



**Waste Management Licence Application Additional Information Annexure
(application for new facilities, expansion of existing facilities or decommissioning /
closure of existing facilities.)**

DECEMBER 2013

DEPARTMENTAL REFERENCE NUMBER(S)

| | |
|--------------------------------|---------------------------------|
| File reference number (EIA): | 16/3/3/1/B4/23/1005/19 |
| File reference number (Waste): | 19/2/5/3/B4/23/WL0008/19 |
| File reference number (Other): | |

PROJECT TITLE

**EXPANSION AND WASTE LICENSE APPLICATION FOR THE GROENFONTEIN KLAPMUTS
COMPOST FACILITY ON REMAINDER FARMS GROENFONTEIN ANNEX 716 PORTION 54;
PORTION 56 AND A PORTION OF PORTION 25, PAARL**

Kindly note that:

- For an application for a waste management licence that must be subjected to a Basic Assessment or Scoping & Environmental Impact Reporting process, this Annexure must be submitted together with the Basic Assessment Report or Environmental Impact Report. Note that when applying for decommissioning/closure of existing facility only the following sections must be completed 2, 3, 15 and 16.
- This annexure is current as of December 2013. It is the responsibility of the Applicant / EAP to ascertain whether subsequent versions of the appendix have been published or produced by the competent authority.
- The required information must be typed within the spaces provided in the report. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided. It is in the form of a table that will expand as each space is filled with typing.
- An incomplete annexure may result in the rejection of the Basic Assessment Report or Environmental Impact Report.
- The use of "not applicable" in the document must be done with circumspection. Where it is used in respect of material information that is required by the Department for assessing the application, this may result in the rejection of the Basic Assessment Report or Environmental impact Report.
- While the different sections of the annexure report only provide space for provision of information related to one alternative, if more than one feasible and reasonable alternative is considered, the relevant section must be copied and completed for each alternative.**
- Unless protected by law all information contained in, and attached to this report, will become public information on receipt by the competent authority. If information is not submitted with this report due to such information being protected by law, the applicant and/or EAP must declare such non-disclosure and provide the reasons for the belief that the information is protected.
- This annexure must be submitted together with the Basic Assessment Report or Environmental Impact Report to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. No faxed or e-mailed reports will be accepted. **Please note that for waste management licence applications, this report must be submitted for the attention of the Department's Waste Management Directorate (tel: 021-483-2756 and fax: 021-483-4425) at the same postal address as the Cape Town Office Region A.**

DEPARTMENTAL DETAILS

DIRECTORATE WASTE MANAGEMENT

| |
|---|
| Department of Environmental Affairs and Development Planning Attention: Directorate Waste Management Private Bag X 9086 Cape Town, 8000 Registry Office 1 st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to: Tel. (021) 483-2756 Fax (021) 483-4425 |
|---|

| Highlight the type of project: | Recycling and/or recovery facility | Treatment facility | Disposal facility | Other |
|---|------------------------------------|--------------------|-------------------|-------|
| Please provide a general description of the project and associated infrastructure: | | | | |
| The existing facility is operating under an existing Environmental Authorisation please refer to Appendix K4 for a copy of the Authorisation. The facility is currently operating in terms of the following: | | | | |
| <ul style="list-style-type: none"> • Current extent of the composting area (in hectares or m²): | | | | |
| ±1.36ha currently being used | | | | |
| <ul style="list-style-type: none"> • Tonnage of compost produced (per month / annum): | | | | |
| Figures are based on sales for the period from <u>Jan 2018 – Jan 2019</u> : | | | | |
| <ul style="list-style-type: none"> o Chicken manure: 1,267 m³/month o Compost: 538 m³/month o Waste Manure: 426 m³/month | | | | |
| The proposed activity is for the expansion and licensing of a compost facility to recycle and treat organic waste to produce compost on approximately 14.3ha. | | | | |
| <u>Composting activity:</u> | | | | |
| Composting of organic waste is done using the turned windrow method. It is proposed to expand the existing footprint of the composting activity by 3ha; this would allow the facility to treat general and organic waste with a capacity in excess of 10 tons but less than 100 tons. | | | | |
| The facility will be expanded to accept mixed compostable organic waste for composting by turned windrow method. The facility intends to accept approximately 200m ³ of organic waste per day which would equate to 4000m ³ of compostable organic waste to be accepted per month. | | | | |
| Please take note that for the purpose of this report " compostable organic waste " is defined as: A carbon-based material of animal or plant origin (that is defined as waste in terms of the South African gazetted National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008;) that naturally enhances fertility of soil through a natural degradation process but excludes human made organic chemicals and naturally occurring organic chemicals which have been refined or concentrated by human activity. | | | | |
| "Organic Waste" will generally comprise materials that can be accepted for disposal at a licensed municipal general waste landfill facility (i.e. excludes infectious, poisonous, health-care and hazardous organic wastes)". | | | | |
| National Organic Waste Composting Strategy, 2013. | | | | |
| <u>Stormwater management:</u> | | | | |
| <u>Current dams capacity:</u> | | | | |
| The <u>existing</u> two dams (located on Portions 54 and 56 respectively) have a combined storage capacity of ±6600m ³ . | | | | |
| <u>Proposed dam and capacity:</u> | | | | |
| It is envisaged that the existing dams will be reshaped, and the walls merged in order to create a single dam with a smaller footprint. This will provide more economical usage of the available land. | | | | |
| <ul style="list-style-type: none"> • The proposed dam with a 3m high wall will have a capacity of ±13 800m³ including a spare capacity of ±15%. • If the wall is raised to 3.5m the storage capacity will increase to ±15 600m³ with a spare capacity of ±30%. | | | | |
| In order to limit the runoff to the dams a cut-off drain will be constructed on the southern boundary of Portion 56. Runoff from the adjacent property will then be intercepted and directed towards the watercourse described above. This will reduce the catchment area of stormwater crossing the properties to ±13ha. | | | | |

1. SIZE OF SITE AND FACILITY, AND CLASSIFICATION OF FACILITY

| | |
|---|---|
| Size of facility for a waste management activity | ±143000m ² |
| Area where the waste management activity takes place | ±67000m ² |
| In terms of waste disposal and composting facilities: Classification of facility in terms of climatic water balance | The site is classified as B+, in terms of climatic water balance. Leachate management systems may be required (see Appendix K3 of the BAR). |

| | |
|---|--|
| In terms of waste disposal facilities: Classification of Facility in terms of the type and the quantity of waste received | Category A Facility (equivalent to Basic Impact Assessment (EIA)) General waste more specifically Part C organic waste). |
|---|--|

2. GEOGRAPHICAL COORDINATES OF ALL EXTERNAL CORNER POINTS OF FOOTPRINT OF THE WASTE MANAGEMENT FACILITY

| Number of Corners | Latitude (S): | | | Longitude (E): | | |
|-------------------|-----------------|-----|--------|-----------------|-----|--------|
| | | | | | | |
| NW Corner | 33 ⁰ | 47' | 00.30" | 18 ⁰ | 50' | 12.11" |
| NE Corner | 33 ⁰ | 47' | 10.20" | 18 ⁰ | 50' | 24.59" |
| SW Corner | 33 ⁰ | 47' | 09.17" | 18 ⁰ | 50' | 03.76" |
| SE Corner | 33 ⁰ | 47' | 18.43" | 18 ⁰ | 50' | 23.99" |

Please note: The corner numbers must be indicate on a site map to be attached to this annexure.

3. DETAILS OF THE PERSON WISHING TO HOLD THE WASTE MANAGEMENT LICENCE

| | | | | | | |
|--|---|--------------|-------|----|--|--|
| First name and surname: | Mr. Pieter Visser | | | | | |
| Company Name (if any): | Boland Organic Supplies (Pty) Ltd | | | | | |
| Identity and/or Company Registration number: | 2013/173661/07 | | | | | |
| Physical address: | Remainder Farms Groenfontein Annex 716 Portion 54; Portion 56 and a Portion of Portion 25, Paarl. | | | | | |
| Postal address: | PO Box 272 | | | | | |
| | Moorreesburg | Postal code: | 7310 | | | |
| Telephone: | 021 971 1404 | | Cell: | NA | | |
| E-mail: | pietervisser@tiptrans.co.za | | Fax: | NA | | |
| EAP Qualifications | B Tech Oceanography: Cape Peninsula University of Technology (2010) | | | | | |
| EAP Registrations/Associations | SACNASP Cand.Sci.Nat (Biological Science) no. 100126/12 | | | | | |

4. DETAILS OF THE OPERATIONAL TIMES

| Period | From | Until |
|------------------------|-------|-------|
| Weekdays | 07h00 | 18h00 |
| Saturdays | 07h00 | 18h00 |
| Sundays | NA | NA |
| Public Holidays | 07h00 | 18h00 |

5. DESCRIPTION OF THE WASTE MANAGEMENT ACTIVITIES AND THE WASTE MANAGEMENT OPERATIONS

5.1 Provide a flow chart of the operation showing all inputs and outputs of the process.

The proposed activity is for the expansion and licensing of a compost facility to recycle and treat organic waste to produce compost on approximately 14.3ha.

Composting activity:
Composting of organic waste is done using the turned windrow method. It is proposed to expand the existing footprint of the composting activity by 3ha; this would allow the facility to treat organic waste with a capacity in excess of 10 tons but less than 100 tons.

The facility will be expanded to accept mixed compostable organic waste* for composting by turned windrow method. The facility intends to accept approximately 200m³ of organic waste per day which would equate to 4000m³ of compostable organic waste to be accepted per month.

Stormwater management:
The existing two dams (located on Portions 54 and 56 respectively) have a combined storage capacity of ±6600m³. It is envisaged that the existing dams will be reshaped and the walls merged in order to create a single dam with a smaller footprint. This will provide more economical usage of the

available land. The proposed dam with a 3m high wall will have a capacity of ±13 800m³ including a spare capacity of ±15%. If the wall is raised to 3.5m the storage capacity will increase to ±15 600m³ with a spare capacity of ±30%.

In order to limit the runoff to the dams a cut-off drain will be constructed on the southern boundary of Portion 56. Runoff from the adjacent property will then be intercepted and directed towards the watercourse described above. This will reduce the catchment area of stormwater crossing the properties to ±13ha.

What composting entails?

Composting is a managed biological decomposition process that converts organic matter into stable, humus-like material. Composting is a process in which micro-organisms flourish with the proper mixture of bulking agents (e.g. woodchips), animal tissue, water and air.

When done properly, the process consumes tissue, minimizes odours and produces quality finished compost.

The five criteria of a good recipe are:

- Carbon (plant) and Nitrogen (animal) ratios (C:N)
- Moisture Content
- Particle Size
- Oxygen Content
- Temperature
- pH

Process

The physical structure of the compost pile is essential in managing the above critical chemical parameters.

In agriculture, windrow composting is the production of compost by piling organic matter or biodegradable waste, such as animal manure and crop residues, in long rows (windrows). This method is suited to producing large volumes of compost.

It is necessary to ensure that all organic waste is placed on a dry plant material base, i.e. wood chips to reduce smells and attraction of flies and other pests. These chips are of an ideal size to ensure that initial porosity required is achieved to ensure airflow until the moisture levels within either the windrows or the bulk piles has equalized. The base layer of wood chips also prevents any run off of liquids onto the site. Once the piles have settled down and reduced in height after the first month, the windrow can be turned or the bulk pile added to a windrow.

The windrows are turned according to guided frequencies once the initial digestion of the organic waste has taken place, taking into account the temperature and moisture levels. The compost has to be turned when the temperature gets to 65°C or above. This is critical to keep the bacteria functioning and also to prevent a fire risk which can occur above 70°C.

If the temperature is too high, moisture will be added (usually from the retention dams) and then the row will be turned to incorporate air. This will stabilize the windrow.

Please refer to the Operating Specification Data Annexed to this document.

Please take note that for the purpose of this report “**compostable organic waste**” is defined as: A carbon-based material of animal or plant origin (that is defined as waste in terms of the South African gazetted National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008;) that naturally enhances fertility of soil through a natural degradation process but excludes human made organic chemicals and naturally occurring organic chemicals which have been refined or concentrated by human activity.

“Organic Waste” will generally comprise materials that can be accepted for disposal at a licensed municipal general waste landfill facility (i.e. excludes infectious, poisonous, health-care and hazardous organic wastes)”.
National Organic Waste Composting Strategy, 2013.

| | <u>Definition</u> | <u>Reference</u> |
|---------------|--|---|
| Animal Manure | A by-product of animal excreta which is bio-degradable in nature and could further be used for fertilisation purposes. | National Environmental Management: Waste |

| | | |
|---------------------------|--|--|
| | | Act (Act No. 59 of 2008) : GN 718 19(1) |
| Compost | A stabilised, homogenous, fully decomposed substance of animal or plant origin to which no plant nutrients have been added and that is free of substances or elements that could be harmful to man, animal, plant or the environment. | Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No. 36 of 1947): GNR 732 of 10 September 2012 -Regulations Regarding Fertilizers |
| Compostable Organic Waste | A carbon-based material of animal or plant origin (that is defined as waste in terms of the South African gazetted National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008:;) that naturally enhances fertility of soil through a natural degradation process but excludes human made organic chemicals and naturally occurring organic chemicals which have been refined or concentrated by human activity. "Organic Waste" will generally comprise materials that can be accepted for disposal at a licensed municipal general waste landfill facility (i.e. excludes infectious, poisonous, health-care and hazardous organic wastes)". | National Organic Waste Composting Strategy, 2013 |
| Garden Waste | NOTE: The NEM: Waste Act does not list a definition for "Garden Waste". For the purposes of this report, "garden waste" is meant as organic biodegradable waste material generated from the likes of a typical garden. Reference to "Green Waste" in this report typically refers to "Garden Waste". | None |
| Organic Waste* | "Organic Waste" is categorised as, "garden waste, food waste and wood waste." PLEASE NOTE: For the purposes of this project, waste of biological origin which can be broken down, in a reasonable amount of time, into its base compounds by micro-organisms and other living things and/or by other forms of treatment, regardless of what those compounds may be, have also been considered as "organic waste" and are referenced in this study. | National Environmental Management: Waste Act (Act No. 59 of 2008): GNR 625 - National Waste Information Regulations |

5.2 Give particulars of the source, location, nature, composition and quantity of emission to the atmosphere,

surface water, sewer, and ground-water including noise emissions. Solid waste must be in cubic metres (m³) or tons (t) and specify units for liquids and gases.

Emissions:

Possible odorous emissions associated with the biological decomposition process of organic waste to produce compost may be emitted. The compost facility will operate in terms of best practice measures intend to minimise or avoid offensive odours.

Hydrogen sulphide and ammonia as gaseous emissions, which could be associated with the activity and might negatively affect the receptor community and the environment. In order to ensure the above-mentioned odorous emissions from this proposed activity is not harmful to the health and well-being of people, passive fence line monitoring for these pollutants may be required by the relevant authority.

The National Ambient Air Quality Standards in terms of Section 9(1) of the Air Quality Act as promulgated in the Government Notice 1210 of 2009 does not make provision for limit values as odour indicators, aimed to reduce the detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage. Although South Africa do not have guidelines for controlling and managing odours, various odour thresholds and guidelines have been published internationally in the determination of the odour impact

The applicant must follow best available techniques (BAT) to avoid offensive odours at the compost facility.

Noise:

Noise can be generated from the delivery of products to or from the facility. This can be mitigated through the implementation of a delivery schedule to ensure that deliveries are only conducted during normal working hours and days.

Noise can also be generated through operational activities associated with the composting process. Vehicles and machinery such as front loaders / digger-loaders / chipping machine may be some of the machinery used at the facility for the forming of windrows, turning of windrows or for the chipping of wood to be used as bulking agents during the composting process. This can be mitigated through the restriction of operating hours of the facility to ensure that excessive noise outside of normal operating hours is not generated.

Odour:

Possible odorous emissions associated with the biological decomposition process of organic waste to produce compost may be emitted. The compost facility will operate in terms of best practice measures intend to minimise or avoid offensive odours.

Hydrogen sulphide and ammonia as gaseous emissions, which could be associated with the activity and might negatively affect the receptor community and the environment. In order to ensure the above-mentioned odorous emissions from this proposed activity is not harmful to the health and well-being of people, passive fence line monitoring for these pollutants may be required by the relevant authority.

The National Ambient Air Quality Standards in terms of Section 9(1) of the Air Quality Act as promulgated in the Government Notice 1210 of 2009 does not make provision for limit values as odour indicators, aimed to reduce the detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage. Although South Africa do not have guidelines for controlling and managing odours, various odour thresholds and guidelines have been published internationally in the determination of the odour impact

The applicant must follow best available techniques (BAT) to avoid offensive odours at the compost facility.

Exhaust Emissions:

Excessive exhaust emissions may be generated from vehicles and the operation of machinery. This can be mitigated by attaching emission filters onto the vehicles / equipment.

Dust:

Dust may be generated by vehicle movement, exposed soils and during storage, shredding, mixing, and screening of compost. This is mitigated by covering dusty materials; applying a light water spray over the dry materials; paving of all operating, storage, unloading and loading areas; and revegetating exposed soils.

Bio-aerosols:

Bio-aerosols are organisms which can enter the ambient air during the movement and agitation of materials. This is mitigated through the paving of all operating, storage, unloading and loading areas; applying a light water spray over the dry materials; windbreaks around the facility/windrows; and suction sweeping of areas.

Pests:

Rodents, flies, birds, and other wildlife naturally occurring in the vicinity may be attracted to the area as a result of the activities conducted at the facility. This is mitigated through good housekeeping, covering of the compost piles timeously and removing any residual waste promptly.

6. WASTE QUANTITIES

6.1 Indicate or specify types of waste and list the estimated in cubic meters (m³) or tons (t) expected to be managed daily (in cubic meters or tons):

| Hazardous waste | Non hazardous waste | Total |
|-----------------|------------------------------------|---|
| NA | *Compostable Organic Waste - mixed | 200m ³ per day = 4000 m ³ per month |

Please take note that for the purpose of this report “**compostable organic waste**” is defined as: A carbon-based material of animal or plant origin (that is defined as waste in terms of the South African gazetted National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008;) that naturally enhances fertility of soil through a natural degradation process but excludes human made organic chemicals and naturally occurring organic chemicals which have been refined or concentrated by human activity.

“Organic Waste” will generally comprise materials that can be accepted for disposal at a licensed municipal general waste landfill facility (i.e. excludes infectious, poisonous, health-care and hazardous organic wastes)”.

National Organic Waste Composting Strategy, 2013.

The expanded facility intends to accept Organic Waste from categories 1, 2 and 3 as defined below:

Table 9: Categorisation of organic waste

| Potential significance in terms of negative environmental impact | Category | Types of organic materials permitted for composting | |
|--|------------|--|---|
| | | Organic Waste Type | Examples |
| LOW | Category 1 | Garden and landscaping | Grass ¹ , leaves, plants, branches, tree trunks and stumps |
| | | Untreated wood | Sawdust, wood shavings, timber off-cuts, wooden crates and pallets, wood packaging |
| | | Natural organic fibrous organics | Peat, seed husks, straw, bagasse and other natural organic fibrous organics |
| | | Processed fibrous organics | Paper, cardboard, paper-processing sludge, non-synthetic textiles |
| | | Manure | Animal manure, animal droppings |
| MEDIUM | Category 2 | Other natural or processed vegetable organics | Vegetables, fruit and seeds and processing sludges and wastes, winery, brewery and distillery wastes, food organics excluding organics in Category 3. |
| | | Biosolids and manures | Sewage biosolids, animal manure and mixtures of manure and biodegradable animal bedding organics. |
| HIGH | Category 3 | Meat, fish and fatty foods | Carcasses, blood, bone, fish, fatty processing or food. |
| | | Fatty and oily sludges and organics of animal and vegetable origin | Dewatered grease trap, fatty and oily sludges of animal and vegetable origin. |
| | | Mixed residential waste containing putrescible organics | Wastes containing putrescible organics, including household domestic mixed waste and waste from commerce and industry. |
| | | Authorised (and suitable for composting) industrial waste organics | Fish-processing, paper pulp wastes and sludges with high-organic/ nitrogen loads. |

Adapted from: Environmental Guidelines: Composting and Related Organics Processing Facilities, 2004: 17.

National Organic Waste Composting Strategy, 2013.

6.2 Indicate the source of information supplied in the table above:

| Determined from volumes | Determined with weighbridge/scale | Estimated |
|---|-----------------------------------|-----------|
| If estimation is utilised please describe the method used): | | |
| NA | | |

7. RECOVERY, REUSE, RECYCLING, TREATMENT AND DISPOSAL QUANTITIES (NOT APPLICABLE FOR DECOMMISSIONING / CLOSURE APPLICATIONS):

7.1 Indicate the applicable waste types and quantities expected to be recovered, reused, recycled, treated and disposed of annually.

| Types of waste (see page 13 for waste classification) | Main Source (name of company) | Quantities (tons or m ³) | | On-site recovery reuse recycling treatment or disposal | Offsite recovery reuse recycling treatment or disposal | Offsite disposal |
|---|-------------------------------|--------------------------------------|--------------------|---|--|------------------|
| | | Quantities/day | Quantities/month | Method & location | Method location and contractor details | |
| General waste | | | | | | |
| Compostable organic waste – as defined in the National Organic Waste Composting Strategy, 2013. | | 200m ³ | 4000m ³ | Composting of mixed compostable organic waste by method of turned windrows. | NA | NA |
| Hazardous waste | | | | | | |
| NA | NA | NA | NA | NA | NA | NA |

8. SIZE OF THE POPULATION TO BE SERVED BY THE FACILITY

8.1 Indicate the size of the population to be served by the waste management facility:

| Size of Population | Comment |
|--------------------|--|
| 0-499 | The expansion of the facility would allow for the treatment of organic waste in excess of 10 tons but less than 100 tons. This would allow for more compostable organic waste to be diverted from landfill to the composting facility. This will benefit the Municipality in decreasing the pressure on the already limited capacity available at the landfill sites that accepts this kind of waste in the Municipal region. Persons residing in the Municipality would be less inclined to illegally dump this kind of waste if a facility is available for the disposal thereof. |
| 500-9,999 | |
| 10,000-199,999 | |
| 200,00 | |

9. WASTE DISPOSAL FACILITY PARAMETERS (ONLY APPLICABLE TO WASTE DISPOSAL FACILITIES)

9.1 It is imperative that the holder of the waste licence is a fit and proper person in terms of section 59 of the National Environment Management: Waste Act, 2008 (Act No. 59 of 2008). Please disclose the following:-

a) The method of disposal of waste (only applicable to waste disposal facilities):

| | |
|---------------|--|
| Land-building | |
| Land-filling | |
| Both | |

b) The dimensions of the disposal site in metres:-

| | At commencement | After rehabilitation |
|--------------|-----------------|----------------------|
| Height/Depth | | |
| | | |

Length

Breadth

c) The total volume available for the disposal of waste on the site:-

| Volume Available | Mark with "x" | Source of information (determined by surveyor/estimated) |
|----------------------|---------------|--|
| Up to 99 | | |
| 100 – 34 999 | | |
| 35 000 – 3,5 million | | |
| > 3,5 million | | |

d) Compacting and covering of the waste body:-

| | | | |
|---|-----|----|-----------------------|
| Confirm that the waste body will be covered daily | Yes | No | If no, please explain |
| | | | |
| Confirm that that sufficient cover material is available | | No | If no, please explain |
| | | | |
| Give an indication of where the cover material will be sourced and indicate the distance in kilometres/metres from waste disposal facility: | | | |
| | | | |
| Confirm that the waste will be compacted daily | | No | If no, please explain |
| | | | |

10. THE RECLAMATION/DIVERSION METHOD AT THE WASTE DISPOSAL FACILITY

10.1. Mark with an "x" the method to be used (reclamation not allowed at the working face of the disposal facility):-

At source

Recycling installation

No reclamation/diversion planned

Estimate the planned diversion rate in percentage

| |
|--|
| |
| |
| |
| |

11. FATAL FLAWS FOR THE SITE (ONLY APPLICABLE TO WASTE DISPOSAL FACILITIES):-

Indicate which of the following apply to the facility for a waste management activity:

| | | |
|---|-------------|----|
| Within a 3000m radius of the end of an airport landing strip | Yes | No |
| Within the 1 in 50 year flood line of any watercourse | Yes | No |
| Within an unstable area (fault zone, seismic zone, dolomitic area, sinkholes) | Yes | No |
| Within the drainage area or within 5 km of water source | Yes | No |
| Within an area with shallow and/or visible water table | Yes | No |
| Within an area adjacent to or above an aquifer | Yes | No |
| Within an area with shallow bedrock and limited available cover material | Yes | No |
| Within 100 m of the source of surface water | Yes | No |
| Within 1km from the wetland | Yes | No |
| Indicate the distance to the boundary of the nearest residential area |metres | |
| Indicate the distance to the boundary of the industrial area |metres | |

12. RAINFALL (ONLY APPLICABLE TO WASTE DISPOSAL FACILITIES):-

a) Indicate the wettest 6 months of the year:-

November – April

May – October

| |
|--|
| |
| |

For the wettest six month period indicated above, indicate the following for the preceding 30 years

For the 1st wettest year For the 2nd wettest year For the 3rd wettest year For the

4th wettest year For the
5th wettest year For the
6th wettest year For the
7th wettest year For the
8th wettest year For the
9th wettest year For the
10th wettest year

| Total rainfall for 6 months | Total A-pan evaporation for 6 months | Climatic water balance |
|-----------------------------|--------------------------------------|------------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**13. LOCATION AND DEPTH OF GROUND WATER MONITORING BOREHOLES
(ONLY APPLICABLE TO WASTE DISPOSAL FACILITIES):-**

| Codes of boreholes | Borehole locality | Depth (m) | Latitude | | | Longitude | | |
|--------------------|-------------------|-----------|----------|---|---|-----------|---|---|
| | | | ° | ' | " | ° | ' | " |
| | | | ° | ' | " | ° | ' | " |
| | | | ° | ' | " | ° | ' | " |
| | | | ° | ' | " | ° | ' | " |
| | | | ° | ' | " | ° | ' | " |

**14. LOCATION AND DEPTH OF LANDFILL GAS MONITORING TEST PIT
(ONLY APPLICABLE TO WASTE DISPOSAL FACILITIES):-**

| Codes of boreholes | Borehole locality | Latitude | | | Longitude | | |
|--------------------|-------------------|----------|---|---|-----------|---|---|
| | | ° | ' | " | ° | ' | " |
| | | ° | ' | " | ° | ' | " |
| | | ° | ' | " | ° | ' | " |
| | | ° | ' | " | ° | ' | " |

15. EVERY CLOSURE APPLICATION FOR FACILITIES SHOWN IN THE TABLE BELOW MUST AS A MINIMUM BE ACCOMPANIED BY DOCUMENTATION AS INDICATED HEREAFTER:

| Requirements | Recycling &/ recovery Facility | Treatment facility | Disposal facility |
|--|--------------------------------|--------------------|-------------------|
| Design of storm-water management | X | X | X |
| Design of leachate management | | | X |
| Design & duration of landfill gas monitoring and management | | | X |
| Design of settlement/surface pondage | | | X |
| Design of access roads | | | X |
| Topographic Map indicating the property | X | X | |
| Topographic Map indicating the landfill property boundary, cells (fill areas), wells, and structures within and surrounding the landfill site | | | X |
| Plan Drawings (including Final Contour Grade Map) indicating (a) the final contours and vegetation in relationship to the surrounding land and any run-off control structures | | | X |
| Plan Drawings (including Final Contour Grade Map) indicating (b) well location(s), depth to groundwater and flow direction | | | X |
| Plan Drawings (including Final Contour Grade Map) indicating (c) the locations at which gas monitoring takes place | | | X |
| Drawings showing the proposed final restored profile for the landfill accompanied by calculations of the remaining tonnages of waste (void space) and materials necessary to close, cap and restore the landfill | | | X |
| Provision of services that were provided by the facility being closed | X | X | X |
| Post Closure Site management & Operation | X | X | X |
| Monitoring Plan | X | X | X |
| Emergency Preparedness plan | X | X | X |
| Rehabilitation measures including removal of site structures, | X | X | X |

| | | | |
|--|---|---|---|
| Rehabilitation measures including waste compaction and capping; application of topsoil & vegetation establishment | | | X |
| Procedures for the inspection or auditing of the rehabilitation process and mechanisms for reporting to the licensing authority. | X | X | X |
| Long and short term stability | | | X |
| Procedures and timescales for ensuring final levels are achieved | | | X |

16. INFORMATION NEEDED WHEN APPLYING FOR ACTIVITIES LISTED UNDER CATEGORY A AND B, BUT IS NOT LIMITED THERETO:

The following MUST be included in the application as supporting documentation and the applicant must indicate specific section(s) where they are appended in the reports.

| REQUIRED PIECE OF INFORMATION | SECTION IN THE REPORTS WHERE IT CAN BE FOUND | COMMENTS (If any) |
|--|--|-------------------|
| 1. 1:50 000 topography /topo-cadastral map of the area showing: | Basic Assessment Report - Appendix A | |
| 1.1 The site and 5km radius | Basic Assessment Report - Appendix D4 | |
| 1.2 Existing neighbouring residential and industrial areas | Basic Assessment Report - Appendix D3 and D4 | |
| 1.3 Possible future development (indicate the type of development) | Basic Assessment Report - Appendix D3 and D4 | |
| 1.4 Other waste handling facilities (existing or closed) in the area | Basic Assessment Report - Appendix D3 and D4 | |
| 1.5 Existing and possible future neighbouring residential areas. | Basic Assessment Report - Appendix D3 and D4 | |
| 2. The site plan drawn to scale showing the site's boundary showing: | Basic Assessment Report - Appendix B | |
| 2.1 Activities or development existing on all 4 directions of the facility. | Basic Assessment Report - Appendix D3 and D4 | |
| 2.2 Waste receipt, storage and handling areas | Basic Assessment Report - Appendix B | |
| 2.3 Impermeable surfaces | Basic Assessment Report - Appendix B | |
| 2.4 Sealed drainage systems | Basic Assessment Report - Appendix B | |
| 2.5 Drainage system for the facility including sumps and discharge points | Basic Assessment Report - Appendix B | |
| 2.6 Road names and access from all major roads in the area | Basic Assessment Report - Appendix A | |
| 2.7 Buffer zone (waste disposal and composting facilities) | Basic Assessment Report - Appendix B | |
| 3. Security and access aspects of the facility | Basic Assessment Report - Appendix B | |
| 4. Emergency preparedness plan | Basic Assessment Report - Appendix H | |
| 5. Waste hierarchy implementation plan | Basic Assessment Report - Appendix H | |
| 6. Operational plan | Basic Assessment Report - Appendix H | |
| 7. Latest external audit report (only apply for permit/licence amendment) | NA | |
| 8. Geo-hydrological report (only apply to waste disposal facilities , storage facilities and treatment of waste) | NA | |
| 9. Description risk assessment | Basic Assessment Report - Appendix H1 and H2 | |

17. ANY OTHER REQUIREMENTS IN TERMS OF THE WASTE ACT

Please describe how the principles of waste management as set out in section 16 of National Environment Management: Waste Act, 2008 (Act No. 59 of 2008) have been taken into account:

The re-use of organic material for compost for use on the lands is critical in ensuring soil health and sustainability. Use of manure to land has been practised since the onset of agriculture and it is merely the process of composting that is now considered a waste activity. The impacts of composting the manure means there is a better quality product available for use on land. Thus the impacts associated with this activity are positive and the location of the activity has ensured that no sensitive areas are affected.

In this section please describe how any other requirements in terms of the National Environment Management: Waste Act, 2008 (Act No. 59 of 2008), not dealt with above, have been complied with/addressed:

The expansion of the compost facility requires an Environmental Authorisation. The BAR includes information on both the waste and EIA aspects. Please see Appendix J of the BAR for full details of the impacts identified.

18. COMPETENCE OF THE PERSON/COMPANY THAT WILL HOLD THE WASTE MANAGEMENT LICENCE

It is imperative that the holder of the waste management licence is a fit and proper person in terms of section 59 of the National Environment Management: Waste Act, 2008 (Act No. 59 of 2008). Please disclose the following:

(a) Legal compliance:

| | Yes / No | Details |
|---|----------|---------|
| Has the applicant ever been found guilty or issued with a noncompliance notice in terms of any national environmental management legislation? | No | |
| Has the applicant's licence in terms of the Waste Act 2008 ever been revoked? | No | |
| Has the applicant ever been issued with a noncompliance notice or letter in terms of any South African Law? | No | |

Please note: Details required above include any information that the applicant wants the Department to take into consideration in determining whether they are a "fit person" and this includes reasons why the offence happened and measures in place to prevent recurrence.

(b) Technical competence:

| | |
|--|---|
| What technical skills are required to operate the site? | The loading and unloading of material is of an unskilled nature. Training can be given within one day. The monitoring of the compost ageing process entails the daily measuring of temperature with an extended probe temperature gauge and logging the temperature on graph paper. This will be done by the farm manager. |
| How will the applicant ensure and maintain technical competency in the operation of the site? | Written training manuals On-the-job training Training of back-up personnel Audits to ensure competencies |
| Qualifications of person and relevant employees? | Farm Manager |
| Experience of person and relevant employees? (highlight the persons/employees duties and responsibilities in terms of the experience) | Farm Manager |

(c) Financial Provisions:

Attach to this annexure a plan of estimated expenditure for the following:

| | |
|--|---|
| Environmental Monitoring | Refer to EMP in Appendix H1 and H2 of the BAR |
| Provision and replacement of infrastructure | Refer to EMP in Appendix H1 and H2 of the BAR |
| Provision of appropriate equipment | Refer to the Operational Specification Data annexed to this report. |
| Closure/decommissioning/rehabilitation and aftercare | Refer to EMP in Appendix H1 and H2 of the BAR |
| Confirmation and adequate funds have been budgeted | Refer to the Declaration attached to the Basic |

for the above aspects

Assessment Report

19. INFORMATION FOR WASTE DISPOSAL FACILITIES – NA

The following aspects MUST be addressed and included in the application documentation for waste disposal facilities and the applicant must indicate specific section(s) where they are appended in the reports.

| REQUIRED PIECE OF INFORMATION | SECTION IN THE REPORTS WHERE IT CAN BE FOUND | COMMENTS (if any) |
|--|--|-------------------|
| Waste disposal facility designs | | |
| Closure plan (report) | | |
| Closure/Remedial designs | | |
| Landfill conceptual designs (only apply for construction and decommissioning of waste disposal facilities) | | |
| End use plan (only apply to waste disposal facility closure) | | |
| Design for site roads | | |
| The 1 in 50 year flood-line of all watercourses | | |
| Laboratory facilities | | |
| Design and location of fuel storage areas | | |
| Design and location waste quarantine areas | | |
| Design and location of waste inspection areas | | |
| Site's drainage system | | |
| Site's emergency control system and plan | | |
| Liner specifications | | |
| Leak detection system and monitoring | | |
| Leachate management plan | | |
| Calculations of leachate generation | | |
| Leachate collection and treatment | | |
| Groundwater monitoring | | |
| Gas management and/or harvesting | | |
| Air quality monitoring and management | | |
| Co-disposal ratio calculation | | |
| Stability monitoring and management | | |
| Daily and intermediate cover requirements | | |
| Temporary and permanent capping requirements | | |

DECLARATIONS

THE INDEPENDENT ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

I ...**Lauren Abrahams**..., as the appointed independent environmental practitioner ("EAP") hereby declare that I:

- act/ed as the independent EAP in this application;
- regard the information contained in this report to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and the NEM: Waste Act (Act no 59 of 2008);
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and the NEM: Waste Act (Act no 59 of 2008);
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and the NEM: Waste Act (Act no 59 of 2008), and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the application was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- have ensured that the comments of all interested and affected parties were considered, recorded and submitted to the competent authority in respect of the application;
- have kept a register of all interested and affected parties that participated in the public participation process;
- have provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

Note: The terms of reference must be attached.

Signature of the environmental assessment practitioner:

Eco Impact Legal Consulting (Pty) Ltd

Name of company:

Date:

25 February 2019

GENERAL WASTE CATEGORISATION

| |
|--|
| Municipal Waste |
| Commercial and industrial waste |
| Brine |
| Fly ash and dust from miscellaneous filter sources |
| Bottom slag |
| Organic |
| Construction and demolition waste |
| Paper |
| Glass |
| Metal |
| Tyres |
| Other (specify) |

HAZARDOUS WASTE CATEGORISATION

| |
|--|
| Gaseous waste |
| Mercury containing waste |
| Batteries |
| POP Waste |
| Pesticide containing waste |
| Inorganic chemical waste |
| Asbestos containing waste |
| Waste oils |
| Organic halogenated and/or sulphur containing solvents |
| Organic halogenated solids and compounds with sulphur |
| Organic solvents without halogens and sulphur |
| Other organic waste without halogens and sulphur |
| Tarry and bituminous waste |
| Brine |
| Fly ash and dust from miscellaneous filter sources |
| Bottom ash |
| Slag |
| Mineral waste |
| Waste of Electric and Electronic Equipment (WEEE) |
| Metal scrap |
| Health care risk waste |
| Miscellaneous |

ANNEXURE A

OPERATIONAL DATA SPECIFICATIONS

Introduction

Aerobic composting consists of a controlled biological process and mechanical screening thereafter. The biological process is the most critical component of aerobic composting process. Hence it is to be properly understood and regularly monitored to derive maximum benefits from the composting process.

The main objective of this SOP is to get optimum results. The whole plant's staff in general and the windrow management team in particular should study and follow this SOP religiously. The team leader should ensure that the team members entrusted with the responsibility of windrow management follows the recommended procedures. For windrow management, a team consisting of a windrow supervisor, two assistants, and the operators of turning equipment is suggested. The windrow supervisor should have scientific aptitude to understand the basics of microbiology and should have commitment and capacity to follow the SOP wholly. He is the most critical player in the whole process of the project (compost) outcome.

Windrow formation

Windrow means a long heap of regular shape and cross section (chicken manure). Formation of windrow is very important from following angles: Available space is optimally utilized.

Natural air flow is not obstructed Movement of incoming and outgoing vehicles is hassle free.

Oxygen Measurement

Oxygen is very necessary for biological activity of aerobic microbes present in the windrows. Oxygen meter with a probe long enough to reach deep into the windrow should be used. As the probe may not be strong enough to pierce and penetrate the heap to the desired depth, a hole may be made into the windrow where the temperature is to be measured with the help of a pointed pipe, and the probe be inserted. Oxygen percentage in the windrows should be above 10 %. Oxygen of every windrow should be measured every day at 10 different locations.

Turning of windrows

Aerobic bacteria need oxygen regularly. Regular turning of the windrow is required to ensure availability of oxygen. Hence turning of windrows at fixed intervals should be strictly followed.

Treatment with Inoculum

Incoming product may have native microbes which might have started decaying process. They could be of anaerobic and aerobic varieties. In order to have an end product of desired quality and also to accelerate the process of decomposition, inoculation with selected strains of effective microbes might be very essential. Otherwise the decomposition process will be erratic creating problems for the operation. Purpose of biological treatment could be summarized as below:

- To accelerate biological process
- To ensure optimum decomposition.
- To make the end product of desirable quality.
- To suppress the activities of anaerobic microbes to minimize production of offensive odors.
- To ensure exothermic biological activity to destroy pathogenic organism.
- To reduce loss of nutrients
- To avoid propagation of insects, turning machines have easy access to each windrow.

Moisture Level

If the moisture level is very low microbes may not survive and delay the composting process. Hence moisture level may be monitored continuously for speedy decomposition and better output and quality of the end product. Ideal level of moisture will be around 50%.

Temperature Measurement

Due to the biological activity of aerobic bacteria, part of the organic carbon converted to carbon dioxide. This chemical activity is exothermic and hence lot of heat is generated. The temperature has to be maintained between 65-70°C. Temperature of every heap should be measured every day at 25 different locations. The temperature starts to rise from 2nd day of windrow formation and on 4th day it should reach around 60°C.

Sample testing

It is very important to do regular test on composted products. (N,P,K)

Chicken manure

- Truck loads CF chicken manure to site 1000m³ (Groenfontein)
- +/- 30-50 % loss in volume when composted
- 3-4 months for compost to be ready

Mixed blend

- 50/50 mix (Chicken manure + Woodchips)
- Time to compost +/- 3-4 months (30% in volume loss)
- Water add to compost (moisture)
- Turned x2 per week

End product

- Truck transport 65m³ raw materials (Groenfontein)
- Truck collect 50m³ composted product (weight problem)

Conclusion

For smooth functioning of composting the SOPs are very helpful. By following the SOPs, a company can save time, utilization of resources i.e. machinery, diesel, labour and electricity. Composting is a very delicate and sensitive procedure it needs proper attention though any one can produce a fine quality of recommended standards by following these SOPs.