ENVIRONMENTAL MANAGEMENT PLAN FOR THE NEW LANDFILL IN TSUMEB

PROCUREMENT REFERENCE NO. SC/RP/TPM-01/2021

REPORT

Submitted to:

Ministry of Environment, Forestry & Tourism

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Presented by

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“Imagine if Tree gave free WIFI. We’d all be planting like crazy. It’s a pity they can only give us the oxygen we breathe”.

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LIST OF ACRONYMS

DEA	Department of Environment Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
EC	Environmental Commissioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
ESA	Environmental Scoping Assessment
ESR	Environmental Scoping Report
GIS	Geographic Information System
MEFT	Ministry of Environment, Forestry Tourism
NSWMS	National Solid Waste Management Strategy
NUST	Namibia University of Science & Technology

1. INTRODUCTION & BACKGROUND

The Environmental Management Plan (EMP) is known as the tool that can provide the assurance that the project proponent has made suitable provisions for mitigation. This Environmental Management Plan (EMP) provides a description of the methods and procedures for mitigation and monitoring impacts. This section will contain environmental objectives and targets which the project proponent or developer needs to achieve to reduce or eliminate negative impacts. The EMP document can be used throughout the project life. It should be regularly updated to remain aligned with the project as it progresses from construction to operation, and finally decommissioning.

This Environmental Management Plan serves as a managing tool for the construction and operation of the proposed new landfill facility in Tsumeb. The main objective of this EMP is to assist in outlining measures to be implemented to minimize adverse environmental degradation associated with the landfill development.

2. OBJECTIVES

- To mitigate adverse impacts on various environmental aspects, that have been identified during the screening phase.
- Enhance the value of the environmental aspects where possible.
- To protect environmental resources where possible

3. LEGAL REQUIREMENTS

Table 1: Legal Framework

LEGISLATION	PROVISION AND REQUIREMENTS
Article 95 of the Namibian Constitution	Provide overarching guidance in terms of the maintenance and sustainable use of natural resources for the benefit of all Namibians, both present and future.

Waste Classification and Management Regulations (GN R634 of August 2013	To ensure adequate and safe storage and handling of hazardous waste, and to inform the consideration of suitable waste management options. These regulate the classification of waste in terms of SANS 10234; prescribe requirements for the assessment of waste and destined for disposal (GN R 635); require that's disposal of waste to landfill take place in terms of GN R 636; prescribe requirements and timelines for the management of certain wastes and prescribe the general duties of waste generators, transporters, and managers.
Environmental Management Act No.7 of 2007	Ensures that the significant effects of activities on the environment are considered carefully and timeously. It promotes the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters relating to the built environment.
National Solid Waste Management Strategy, 2018	Provides for a coordinated funding, regulations, action plan for proper solid waste management and facilitate stakeholder collaboration.
Public Health and Environmental Act, 2015	The objective of this Act is to: Prevent injuries, diseases, and disabilities Promote individuals and community from public health risks Provide for early detection of diseases and public health risks Promote public health and wellbeing
Atmospheric Pollution Prevention Ordinance, No.11 of 1976	To provide for the prevention of pollution of the atmosphere, and for matters incidental thereto. The ordnance deals with administrative appointments and their functions; controls of noxious or offensive gases; atmospheric pollution by smoke, dust control, motor vehicles emissions; and general provisions.
Local Authority Act No.23 of 1992	To provide for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters.

The Soil Conservation Act No.76 of 1969	The Act provides for the prevention and combating of soil erosion, the conservation, improvement, and manner of use of the solid and vegetation and the protection of water sources.
Waste Disposal Site Guidelines, 2017	Provides guidelines and specifications for Sanitary Landfills and Criteria for Site Selection.
Basel Convention, Framework Convention on Climate Change	Aimed to ensure environmental sound management of hazardous waste and other waste through the reduction of their movement, for the purpose of reducing their impacts on human health and environment.

4. PROJECT DESCRIPTION

Tsumeb is located at 19°15′ southern latitude and 17°42′ eastern longitude and lies 1 310 meters above mean sea level. Windhoek, Namibia's capital city, is 380 km by air and 435 km by tarred road. The total population of Tsumeb and the region is estimated at 22,500 (12 300 males and 10 200 females), of whom some 15 970 live in the town itself. The Tsumeb Municipality has commissioned the Environmental study to comply with the Environmental requirements as outline in the Environmental Management Act (EMA) (Act. No.7 of 2007).

As a result of numerous complaints from the public about the poorly operated municipal dumpsite and associated impacts on the biophysical and social environment, the Office of the Environmental Commissioner in the Department of Environmental Affairs (DEA) issued a Compliance order for illegal dumping of waste and inappropriate management of waste to the Tsumeb Municipality. The Tsumeb dumpsite has been identified as one of the illegal sites that requires be decommissioned and find a suitable alternative site for a new landfill facility.

The existing dumpsite requires to be closed off, rehabilitated, and conduct an Environmental impact Assessment for the new site as per Part VII, VIII and IX of the Environmental Management Act of No.7 of 2007.

SM Dynamic undertook the Environmental Scoping study for the development of a new landfill facility. Proposed suitable site was identified on portion 79 an area located about 5km on the Tsumeb/Tsintsabis road. This study is intended to extend beyond the traditional ways of disposing waste and to ensure compliance with

relevant legislation. This EMP document was prepared for the application stage of the Environmental Clearance Permit for the proposed new landfill facility. The client has agreed to follow management strategies to avoid and mitigate environmental impacts during project works.

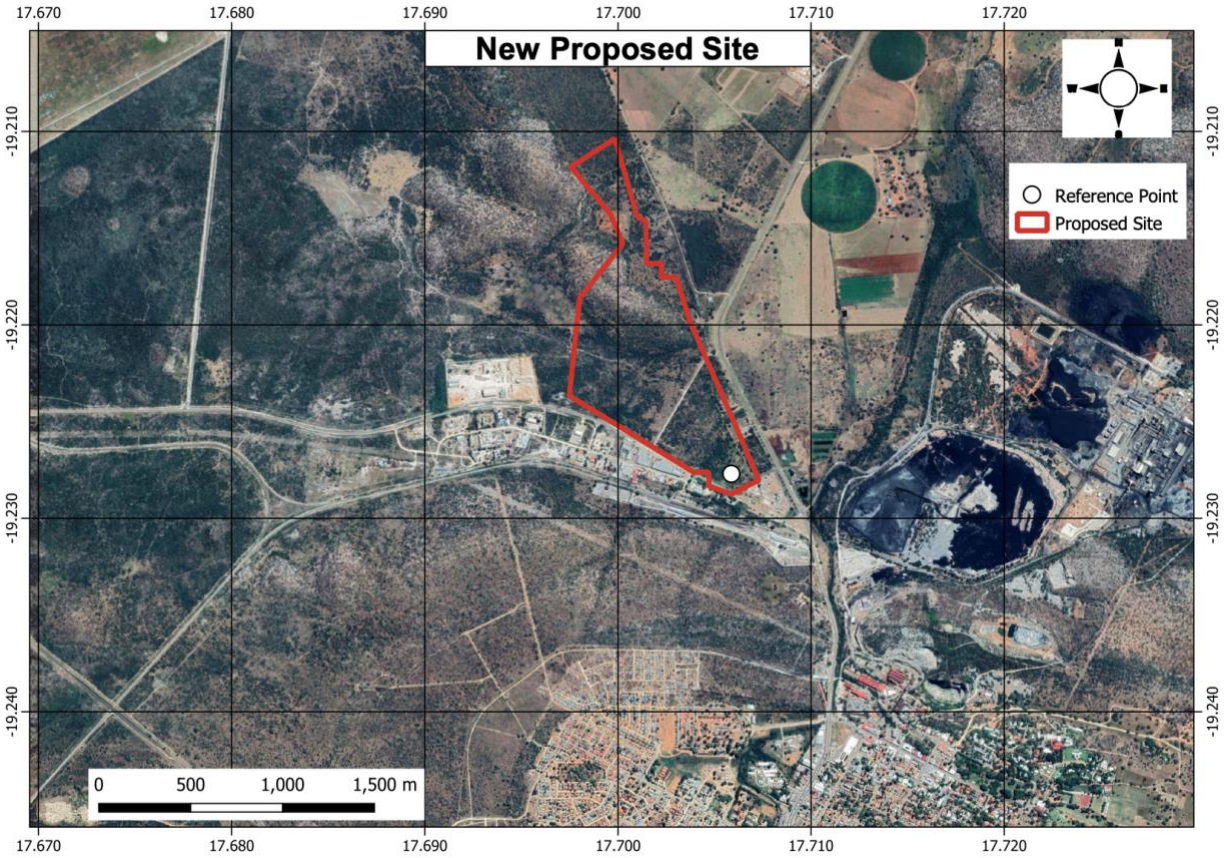

Figure 1: New Proposed Site

5. LIMITATION AND ASSUMPTIONS

This Environmental Management Plan (EMP) does not include measures for compliance with statutory health and safety requirements as health and safety is considered out of scope of this EMP. Should any conflict arise between sections of this EMP, or other legal requirements, the contract and legal framework must be adopted.

6. ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan is a guidance document to measure and achieve compliance with the environmental protection and mitigation requirements of a planned project, as per Environmental Management Act No. 7of 2007. This EMP document was prepared for the application stage of the Environmental Clearance Permit for the proposed new landfill facility. The client has agreed to follow management strategies to avoid and mitigate environmental impacts during project works. SM Dynamic has completed several of these management plans taking into consideration specific client's requirements and environmental best management practices for a diverse range of projects, such as township development and property development.

7. RESPONSIBILITIES FOR ENVIORNMENTAL MANAGEMENT

All personnel including contractors will be made aware of the way the landfill site is to be operated and managed, to ensure compliance with this EMP. A summary of the authority and environmental responsibilities of key personnel for the landfill site is outlined below.

Site Management Contractor

- Ensure that the landfill site complies with the ECC license, acts and regulations.
- implement the EMP.
- Appoints or nominates the environmental management representative
- Allocate project resources to handle environmental issue.

Environmental Officer (SHEQ)

- To ensure the landfill site complies with the site relevant license, acts and other requirements.
- Ensure that environmental records and files are maintained.
- Identify non-conformances and notify the relevant authority.
- Ensure that environmental non-conformances are recorded and actioned.

- Assist with environmental incident investigations.
- Audit environmental records.
- Develop and review environmental training.
- Provide technical advice as required.

Landfill Supervisor

- To operate and maintain the landfill facility in conjunction with the Municipal team.
- To maintain.
- Optimize and plan the maintenance of equipment and assets.
- To produce monthly operational reports and advise on the landfill performance.

Sub-Contractors

- Comply with the relevant Acts, Regulations and Standards.
- Comply with Tsumeb Municipality's policies and procedures.
- Promptly report to management on any non-conformances of systems in place.
- Undergo induction training in environmental awareness as directed by management.

All Personnel

- Comply with the relevant Acts, Regulations and Standards.
- Comply with Tsumeb Municipality's policies and procedures.
- Promptly report to management on any non-conformances of systems in place.

- Undergo induction training in environmental awareness as directed by management.

8. TRANINING AND INDUCTION

All site employees (and contractors, where required) receive suitable environmental training to ensure they are aware of their responsibilities and competent to carry out their work.

Environmental requirements are explained to employees as part of their inductions and refresher training. In addition, during site inductions and on an ongoing basis, training will be provided in meetings and alike. All inductions and ongoing training shall be recorded.

9. ENVIRONMENTAL MONITORING

Regular environmental inspections will be undertaken by municipal employees to ensure that the environmental controls are been implemented, meet the required specification, and maintained accordingly. Compliance reporting is required to produce systematic, comprehensive, and informative reports on the environmental performance because of operational activities of the landfill facility.

Detailed sampling analytical methods should be well defined in relevant procedures and work instructions. The implementation of the monitoring requirements is the responsibility of the Environmental Officer.

10. INCIDENT & EMERGENCY

The main objective of this EMP is to identify potential risks, develop, and maintain mitigation measure to manage them. The approach to be adopted involves the following, risk analysis, prevention, preparedness, response, and recovery.

Incident notification will depend on the extent of the event and the incident classification and is to take place in accordance with the company's incident reporting procedure. Corrective action will be implemented to prevent recurrence of incidents.

11. EMERGENCY CONTACTS

The following are the internal emergency contacts for the landfill facility which include regulatory authorities, local community, and emergency services.

Table 2: Emergency Contacts

Position	Phone Number	Mobile number
Manager Health Services	+264 67 221056/7/8	+264 811290743
Environmental Officer (SHEQ)	TBA	TBA
Supervisor	TBA	TBA
Fire Department	+264 67 220142	+264 811248677
Police	+264 67 2235017	
Ambulance	+264 67 224 300/ +264 67 221 001	

12. COMPLAINTS HANDLING

Close liaison will be maintained between residents of Tsumeb and visitors to provide effective feedback in regard to perceived emissions. In this manner, operations can be coordinated where necessary to minimize disturbance to neighboring residents, and to ensure prompt response to complaints, should they occur. All complaints or reports received externally shall be recorded by the environmental officer. These records will be kept for at least four years after the complaint was made.

13. COMMUNICATION AND CONSULTATION

The Tsumeb municipality is committed to meaningful stakeholder engagement and continues to work in collaboration with relevant government agencies and local community to resolve issues that impact local environment. Local community will be kept informed of the progress of the project in a pro-active

and responsive manner. This will be undertaken by way of local newspapers, leaflets, community notice boards.

14. ACCESS CONTROL AND INFORMATION BOARDS

The sign displays signage to advise that it is a private site, not for public. Additional signate include:

- Directional and speed limit signed for vehicles.
- Details of type of waste acceptable at the landfill.
- Signage for safety work health and safety requirements.

15. FIRE PREVENTION

Immediately upon becoming aware of a fire at the site, all necessary measures to extinguish such fires will be taken. There will be no incineration or burning of any waste at the landfill in accordance with ECC requirements. Adequate fire prevention measures have been put in place, and all personnel are able to access fire-fighting equipment and fire breaks at any part of the landfill in accordance with the fire and emergency management plan.

Figure 2: Open fire burning

16. WASTE MANAGEMENT

Waste is received at the landfill site from town by waste trucks and other private vehicles. A daily register of all vehicles should be kept recording all loads coming to the landfill site. Once recorded, a truck or vehicle proceeds to the active cell or tipping are where operators' direct drivers to tip waste. In the event of major petroleum spills, a report should be directed to the Ministry of Mines & Energy with immediate effect.

Uncontrolled handling of fuel and other chemicals poses a threat to the environment and may result in soil, groundwater, and surface water contamination. Proper storage of these fuels and chemicals must be planned carefully to avoid spillages. Spill prevention measure should be implemented immediately by the Municipal team and spill kits must be always available. Spill kits must contain the following items: absorbent material, sawdust, shovels, heavy duty plastic bags and protective clothing (overalls & gloves).

Waste Statistics and Records

The proponent must determine the type and quantities of waste generated in the town. This will involves establishing the current quantities of waste generated, recycled, treated, and disposed to landfill. Waste must be measured in kilograms or tons.

It is the responsibility of the proponent to establish waste information collection methods. A situation analysis must include waste types and quantities of waste. Generated in a particular are (e.g. residential or business area). This information can be collected using the following methods.

Option 1: Weighbridge mechanism

The municipality can make use of a weighbridge system to collect and record the types of waste and quantities of waste entering its disposal site. This information is also required for reporting and renewal of the Environmental Clearance Certificate every 3 years.

If the municipality opts to make use of the weighbridge system, they must record the waste amounts entering the disposal site, by weighing all vehicles at the point of entry and again on the way out. The difference in mass of the vehicle provides the mass of waste entering the site. It is the responsibility of the municipality to place a qualified operator who can identify waste types correctly and capture all data using appropriate computer programs such as Microsoft Excel.

11 ***Option 2: Without a weighbridge mechanism***

This method refers to making use of the vehicle capacity and the waste density estimates. This option provides guidance on how waste quantities can be estimated for different waste types. All estimations are based on the size of the vehicles measured in m^3.

Table 3: Example of waste data collection sheet

CLIENT	VEHICLE REGISTRATION NUMBER	VEHICLE CAPACITY	TYPE OF WASTE	NUMBER OF LOADS
M John (Private)	N 17887 T	10	Garden	2
Municipal Truck	N 1067 T	40	Building rubbles	3
Rent-A-Drum	N 8899 W	30	Tyres	1

Figure 3 & 4: Waste Removal Vehicles

17. LITTER CONTROL

Litter control at the landfill site will be carried out in accordance with the Contractors environmental method statement for housekeeping and inspection procedure which provides guidance on litter management on site. The consultant highly recommends the use of litter fences and ensuring that all wind-blown litter from site is retrieved.

18. PLANNED PROJECT ACTIVITIES AND RECOMMENDATION MEASURES

The project activities include those occurring during the pre-construction stage (planning & setting up site camps or storage facilities before construction), construction and operational phases of the proposed project development. Each activity has potential impacts on the environment hence the following mitigation measures together with the EMP must be respected in all project phases.

- ***Surveying***: all sections of the proposed route have been surveyed in detail.
- ***Fence:*** the surveyed section will be temporarily fenced to constrain construction activities.
- ***Plant relocation***: a search and rescue for any plant species of high conservation status. Environmental site officer must be appointed to oversee storage and relocations of these plants.
- ***Clearing and excavating***: the removal of all vegetation and topsoil in preparation of stable foundation for new construction works as well as along the proposed area and in areas set aside for construction camps.
- ***Access road construction***: this will involve making access road for construction vehicles to use. In this case it will not be necessary as there is already an existing road. However, since they will be an increase in number of vehicles to site dust may be an issue – gravel road needs to be watered daily.

18.1.1 Establishment of Construction Site Camps

Construction of temporary camps: these will be established by each contractor, and involve clearing of small vegetation, fencing of camps and construction of storage rooms and vehicle parking areas. The camps will be electrified, and ablution and potable water provided. The exact number and location of these camps is not determined yet. An Environmental Management Plan (EMP) will be drafted as part of the EIA to describe parameters such as the following:

A plan from the contractor is required, detailing the layout of site facilities, such as chemical for the toilets, areas for stockpile of materials, storage for hazardous materials and provision of containers.

All waste generated will be stored in skip containers during construction phase and only a private registered waste collector or the municipality will be allowed to transport this waste from site to dumpsite. Any other waste will be stored in wheel bins as per provision by the municipality of Tsumeb.

All hazard waste such as chemicals and other solutions, will be transported to a registered dumpsite in Tsumeb upon consultations with the relevant authority.

Fuel, gas will be stored in a secure area in a steal tank supplied and maintained by fuel suppliers in accordance with the law.

Suitable washing facilities and sanitary arrangements at site offices, workshops and construction sites will be provided. Sanitation facilities for the camps will comprise of prefabricated septic tanks.

Water for human consumption will be available at the site office.

18.2.1 Earthworks

Clearing of vegetation: vegetation along the proposed area will be cleared and excavated.

18.2.2 Borrow Pit Establishment

Existing borrow pits designated by the local authority will be used. No new borrow pits will be established. If they will be a need to establish new borrow pits, these will be done in accordance with the local authority upon consultations.

18.2.3 Road Construction

No new access road or tracks to be established, all contractors are to use the already existing access road to the dump site. Any road construction or upgrade to the access gravel road such as earthworks, construction of pavement layers or drainage structures will be done in accordance with Roads Authority standards and requirements for roads and bridge works.

18.2.4 Site Removal and Rehabilitation

Site Removal consists of the removal of all building material, temporary structures and any other waste generated during construction. All such materials must be removed from site and disposed of appropriately in accordance with the

municipal procedures in place. Infrastructure such as storage structures or containers and workshops will be removed upon completion of the project.

Operational Phase

Considering that the proposed developmental activity is situated within the townlands of Tsumeb local authorities, provisions for utilities such as water supply, electricity and sanitation connections will be connected to the already existing grid with the same service providers.

SM Dynamic promotes the idea of zero waste to dumpsite by encouraging its clients through waste recycling initiatives. It is with this background we advise the client to develop a waste management policy to guide residents and staffs of Tsumeb Municipality on how to deal with waste. We encourage initiatives such as waste segregation, reduce, reuse and recycle.

19. CONCLUSIONS AND RECOMMENDATIONS

The Environmental Management Plan (EMP) must be implemented and used as an on-site reference manual. Monitoring and review must be taken place in order to ensure compliance with environmental commitments. Transgressor must be held accountable for improved performance. The affected area rehabilitation should be done concurrent to operational phase, i.e. as the active cell is closed, it must be immediately be rehabilitated with grassing where possible.

The proponent will be responsible to finance this EMP and be responsible for the implementation of this EMP commitments. During the planning phases for the landfill construction and operations, it is the responsibility of the Tsumeb Municipality to ensure that all activities are complaint with all legal requirements. All required management measure must be in place before commencement of any project phase. The EMP is conservative and will vary depending on the scale and duration of each project phase. SM Dynamic highly recommends that sufficient fund be set aside for environmental, health and safety monitoring and compliance measure of this project on an annual basis.

This EMP was prepared in accordance with environmental principles and standards. This document was prepared with strength of the information available at the time. It must be updated and revised based on challenges which may arise on site during monitoring. If they are any queries, please contact SM Dynamic Consultants. Should the Environmental Commissioner agree with the mitigation measures presented in this document, an Environmental Clearance Certificate may be issued to the proponent.

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