



**PROJECT SPECIFICATION**

**FOR**

**OPERATION AND MAINTENANCE OF MUSINA LANDFILL SITE**

**2024**

## PROJECT SPECIFICATION

### 1. SCOPE

This specification covers the requirements for the operation and maintenance of Musina Landfill Site. It gives a general description of the site and the facilities available and also covers the day to day requirements for receiving, depositing, spreading, compacting and covering waste and the maintenance of the facilities on the site to ensure an effective operation in accordance with the conditions of the operating waste license issued therefore.

### 2. INTERPRETATION

#### Definitions

builders refuse	:	refuse generated by demolition, excavation or building activities on premises;
bulky garden refuse	:	such refuse as tree-stumps, branches of trees, shrubs, hedge-stumps and branches of hedges and any other garden refuse of quantities more than 2m <sup>3</sup> ;
bulky refuse	:	refuse which emanates from any premises, excluding industrial refuse, and which cannot by virtue of its mass, shape, size or quantity be conveniently accumulated or removed in a refuse bin with a bin liner;
business refuse	:	refuse generated by the use of premises other than a private dwelling-house used solely as a residence, but shall not include builders refuse, bulky refuse, domestic refuse or industrial refuse;
Cell	:	A body of waste which has been placed between waste berms covered with liners or soil, soil berms or builder's rubble berms compacted and enclosed by cover material.
Clean greens	:	Compostable waste derived from garden waste (gardens and parks), which has not been mixed with other waste categories.

#### Landfill Management Committee (LMC)

Landfill Management Committee (LMC)	:	Committee consisting of representatives of the Limpopo Department of Economic Development, Environment and Tourism, Vhembe District Municipality, Musina Local Municipality and operating contractor responsible for maintenance of the operational standard and advising on tariff structures.
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#### Community Monitoring Committee (CMC)

Community Monitoring Committee (CMC)	:	A Committee comprising interested and affected parties, who together with the Management Committee shall act as a Monitoring Committee as contemplated in terms of Section 11.2 of the "Minimum Requirements" for Waste Disposal By Landfill.
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#### Compaction density

Compaction density	:	The mass of a body of solid waste divided by the volume (after compaction) occupied by that same body of waste.
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Compaction ratio	:	The ratio of the volume of loose waste to the volume of the same waste after placement and compaction.
Compost	:	Organic waste that has undergone controlled microbial degradation, to produce a contaminant/nuisance free product of potential value as a soil conditioner.
Contractor's enclosure	:	An area allocated to the contractor for his/her own use in connection with the contract including the storage of equipment and plant.
Cover material	:	Soil or other suitable material that is used for enclosing a body of compacted waste but does not include builder's rubble.
Daily cell	:	As with "cell", with the size being determined by the mass of waste disposed of in a single day, as well as by the number of vehicles delivering waste.
Domestic waste	:	Solid waste that originates in a residential environment.
ECSA	:	Engineering Council of South Africa
Employer	:	The employer will be Musina Local Municipality.
Engineer	:	A suitably qualified person who is to be appointed by the service provider to check and certify the stability of the landfill site, monitor air space and or height above ground level as well as monitor the compaction ratio.
Financial Manager	:	Means the duly appointed natural or juristic person or partnership or any other financial expert appointed from time to time by the employer, to act on their behalf in regard to certain <u>financial</u> aspects of the administration and execution of this contract.
Garden refuse	:	refuse such as grass cuttings, leaves, plants and flowers which is generated as a result of normal gardening activities.
Hazardous waste	:	An inorganic or organic element or compound that, because of its toxicological, physical, chemical or persistency properties, may exercise detrimental acute or chronic impacts on human health and the environment.
Industrial waste	:	Non-toxic and non-hazardous solid waste that result from industrial processes and manufacturing.
Landfill gas	:	Typically malodorous gases generated during the decomposition of waste.
Leachate	:	The contaminated aqueous liquid which results when water percolates through decomposing waste, and which may migrate from a landfill site and represent a pollution threat.
Lift	:	A completed layer of one cell in height and usually comprising numerous adjacent cells.

Methane gas	:	A major component of landfill gas generated in the methanogenic phase of waste composition. Where methane concentrations reach between 5% and 15% of atmospheric gas, landfill gas represents an explosion hazard, as well as a potential health risk.
Notifiable waste	:	Waste, whether dry or liquid, that is potentially toxic or hazardous, and that requires special handling to avoid illness or injury to persons or damage to property (also refer to “Minimum Requirements for Waste Disposal by Landfill, 1998”).
Radioactive waste	:	Waste with a specific activity of more than 74 becquerels per g (Bq/g) and total activity more than 3,7 kBq(0,1uCi). Disposal of radioactive wastes in a landfill is prohibited.
Safe disposal	:	The process whereby spoilt foodstuff or condemned products may be disposed of on the landfill under supervision of the health inspector and/or site supervisor.
Salvaging	:	The controlled and/or uncontrolled process of recovering any material, gas, compost, or other matter from the waste for benefit.
Sanitary landfill	:	A method of disposing of refuse on land without causing nuisances or hazards to public health or safety, by utilising the principles of engineering to confine the refuse to the smallest practical area, to reduce it to the smallest practical volume, and to cover it with a layer of soil or other suitable material at the conclusion of each day's operations, or at such more frequent intervals as may be deemed necessary.
Solid waste	:	Useless, unwanted or discarded material with insufficient moisture content to represent free-flowing sludge or to generate free liquid.
Ton	:	1 000kg.
Institutional, Medical waste	:	Solid waste originating from educational, hospital, health care or research facilities.
Waste to cover ratio	:	The ratio of volume of compacted waste to volume of cover material.
Working face	:	That portion of the disposal site where waste is discharged before being compacted and enclosed by cover material.

### 3. DETAILS OF THE SITE

#### 3.1 General description

In general, the work included in this Contract is the operation and maintenance of compacted waste cells and all infrastructures within Musina Landfill Site for the contract period.

***The appointed service provider must comply with all conditions in the landfill license***

Access to the site will be given to the contractor to be appointed under this Contract for the operation and maintenance of the landfill site to be used for the disposal of solid and non-hazardous wastes (also referred to as General Waste).

The facility mainly receives waste from the Musina Local Municipality area as well as private industries or businesses. During the contract period it may happen that the facility will also serve other local authorities. The waste will be transported onto site by the relevant local authorities as well as by the general public and private contractors.

### 3.2 Description of site and access

Musina Landfill Site is on the Remainder of the Farm Messina No.4-MT along Harper Road in Musina. Musina Landfill Site is a licensed landfill site with **license number 12/4/10/8-B/8/V4**. There is non-perennial stream located at 240 m from the site which according to the Environmental Impact Assessment Report is not considered a significant water body. The lowest point of the landfill is at least 7m higher than the stream and any non-perennial runoff in the stream will, therefore, not impact on the landfill. Any contaminated runoff from the landfill will be contained in the contaminated water dam on site and this stream will, therefore, not be impacted by the waste disposal site.

The stratigraphy in the area consists mainly of the Limpopo Belt Basin, the Karoo Sequence and quaternary deposits. The study area is located on the central zone of the Limpopo Mobile Belt Basin consisting of a complex of assortment of meta sediments interlayered with quartzo – feld spathic gneisses and mafic rocks i.e. the Beit Bridge complex.

The landfill site occupies an area of about 10,5 ha and comprises of the following infrastructure: 1,8m high fence, a lockable gate, access road; a site entrance board; internal site roads; a leachate tank, landfill cells (to be developed in phases) and a leachate collection dam. According to records submitted to the South African Waste Information Systems 22 171, 34 tons of waste was landfilled from July 2022 to June 2023 at Musina Landfill Site which amounts to 184, 61 tons landfilled per month

### 3.3 Site facilities and services

#### a. Temporary buildings

The contractor will be entitled, subject to the municipality's approval and that of the employer to erect temporary or permanent buildings on the site including plant shelters, a site office, a gate control house, and 4 portable toilets. On termination of the contract, the employer shall be given the option of purchasing the additional buildings and structures so erected and failing the exercise of such option, the contractor shall demolish and remove the buildings or structures at his/her own cost and return the site in the condition it was prior to such buildings or structures being erected.

#### b. Infrastructure enclosure

The Contractor will be entitled to erect secondary fencing around the plant shelters mentioned above. This fencing would be intended to provide additional security for overnight parking of the contractor's vehicles and plant used in the operation of the site. The Contractor may also elect to erect high mast lighting in this area in order to provide improved security.

The contractor may erect or install overhead fuel storage tanks, in a bunded wall area to be agreed with the Engineer, subject to it meeting the safety and fire requirements stipulated in

the Musina Municipality by-laws. The servicing and maintenance of the contractor's vehicles and plant shall be carried out within the contractors shed and uncontrolled oil spillage will not be permitted.

c. Access roads

The main access road is tarred, the internal road from the gate as well as the road to the waste cell are surfaced with gravel.

NB: Contractor must keep the access and tarred areas clean at all times

d. Wheel wash

No wheel wash is provided.

e. Access control gates

Manually operated gates are provided at the incoming and outgoing road adjacent to the water pond and are used to control the movement of vehicles during normal operating hours. After hours the entrance is closed with a lock.

f. Weighbridge

There is no weighbridge on site waste volumes are estimated on site.

g. Computers

There are no computers available on site and the contractor shall make available his own computer/s.

h. Security

The landfill site and infrastructure is fenced with a 1.8m razor diamond fence. The contractor is required to keep the razor diamond fence and all other internal fences in good order and to repair any damage caused to it.

The Employer will appoint its own security company responsible for the site, the role of the security will be to make sure that, equipment, materials, office and storage are duly taken care of.

i. Water supply

A water storage tank has been equipped to supply the required portable water for the contractor for his/her domestic use. Water for the operation of the waste disposal site (e.g. dust control, irrigation and vehicle washing) can be obtained from the municipal workshop with approval from Vhembe District Municipality and at the contractor's own cost.

j. Electricity supply

There is currently no availability of electricity at the site and the contractor will have to provide a generator or any other alternative for running of the site office.

k. Housing of employees

No facilities are available and the contractor will not be permitted to house any of his/her employees on the site.

I. Office Administration

The Contractor shall provide equipment such as computer, printers, camera, filing cabinets and stationery necessary for day to day operation of the site.

m. Sanitary facilities

There is no ablution facilities on site and the contractor will be responsible for providing four (4) portable toilets which will be maintained by the contractor to the satisfaction of the client.

#### 4. **PLANT**

All plant used on the site shall be suitable for the application and prevailing site conditions, of adequate rated capacity, in good working condition, and shall be so designed and constructed as to cause a minimum of dust, noise and air pollution. The plant shall be operated by properly qualified and experienced operators. The plant shall be fitted with hour meters and each shall have a logbook. In the event of a breakdown occurring, the contractor shall be capable of calling upon such **back-up plant within 12 hours as is necessary to ensure that the proper operation and maintenance of the site is not placed in jeopardy.**

The turnaround time for tyres repairs is 2 hours. The contractor shall keep at site at least two spare tyres at any given time.

As a minimum, the Contractor shall be required to provide the following plant for dedicated use on the site:

1. **Between 24 and 30 tons landfill compactor.**
2. **Two (2) off four wheel drive tractor-loader-backhoe (TLB).**
3. **Two (2) Tipper trucks (minimum 10m<sup>3</sup>).**
4. **1 off Water Tanker, or Water Cat 10 000 litre minimum capacity**

All plant is to be replaced within a 12 hour period if required by the Employer and not to be older than 6 years. The second TLB and tipper truck are for loading all the waste that should have been disposed by the community at the landfill but has been dumped off site and transporting this waste to the landfill site.

#### 5. **OPERATION AND MAINTENANCE**

##### 5.1 **Operational plan**

Everything pertaining to the operation of the landfill must be included in the operating plan which must be submitted with the tender document; the operating plan must include, inter alia, the following:

- Excavation sequence
- Projected / progressive development of the landfill with time (i.e. phasing of operations) (note - design included here to a certain extent)
- Daily cell construction
- Site access

- Drainage
- Operation monitoring procedures, including the role of the Monitoring Committee
- A plan of mitigatory actions in response to problems detected by monitoring

## 5.2 **Emergency preparedness plan**

The contractor must compile an emergency preparedness plan and review it annually. The emergency preparedness plan must be submitted one month after appointment. It must include the following:

- Vehicle/machinery malfunction
- Landfill site fire
- Slope failure
- Natural disaster such as floods
- Industrial action
- Contact information of police, ambulance and emergency center close to the site

## 5.3 **Safety File**

The contractor must compile and submit a safety file in terms of the Occupational Health and Safety Act No.85 of 1993 upon appointment.

## 5.4 **Sources of waste**

The Musina landfill site is a municipal facility for the Musina Local Municipality, although some other industries, private waste removal companies and resident from the surrounding area will also make use of the site.

## 5.5 **Other sources**

Should it be to the employer's benefit, the contractor may dispose of waste at the site that originates from sources other than those indicated in Clause 5.3. In such an event, the employer reserves the right to restrict the quantity of waste received from such sources. For the duration of the contract and any extensions thereto, it will be the contractor's responsibility to make known to the employer all and any interest he/she, and/or any of his/her personnel, may have in any company or commercial waste enterprise which may result in waste being disposed of at the site. In addition, should this position change, the contractor will be obliged to inform the employer thereof within 14 days of any such change.

Any obvious abuse of this entitlement will result in the immediate cancellation thereof.

## 5.6 **Waste quantities**

Quantities of waste disposed by the municipality, general public and private contractors is estimated at 1847, 61 tons per month for all waste categories.

The employer shall not be bound to these quantities.

Because of unpredictable growth taking place, however, the actual quantities may vary considerably from the estimated quantities. Furthermore, the Musina Local Municipality reserves the right to vary its waste disposal strategy, which will affect the waste quantities involved. The contractor will be responsible for measuring the monthly mass in accordance with Clause 5.5.



## 5.7 Waste types

The site is permitted as a general landfill site (Class B) and, subject to the exceptions indicated below, the contractor will be required to handle all, non-hazardous incoming wastes including:

- domestic waste
- garden waste
- clean soil & builder's rubble
- non-hazardous dry industrial waste
- commercial waste
- bulky waste
- polymeric waste
- dead animals
- spoilt foodstuffs destined for safe disposal

No drums displaying the hazardous chemical sign, whether closed or open, will be allowed for disposal on site.

In the interests of environmental protection and complying with the site waste license requirements, the contractor will be required to record all relevant details of any person, vehicle or operator who attempts to bring any such unacceptable waste onto the site. The vehicle owner, and employer should be informed accordingly and the vehicle used to transport such waste, will immediately be blacklisted from the waste disposal facility. The contractor shall also advise the driver of such a vehicle of the locality of the nearest facility where such waste can be safely disposed of.

A container for public disposal of small quantities of domestic hazardous waste must be provided. The operating contractor will be responsible for the management of this facility, as well as for the safe disposal thereof and related cost.

## 5.8 Charges for disposal

The schedule of rates for disposal of waste is approved by the Municipality and is announced annually to coincide with their financial year. These tariffs will be applicable once the site has a weighbridge and computer.

## 5.9 Operating Hours

The contractor will be responsible for operating the site every day, including Saturdays, Sundays and Public Holidays with the exception of Christmas day and New Year's Day however, security will still be required to guard the site.

Unless otherwise negotiated, operating times for each day shall be as follows:

- Mon to Fri : Open to public from 07:00 to 16:00  
Site operation from 07:00 to 16:00
- Sat and Sun & Public Holidays : Open to public from 07:00 to 13:00  
Site operation from 07:00 to 13:00

Should it, however, be established that the above is unsuitable, then with the approval of the employer, the working hours may be altered accordingly and recorded in writing and on the notice board by the contractor.

#### 5.10 Use of site after hours

As a result of overtime work, which includes after hours waste collection, waste may be disposed of by such local authorities until 22:00 but only by special arrangement. **The operating contractor will not be expected to compact and cover the limited number of loads that will be disposed of after hours.** All other waste is however to be compacted and covered by the end of each working day.

For any waste loads other than those referred to above, prior arrangements and the employer approval will be required for the site to be opened outside of the stated operating hours.

#### 5.11 Contractors site establishment

The contractor will state in the data schedules at the time of bidding, the number, designation and qualifications of all staff to be employed, and the number and description of each of the various types of plant and equipment to be utilised on the site for the purpose of executing the contract. The contractor will be permitted to vary this establishment during the course of the contract only after written application has been made to and written permission received from the municipality. The contractor shall ensure that the employer is, at all times, in possession of an up to date register of all staff, labour, plant and equipment employed on the site. Any deviation from the provisions of this Clause, especially to the removal of plant and equipment without prior approval, will be regarded as a non-compliance.

#### 5.12 Management of the gate control guardhouse

The contractor shall provide a temporary structure that will be used as a guardhouse to house security on site for the term of contract. For the full duration of the contract, the contractor shall provide at least two competent and reliable persons to manage the gate control guardhouse full time during normal working hours. The responsibilities of these personnel shall *inter alia* include:

- identification and diversion of potential hazardous waste loads
- data capture at the gate

As a minimum requirement, the contractor must deliver proof that the two persons have attended a special course dealing specifically with the identification of potential hazardous waste and have been trained in the capturing of waste data.

#### 5.13 Site supervisor

The contractor shall provide a **full-time site supervisor** to manage the site with at least three (3) years experience on a Class B site. The experience and qualifications of the supervisor shall comply with the “Minimum Requirements for Waste Disposal by Landfill, 1998”, as issued by the Department of Water Affairs and Forestry.

The site supervisor must be contactable 24 hours a day in the event of any emergencies or serious problems that may arise on site.

#### 5.14 **Site Engineer**

The contractor is required to appoint a Professional Engineer who has three (3) years experience in landfilling as well as is registered with ECSA. The engineer will be consulting basis once a month or when called upon due to emergency situations such as fire, slope failure etc. The other duties of the Professional Engineer are detailed in other clauses of this contract and also include:

- Stability monitoring and certify that the site is stable each year.
- Compaction ratio monitoring
- Air space monitoring and or height above ground level.

#### 5.15 **Preference to users**

The contractor must at all time show equal respect and considerations to all site users and under no circumstances may he/she treat any user preferentially. This Clause has particular reference to the use of the site by vehicles belonging to a company or enterprise in which the contractor may have a direct or indirect interest.

#### 5.16 **Meetings and site inspections**

During the execution of the contract, the contractor, the employer, and other operators shall meet at approximately monthly intervals, arrangements for the O&M Landfill Management Committee (LMC) meeting being made by the /employer. In addition, meetings with the Community Monitoring Committee (CMC) will also be held at approximately quarterly intervals.

The contractor shall ensure that a member of his/her staff, who is sufficiently senior to be able to make operating decisions and commitments, as well as being familiar with the operation of the disposal site, is always in attendance at these meetings.

The contractor shall provide furniture for use in the boardroom and maintain a diary of meetings scheduled. The minimum furniture required is a boardroom table, 15 (fifteen) chairs, white board and storage cabinet. The furniture shall remain the property of the municipality at the end of the contract.

The meetings will be held to discuss all and any matters relating to the operation of the site, and to up-date and review the overall plan of operation. Decisions made, minuted and agreed upon at these meetings will be binding on the parties. It is, however, to be noted that the O&M Landfill Management Committee (LMC) does not have executive powers and that decisions affecting the Musina Local Municipality need to be approved by Council.

Periodic site inspections or audits will be undertaken by external auditors appointed by the employer. During this exercise a specially designed proforma audit checklist will be filled out, which will numerically assess important aspects of the operation. This, together with appropriate recommendations, will be submitted to both the municipality and the contractor. These inspections may or may not be conducted in conjunction with the contractor. The frequency of meetings and audits will be increased if operational standards are not

acceptable. At the discretion of the employer, such periodic site will be undertaken bi-annually.

Any member of the LMC or the CMC will have unimpeded access to the site, provided that they first report to security upon entry.

Provision must be made for a quarterly financial meeting with the Client and the Financial Manager at the client's office.

#### **5.17 Salvage rights**

In order to accommodate the salvaging operations of the waste reclaimers in a safe manner, the following method of landfill operation is to be implemented.

- The waste reclaimers are to be given an agreed period of time to salvage from the heaps of freshly dumped waste before spreading commences.
- Thereafter, the waste is to be spread by the landfill equipment ensuring that all putrescible waste is covered with inert waste or soil cover.
- Under no circumstance are the waste reclaimers and the landfill equipment to operate in the same cell simultaneously. In addition, the landfill equipment is to be fitted with a reverse alarm.
- In the interest of safety, and to avoid conflict on site, close liaison between the contractor and the waste reclaimers will be necessary. The precise details of the above modus operandi are to be determined by the contractor and the waste reclaimers on site, in consultation with Musina Local Municipality. These are to be reviewed regularly and modified if deemed necessary.
- Minutes and attendance registers of meetings between the contractor and reclaimers are to be kept and submitted monthly

#### **5.18 Operation of the site**

The contractor shall operate the landfill in accordance with the landfill license and other agreements over and above the license condition agreed to between the contractor and the municipality

The operation of the site by the contractor will involve the following major functions:

- access to the site and access control
- generation of reports
- maintenance of access roads and controlling of traffic within the site
- waste deposition and compaction
- provision and placement of cover material
- control of nuisances
- provision and maintenance of fire breaks
- construction and maintenance of site drainage
- leachate control, pumping of all sumps (leachate and sub-soil) and leachate dams
- record keeping
- topographical surveys
- general maintenance of grass
- repair and or replace any damaged infrastructure
- monitoring of site activities on air, water and ground

The principles regarding the above are discussed below, with a view to providing the prospective contractor with a clear concept of what is expected of him/her and also to providing him/her with guidelines for drawing up his/her proposed action plan. In addition to the major functions dealt with below, numerous other aspects are included for information:

a. Access to the site and access control

The Contractor shall be responsible for keeping the entrance to the site via the main access road in a clean and neat state. This includes the removal of all mud and refuse deposited on the road in the vicinity of the site entrance (particularly during wet weather) and the picking up of all windblown or scattered refuse and litter emanating from the waste delivery and disposal operation. This activity must be performed daily. The section of road to be cleaned stretches from the entrance of the site to 500m.

Access control shall at all times be performed in a responsible manner, thus ensuring that only vehicles with waste loads permitted in accordance with the license conditions and the "Minimum Requirements for Waste Disposal by Landfill, 1998", will be allowed on site.

Records of all vehicles entering and leaving the site shall be maintained at all times

b. Waste recording and generation of reports

There is no weighbridge on site and the mass of all waste loads delivered to site must be captured on site using an approved estimation sheet daily. The contractor will need to compile this information into a monthly spreadsheet recording all waste disposed on site as well as recyclables recycled on site. The employer will use this information to report on the South African Waste Information System.

c. Maintenance of access roads and controlling of traffic within the site

The contractor shall construct and maintain gravel/building rubble access roads to the disposal area on site as and when required during the contract period. The roads must be:

- usable in both wet and dry conditions.
- comfortably able to accommodate two large passing vehicles.
- sufficiently smooth and even without potholes to enable large loaded vehicles to travel at 20km/h, without damage or discomfort.
- flat enough to enable vehicles to stop and move off without undue difficulty and slipping. All gradients shall not be steeper than 1 in 10 on downhill and 1 in 15 for uphill.
- watered during dry weather for dust suppression and have sufficient surface drainage for wet weather.

The road along the perimeter of the fence must be maintained, at all times, for maintenance and security patrol purposes.

Clear and easily understandable speed limit, traffic control and direction signs must be provided from the site entrance to the off-loading point at the working face.

Areas in and around the site must be swept and kept clean of excessive mud and windblown waste (using brooms or mechanical equipment, where appropriate). Adequate resources must be utilised to perform this duty and will be for the Contractor's cost.

d. Waste deposition and compaction

Waste deposition will be conducted in adherence with the proven sanitary landfill principles (as per "Minimum Requirements for Waste Disposal by Landfill, 1998") of spreading, compacting and daily covering of waste. To achieve this, a single cell shall be constructed and enclosed by cover material at the end of each operating day. In order to expose as little waste as possible to rainfall and the environment and to afford the best compaction, waste cells will be as narrow as conditions permit. The size of the cell will be determined by the mass of waste and number of vehicles accommodated during the operating day.

Waste shall be deposited at the toe of the cell and worked upwards by spreading in approximately 250 mm thick layers, and compacted by using three passes of a landfill compactor (or appropriate equipment as agreed with the Engineer) per layer of waste to a density of at least 750kg/m<sup>3</sup>. Once compacted, the height of a cell will not exceed 2,5 m in any situation.

In order to maximise compaction effort, the slope of the working face shall be at an appropriate angle of between 1:3 and 1:4 to enable the plant to spread and compact the waste deposited at the toe of the cell, upwards upon the working face. The slope shall, however, not be so steep as to induce slipping of the driving wheels or tracks of the plant. Slopes that are too flat, on the other hand, result in excessive use of daily cover.

- *The upper horizontal surface of a cell shall be finished such that it has a fall of at least 3% and not more than 5%, away from the working face. This will ensure that water on the cell floor will flow away from the working face, instead of building up against the working face, thus resulting in water infiltrating the waste.*

Cover material shall be deposited above the cell at the top of the ramp so as to enable exposed refuse to be covered as soon as required and not necessarily only at the end of the operating day.

At the end of an operating day all waste must be contained within the cell. The entire waste surface area shall then be enclosed by cover material having a minimum compacted thickness of 150mm and a maximum compacted thickness of 250mm above the mean surface of the waste. Intermediate cover, in areas not utilised for an extended period of time, shall be placed at a thickness of 300 mm. Builder's rubble may not be used as cover material, except for the preparation of wet weather cells, or with permission from the employer/engineer.

The finished cover surface shall have a minimum slope of **3% and a maximum slope of 5%** and shall be sufficiently uniform to ensure that runoff is encouraged and that the ponding of water cannot take place.

In order to maintain the required surface gradients, level profile boards shall be erected and used for finishing off of each cell.

As soon as possible after completion of a lift to the final finished profile, and upon approval by the engineer, the contractor shall construct the final cover as detailed in the approved rehabilitation plan for the site, which will be in accordance to "Minimum Requirements for Waste Disposal by Landfill, 1998".

- Manouvering space at working face

Space must be available at the working face to enable vehicles to manouver and reverse without causing excessive congestion. A minimum cell width determined by the number of vehicles disposing simultaneously must be maintained to enable vehicles to work alongside each other, while the waste is compacted. In order to avoid overturning of vehicles, the working face area must also be located and graded so that the vehicles operate on level ground.

- Animal carcasses

Animal carcasses are to be disposed of at the toe of the working face. The carcass must be covered immediately by disposing the next load of waste onto the carcasses, allowing for a minimum of 0,75m of waste and cover material. The contractor shall pay special attention to ensuring that the whole carcass is covered, with no protrusions of feet/hooves, tails, heads/horns etc. Notwithstanding the above, stricter regulations may be enforced by the Environmental Health unit within Vhembe District Municipality.

- Spoilt foodstuff / Liquor / Beverages

Spoilt foodstuffs of condemned products may be disposed of on the landfill by the method of Safe Disposal. The foodstuff/liquor must be disposed of at the toe of the working face where after it must immediately be destroyed beneath the compactor and covered by disposing the next load of waste onto the foodstuff, allowing for a minimum of 0,75m of waste and cover material. Extreme care should be taken that none of these foods/liquor/beverages are salvaged by any of the vehicle drivers or operating staff. Notwithstanding the above, stricter regulations may be enforced by regulatory authorities concerned.

Allowance for safe disposal, by appointment, shall be seven days a week.

- Bulky waste

The contractor shall reduce the volume of items of bulky waste, as far as is practical, by the use of his/her plant.

- Wet weather

Vehicles may become stuck in the mud when the site is wet. In view of this, the contractor shall ensure that temporary access roads are passable in most situations, with a suitable contingency plan available for continuing the operation in the extreme situation where the access roads are impassable.

A wet weather cell on the main disposal site shall be kept available which has a surface of coarse well drained material, such as builder's rubble or coarse ash, which can be used as the disposal area when conditions become too wet in

other areas. A wet weather cell to accommodate at least one week's waste during adverse weather conditions must be maintained.

- Vehicles stuck on site

The contractor shall have available on site at all times (during normal operating hours) heavy-duty towropes or towbars, and he/she shall assist any vehicle that becomes stuck on the Site with minimal delay. Stuck vehicles must be towed out and under no circumstances may they be pushed out.

The contractor will be held responsible for the cost of repairs to any vehicle that has been damaged due to being pushed instead of towed. The employer also reserves the right to apply a penalty should vehicles be pushed out.

e. Provision and placement of cover

Suitable sources of cover material include:

- Material identified off site by the employer.
- Gravel materials inside the landfill site yard are available for use as cover material.
- Building rubble, ash, soil and other inert material suitable for covering the waste may be delivered to the site. This material is also to be utilised for constructing, maintaining and repairing of the site roads and berms within the site;

*Note: Excavations for cover material, in future cells, should be done according to predetermined dimensions and side slopes, in order to facilitate the construction of liners without the need to undertake excessive cutting and filling operations. It is required to construct the liners in such a way, that the respective cells will be free draining towards a predetermined low point, from where liquids can be extracted at various times of the landfill operation. In order to assist the excavation plant operator, it is suggested that level profile boards be used to indicate the angle at which side slopes are to be excavated.*

Sufficient material for cell building and refuse covering on a daily basis should be ensured by the contractor. Furthermore, a strategically placed stockpile of cover material, sufficient for three working days operation, should always be maintained.

f. Control of nuisances

The contractor shall take all reasonable measures to operate the site so as to reduce and, where possible, prevent nuisances such as:

- Odour - by applying sanitary landfill procedures for compaction and covering, as well as the removal and treatment of leachate exposed to the atmosphere. Also by spraying odour control chemicals as and when required.
- Dust – dust suppression by means of watering.



- Flies and rodents - by applying sanitary landfill procedures of compaction and covering, as well as by setting adequate fly traps, and placing fly bait at the working face, composting area, etc.
- Noise - by ensuring that all plant silencers, etc. are in good working order and by limiting the operations to the prescribed hours.
- Windblown litter - by applying sanitary landfill procedures of compaction and covering, as well as using litter catch fences where required and picking up the litter which has been scattered in the area. Adequate litter pickers should be deployed for litter picking on a daily basis.

g. Construction and maintenance of site drainage and leachate control

The contractor shall prevent undue contact between waste and storm-water, so as to minimise the volume of contaminated run-off and leachate formed. Two drainage systems are accordingly, required to be operated and maintained during the course of the contract; one for clean storm-water and uncontaminated run-off from the rehabilitated areas, and the other for contaminated storm-water and leachate extracted from the waste body which must be pumped/drained into the Vhembe District Municipality Waste Water Treatment Works at the cost of the contractor.

*Uncontaminated storm-water:*

A system of berms and cut-off drains is constructed around the perimeter of the site to prevent clean water from entering the working area. The object of the drainage system is to divert clean storm-water run-off around one or both sides of the waste body. Such runoff will be classified as unpolluted.

The continued extension and maintenance of this system by the contractor to keep it free-draining, is required throughout the contract and the contractor is required to state in his/her action plan, the methods he/she proposes to use in this regard.

*Contaminated water:*

Run-off from the Site which has been in contact with the waste body collected in a drainage channel immediately adjacent to the landfill, which discharges into the evaporation control dam constructed for the purpose.

The quality of this water is to be monitored by the operator and the water shall only be discharged, if acceptable, on instruction of the Responsible Person.

The floor of the disposal cell must be kept clean and free from any obstruction to ensure that storm-water falling within the cell-area will flow away from the exposed waste at the working face and towards the lowest point of the cell, which will in turn be pumped into the evaporation pond. Suitable pumping equipment is to be supplied by the contractor as part of the equipment for operating and maintaining the site. The pumping equipment shall be kept available on the site and used to ensure that the cell-area is always drained.

All water that has been in contact with waste will be considered to be contaminated, as well as any water with which it comes into contact. The contractor will be required to contain such water in the evaporation pond (from where it will be allowed to

evaporate) and prevent it from polluting uncontaminated water from areas outside the waste disposal area.

*Leachate:*

The contractor will need to monitor the localised leachate collection. Provision and operation of adequate portable pump systems will be for the Contractor's cost. All other pumping equipment required is to be supplied by the contractor as part of the equipment for operating and maintaining the site.

Throughout the operation of the landfill, the primary objective should be to reduce the formation of leachate, with the secondary objective being to manage leachate formed, in an environmentally sound manner.

The leachate tank should be emptied once a week into the Vhembe District Municipality Waste Water Treatment Works at the cost of the contractor or in an event of rainfall it should be emptied daily to avoid spillage.

h. Record keeping

The contractor shall maintain detailed daily records of the following aspects and these shall be available for inspection by the engineer/employer at all times:

- Quantity of cover placed
- Quantities of waste handled (Including mass, category and registration details of each vehicle)
- Daily position of waste deposition on site
- Complaints lodged
- Incidents and accidents
- Site protocol violations
- Breakdowns and stoppages
- Weather stations including minimum and maximum temperature, rainfall, wind speed and direction.
- Site diary to record unusual incidents
- Leachate and pumping log book, indicating frequency and volumes pumped.

The contractor shall also keep a site instruction book on site.

The supply of all consumables for record keeping, invoices and associated computer equipment, peripherals and the supply of suitable extra heavy duty printers is the responsibility of the contractor.

I. General maintenance at groundwater monitoring boreholes

There are no ground water monitoring boreholes installed on site however should they be made available on site during the course of the contract, they shall be adequately marked (painted yellow) at least once per annum. All grass, within a 3m radius, around the boreholes will be cut on a regular basis.

5.19 **Maintenance of the site**

The contractor shall maintain all aspects of the site in order to ensure its smooth and efficient operation and to prevent undue deterioration of any item. The contractor shall bear all maintenance costs other than the costs of materials required as a result of normal wear and tear.

Should it at any stage be evident that a large repair has resulted because the contractor did not take action at an earlier stage, and that the contractor has no good reason for not having taken earlier action, the cost of that repair will be for the contractor's account. In maintaining the site, the contractor will be expected to perform maintenance work on his/her own initiative and without first being instructed to do so by the engineer/employer.

Included in the maintenance of the site are:

a. Scattered waste

The keeping of the **site and its surrounds** neat and clean by the removal of all windblown or scattered refuse and the picking up of all litter emanating from the operation. This must be performed daily. Areas of particular importance are:

- the access road to the landfill and road reserve portions described in Section 5.14(a)
- the entrance and surrounding area
- all site roads
- the area surrounding the working face
- the perimeter fence

b. Buildings

The contractor shall be responsible for the upkeep of the buildings and structures used by him. This will include, but not be limited to the following:

- repair of any damage or deterioration to any of the buildings, other than normal wear and tear maintenance;
- general housekeeping to ensure that the buildings inside and outside as well as the areas surrounding them are kept clean and neat;

- painting of all buildings and structures (once per annum) using quality approved paint products;
- upkeep and maintenance of gardens and landscaped areas including regular watering (twice per week) of all trees on site
- ensuring clean and hygienic conditions in all toilets, showers, washbasins and kitchen areas.
- maintenance of all wooden doors
- replacement of light bulbs

On termination of the contract, all buildings shall be left in a thoroughly clean and sound condition, to the satisfaction of the engineer.

c. Access road

The contractor shall be responsible for the maintenance of all temporary and permanent access roads (i.e. those roads within the site boundary to provide access to the working face). This work will include the watering of the surface to prevent dust nuisance, the grading and filling in of pot-holes from time to time, the resurfacing of the road with selected graded material or building rubble free from reinforcing and with particle size less than 300mm as well as any other repair work to ensure that access to the working area is provided in a safe and usable condition, to the satisfaction of the engineer. All roads shall be to an all-weather standard.

d. Berms and storm-water drainage channels

The contractor shall be responsible for keeping all berms and storm-water channels in good condition and blockage free, so that they will adequately perform their intended function. Silt accumulating in the storm-water drains shall be removed on a regular basis.

Where required, temporary berms and storm-water drainage channels shall be provided by the contractor to ensure the safe and sound operation of the waste disposal site. Such berms and channels are only to be constructed after consultation with the engineer/employer, in order to ensure that it will not interfere with the long-term development plan for the site.

e. Fences, gates and access control boom

The contractor shall keep the fences and gates of both the perimeter, water pond and infrastructure area in good order and shall repair any damage caused to them. All bushes and trees that grow on the line of the security fence are to be removed and the roots killed. All bushes and trees that grow around the water pond are to be removed and the roots killed.

f. Weighbridge

There is no weighbridge on site.

g. Completed areas

The contractor shall be responsible for the watering of all trees and shrubs planted until such time as they are, in the opinion of the municipality, well enough established not to require further watering. Any erosion furrows and subsidence's which form on intermediate or finally covered disposal areas shall be filled in and re-grassed where applicable.

h. Servitudes

The keeping of all servitudes neat and clean by the removal of all weeds along the fence, windblown litter etc.

i. Fire breaks

The contractor will be required to maintain adequate fire breaks, to the satisfaction of the engineer/employer, in order to prevent fires on site, and to take all other steps as may be required to prevent the outbreak and spreading of fires and to provide and maintain the acceptable levels of firefighting equipment on the site.

j. fire Extinguishers

The contractor shall provide and service all fire extinguishers as per requirement of the chief fire fighter of the Vhembe District Municipality.

k. Notice board

There is a notice board on site and this notice board must be updated and maintained by the contractor. The contractor is to liaise with the employer on the changes to be made. The contractor shall be responsible for maintaining the noticeboard in good repair for the duration of the contract.

5.20 **Testing**

Routine inspections will be carried out by the employer to check the contractor's operations for compliance with the requirements of the specification.

a. Pollution monitoring

Sampling of surface water and leachate shall be undertaken by the contractor testing for variables as described in the waste management license of the site once per month or as directed by Limpopo Department of Economic Development, Environment and Tourism. Results of these tests shall be included in the monthly report. The results shall be interpreted by the contractor stating if there is any impact on the quality of the water regime in the vicinity of the site due to the landfilling operation. Other samples may be taken by the employer or the department of Water Affairs at other times, if considered necessary.

b. Gas monitoring

The contractor must develop a quarterly gas monitoring programme to determine the pollutants concentrations at the surrounding areas in order to establish potential gas programmes and results of such monitoring must be included in the quarterly internal audit report and submitted to the employer.

c. Auditing

The operation of the landfill will be audited quarterly or other regular intervals by the contractor to ensure the operation is at an acceptable level. The contractor will be responsible for training an official of the Municipality to take over the auditing function.

The objectives of the internal landfill auditing are:

- To ensure acceptable operating procedures and hence environmental standards are maintained.
- To ensure that the planned landfill operating procedures and design are implemented
- To provide a quantified means of assessing and comparing standards.
- To ensure compliance to the waste management license of the site

## 5.21 **Violation of site protocol**

The contractor shall maintain a record and the details of the occurrence of all vehicles that violate the site protocol. Vehicles shall be "blacklisted" from being allowed to dispose of waste at the Musina landfill site, or any of the other sites owned by the Vhembe District Municipality, for a period determined by the employer, depending on the violation. A report of the violation is to be given to the vehicle driver and distributed to the driver's direct supervisor and the employer. Types of incidences considered to be a violation, are in accordance with the following site rules as displayed on site:

**“SITE RULES FOR THE MUSINA LANDFILL SITE”**  
**WASTE LICENSE: CLASS B FOR DISPOSAL OF GENERAL WASTE**

This landfill site is operated under contract to the Musina Local Municipality and right of admission is reserved. Violation of site protocol may lead to temporary or permanent expulsion from the waste disposal facility, together with possible prosecution, depending on the nature and / or frequency of the default.

- Only general, dry, non-hazardous wastes may be disposed of on this facility.
- The contractor is legally bound to operate the site strictly according to the operational contract and instructions from the operating contractor's personnel must be adhered to.
- The landfill site and all its facilities are used at the user's own risk.
- All drums and containers will be inspected at the gate prior to disposal at the workface. No sealed containers will be accepted on site.
- Empty containers displaying hazard or warning decals/sticker will not be permitted on this facility.
- Waste is only to be disposed of within the demarcated area or in the designated containers indicated by the operating contractor's personnel. Site users are responsible for off-loading their vehicles and must provide adequate labour and equipment.
- Scavenging by vehicle drivers and / or their assistants will lead to blacklisting of their vehicles.

- No open fires or the burning of waste is allowed on the site.
- Speed limits must not be exceeded and traffic rules must be adhered to.
- Road signs must be obeyed.
- Open or partially open trucks or containers must be covered with properly installed nets.
- Children are not allowed to enter the site, unless accompanied by an adult. Neither are they allowed to leave vehicles in any area of the site.
- No vehicles may exceed the legal payloads or have waste stacked in areas not designed to carry waste.
- Visitors must adhere to all security arrangements on site and users of the facility are not allowed to bring firearms into the security area.
- An administration penalty will be levied if incorrect or misleading information is provided by vehicle drivers.
- No cash transactions will be handled on site.”

The employer may from time to time alter the site rules as dictated by conditions on site.

## 6. PENALTIES

The events or requirements for which penalties shall be applied, and the corresponding amounts of the penalties are as follows:

- Failure by the contractor to open or to operate the site on any of the operating days, or closure of the Site for each hour or part thereof during the agreed operating hours:  
  
**R1 500, 00 for first hour or part thereof, escalating by R1 000,00 for each further one hour period or part thereof.**
- Failure by the contractor to adequately cover overnight with material any one area of waste exceeding 5,0m<sup>2</sup> (excluding limited volumes of waste delivered after hours) for normal waste and any exposure in the case of animal carcasses or similar wastes:  
  
**R2 000, 00 for first occurrence, escalating by R1 000,00 for each further occurrence to a maximum of R10 000,00 per occurrence.**
- Any proven deviation from the operating permit conditions, which includes the "Minimum Requirements for Waste Disposal by Landfill, 1998":  
  
**R2 000, 00 for first occurrence, escalating by R1 000, 00 for each further occurrence to a maximum of R10 000, 00 per occurrence.**
- Inadequate nuisance control like litter control, odour control, dust control, rodent control and vector control:

**R2 000, 00 for first occurrence, escalating by R1 000, 00 for each further occurrence to a maximum of R5 000,00 per occurrence.**

- e. Vehicles pushed out when stuck on site:

**R1 000, 00 for first occurrence, escalating by R500,00 for each further occurrence to a maximum of R5 000,00 per occurrence, plus the cost for any repairs to damaged vehicles as a result of the pushing.**

- f. Not caring and maintaining the site including scattered waste, all buildings and structures, access roads, entrance road, berms and storm-water drainage channels, fences, gates and completed areas.

**R1 000, 00 for first occurrence, escalating by R500, 00 for each further occurrence to a maximum of R5 000,00 per occurrence.**

- g. Allowing the disposal of materials not being permitted for disposal according to the Minimum Requirements for Waste Disposal by Landfill 1988, the waste license or the site rules:

**R5 000, 00 for first occurrence, escalating by R1 000, 00 for each further occurrence to a maximum of R10 000, 00 per occurrence.**

- h. Allowing the disposal of unauthorized waste streams including de-listed waste:

**R5 000, 00 for first occurrence, escalating by R1 000, 00 for each further occurrence to a maximum of R10 000,00 per occurrence.**

- i. Not excavating the cover material to within 1,0m tolerance on the horizontal dimensions, 300mm on the vertical dimensions and slopes on the sides of excavations steeper than 1 (vertical) : 3 (horizontal):

**The construction costs required for the additional cut-and-fill earthworks to ensure that any excavated waste disposal cell is correctly positioned in terms of the overall site development plan, free draining to a pre-determined low point as well as suitable shaped for the construction of liners by means of heavy civil engineering construction equipment.**

- j. Developing the natural landform such that, irrespective of the final landform model, the side slope in any part of the landfill exceeds a maximum slope of 1 (vertical) : 3 (horizontal).

**The construction costs required for the additional cut-and-fill to ensure the waste body is shaped such that it will not create a threat of potential side failure and will allow for the compaction of the final capping as part of rehabilitation by means of heavy civil engineering construction equipment.**

- k. Developing the upper horizontal surface of a cell not to the prescribed slopes of at least 3% and not more than 5%, towards the working face.

**The construction costs required for the additional cut-and-fill to ensure the waste body and the finished cover surface shall have a minimum slope of 3% and a maximum slope of 5% and shall be sufficiently uniform to ensure that runoff is encouraged and that the ponding of water cannot take place.**

- l. Failure to maintain a 500mm freeboard at all containment dams or sumps, and allowing to



overflow.

**R10 000,00 for first occurrence, escalating by R5 000,00 for each further occurrence to a maximum of R50 000,00 per occurrence. As well as the remedial costs involved on any environmental contamination.**

- m. Employer reserves the right to terminate the contract if the contractor is in breach of contract and fails to rectify such breach of contract after a second written warning was issued to the contractor without the necessary remedial action being taken.

## 7. EVALUATION OF BIDS

7.1 All bids received shall be assessed in terms of the Supply Chain Management Regulations, Musina Local Municipality Supply Chain Management Policy, the Preferential Procurement Policy Framework Act and any other applicable legislation or regulations.

7.2 The assessment criteria consist of the following 2 Phases: -

- **Phase 1** – Mandatory requirements to assess each bidder’s ability to execute the scope of work or contract; and
- **Phase 2** – Price and specific goals.

## 8. MANDATORY REQUIREMENTS TO ASSESS EACH BIDDER’S ABILITY TO EXECUTE THE SCOPE OF WORK / CONTRACT (PHASE 1)

8.1 A bidder must submit the below listed mandatory documentation.

Item	Description	Yes / No
1.	Copy of the company registration documents / certificates (in cases of joint venture, the JV Partnership Agreement)	
2.	Original certified copy of proof of registration of the company with the Institute of Waste Management of Southern Africa (IWMSA)	
3.	Original certified copy of ownership of plant that will be used at Musina Landfill Site as per the specification	
4.	Original certified copy of a letter of good standing from the Department of Labour	
5.	Certified copies of IDs for all Director(s)	
6.	<u>The company’s operational plan for Musina Landfill Site:</u> The operational plan of the company must be attached as annexure and bidder’s operational plan must detail the	

	<p>following:</p> <ul style="list-style-type: none"> <li>• Excavation sequence</li> <li>• Projected / progressive development of the landfill with time (i.e. phasing of operations) (note - design included here to a certain extent)</li> <li>• Daily cell construction</li> <li>• Site access</li> <li>• Drainage</li> <li>• Operation monitoring procedures, including the role of the Monitoring Committee</li> <li>• A plan of mitigatory actions in response to problems detected by monitoring</li> </ul>	
7.	<p><u>The company's relevant experience in providing landfilling services:</u></p> <ul style="list-style-type: none"> <li>• Bidders are required to attach or submit five (5) or more appointment letters and reference letters which indicate that the company has provided or provides landfilling services.</li> </ul>	
8.	<p><u>Years of Experience of staff members:</u></p> <ul style="list-style-type: none"> <li>• Bidders to submit proof of three (3) years or above experience for Professional Engineer who will be working on a consulting basis.</li> <li>• Bidders to submit proof of registration of the professional engineer.</li> <li>• Submit proof of experience for the site manager.</li> </ul> <p>Bidders must attach CV &amp; relevant Qualifications and proof of registration with applicable professional body such as ECSA calculated from date of registration.</p>	
9.	<p>Bidders must attach a detailed Fee structure (must be attached).</p>	

## 9. PRICE AND SPECIFIC GOALS (PHASE 2)

9.1 Preferential Procurement Policy Framework Act (PPPFA) of 80/20 rule shall apply.

Evaluation Criteria	Points
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Price	80
Specific Goals – Points	20
Total Maximum Score	100

## 10. SCHEDULE OF QUANTITIES-LANDFILL OPERATION

NO	DESCRIPTION
	TIME RELATED CHARGES Contractual requirements Maintenance of site General responsibilities and other time related obligation.
	PROVISIONAL SUMS FOR WORK REQUIRED BY THE EMPLOYER Testing and internal audits Overhead charges and profit
	WASTE DISPOSAL Disposal of general waste in designated areas or in cells Top- soiling and grassing

## SUMMARY OF SCHEDULE

### LANDFILL OPERATION AND MAINTENANCE

SCHEDULE	DESCRIPTION	AMOUNT
1	Preliminary and general	
2	Waste disposal	
3	Maintenance	
4	Internal Audits (four (4) times per year)	
SUB-TOTAL		
Contingency (10%)		
TOTAL(Excluding VAT)		
Value Added Tax(VAT) 15%		

TOTAL OPERATION AND MAINTENANCE INCLUDING VAT		

**11. COMPULSORY BRIEFING SESSION**

There will be a compulsory briefing session for the bid.

**12. PERIOD OF VALIDITY OF TENDER**

The period of validity of tenders shall be 90 days as stated in the tender form and be calculated from the closing date for submission of tenders.