles must be provided with drip tray to capture oil, lubricants and hydraulic fluids 	Physical observation of banded fuelling areas	Management or Site Manager

Aspect	Objective	Proposed Mitigation Measure	Monitoring Indicator	Party responsible
		leakages 3. All vehicle and machinery must be well service to avoid leakages 4. Provide and train on oil spill emergency response 5. Servicing of vehicles and machinery must take place at designated are	Physical observation of drip trays	
Water Consumption	To prevent unsustainable high level of water consumption	1. Do not waste water / use water sparingly	Complaint of water interruption due to the project	Management or Site Manager

Part III: Pollution Control And Waste Management

Environmental / Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Vehicle emissions	Reduce greenhouse gas (GHG) emissions from broken equipment vehicles / machinery	<ol style="list-style-type: none"> 1. All vehicles and equipment must be kept in good working condition and serviced frequently to prevent leakage and emission of poisonous smoke etc. 2. Switch off engines when vehicle is not operations 	<p>Vehicle servicing records</p> <p>Reports of smoke emissions from machinery</p>	Management or Site Manager
Oil Leakages	Manage fuels, oils and lubricants leakages from Vehicles and Machinery to prevent pollution	<ol style="list-style-type: none"> 1. Ensure all vehicle are well service and leak inspection are done 2. Provide drip trays to stationary vehicle 3. Servicing of vehicle must be done at an approve site 4. Re-fuelling, oil replacement must be done on concrete bund 	Physical verification and routine monitoring	Management or Site Manager

Environmental / Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		5. Storage of fuel, oil and lubricants must be kept on bunded structure 6. Bund and concrete slabs should be installed at each point where oils and lubricant are likely leak. 7. If an oil leak occur, collect the contaminated soil, store in appropriate container and dispose of at appropriate waste disposal site (e.g. Town council disposal site)		
General waste	To manage solid waste To prevent littering, pollution, contamination of water and general environmental health hazards	1. Operations generate garbage, refuse and building rubbles. Waste generated from the construction and operation should be classified into different categories, e.g. Material Waste (Wood, steel, corrugated iron, etc.), Building Rubble (concrete, bricks etc.), Garden Waste (tree stumps,	Scattered waste, Littering and any other unsightly waste at the site (eyesore)	Management or Site Manager

Environmental / Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		<p>branches, etc.), Domestic Waste (Litter – cans, plastics, tissue, plastics etc.)</p> <ol style="list-style-type: none"> 2. Each category should be collected separated and disposed of, in the most suitable and environmentally acceptable manner 3. There must be sufficient skip containers for domestic waste collection. 4. There must be sufficient ablution facility at the site for designated for males and female. 5. No onsite burying, dumping or burning of waste material shall be permitted. 6. Used oil, grease and lubricants cans must be collected in appropriate drums and disposed of at an approved site 		

Environmental / Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		7. Ensure appropriate waste collection and removal from the site and dispose at appropriate waste disposal site.		

5. Decommissioning Phase

Although, not envisioned in the near future, to ensure sustainable livelihoods and the environment, the project proponent must;

1. Inform workers and the affected stakeholders about the project closure 6 months prior to the decommissioning.
2. Ensure that all contaminated material must be properly cleaned before their disposal
3. The work must be supervised by qualified and competed persons. Further, it is recommended that an environmental specialist be hired to monitor any possible damage to the environment.
4. Workers must be provided with all necessary PPE.
5. All wasted generated must be disposed of approved sites

6. Conclusion and Recommendations

6.1. Conclusions

The scope of this project was guided by site visit information, and comprehensive literature review to establish all possible environmental impacts and the possible mitigation measure to the impacts concerning this project. The analysis was based on the collected information and sufficiently addresses the environmental and socio-economic aspects that are within the scope of the EIA.

The project is expected to positively contribute to the socio-economic development of locals through employment creation while contributing to the Gross Domestic Product at national level. While analysis of the no project alternative showed that, the adverse impacts will be negative especially on the socio-economic aspects, threat to biodiversity, and other physical environment were negligible under the provision of the proposed mitigation measures.

6.2. Recommendations

Based on social and environmental consideration, and on the developed EMP, Red Dune Consulting recommends to the office of the Environmental Commissioner for the issuance of the Environmental Clearance Certificate with the following conditions.

- Bi-annual report for environmental monitoring must undertaken