Goldi – A Division of Astral Operations Limited

Goldi Farm Composting Site – S24G Application Locality: Standerton

Departmental Ref No: 17/2/10/24G (GS) – 01/2013/14 Date: 17 April 2015





FINAL BASIC IMPACT ASSESSMENT REPORT

Goldi – A Division of

Astral Operations Limited

Goldi Farm Composting Site – S24G Application

Locality: Standerton Departmental Ref No: 17/2/10/24G (GS) – 01/2013/14

Date: 17 April 2015

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PROJECT DETAILS

Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs

Reference No.: 17/2/10/24G (GS) - 01/2013/14

Project Title: Goldi Farm Composting Site – S24G Rectification Application

Project Number: EAR-STA-13-01-08

Compiled by: Lizette Crous

Date: 17 April 2015

Location: Standerton, Mpumalanga

Technical Reviewer: Lourens de Villiers

Signature



EXECUTIVE SUMMARY

The Applicant

Goldi is a Division of the Astral Operations Limited group. Astral is a leading poultry producer in South Africa and consists of a number of business units, including Poultry, National Chicks, Ross Poultry, Meadow Feeds, Tiger Chicks and Tiger Feeds. Goldi has three chicken abattoirs (Standerton, Camperdown and Olifantsfontein) in South Africa and also owns a number of chicken farms. A large number of contract growers are also employed to produce chickens for slaughter at Goldi's abattoirs (www.astralfoods.co.za).

The Goldi Farm Composting Site is located on Portion 15 of the farm Vlakfontein 388 IS. The site is approximately 2.8km North-West of Standerton, Mpumalanga.

Background description

The management of organic waste from the Goldi abattoirs, hatcheries, chickens farms, and rendering plant is problematic as these wastes need to be disposed of if they cannot be re-used, recycled or recovered. In the past, these wastes were disposed of as Goldi did not have alternative ways of managing the wastes generated. An alternative option for the management of this waste is to compost it into a valuable product.

Project/activity description

The activity that was illegally commenced with entails the development and operation of a composting process that can biodegrade organic poultry waste. The waste streams comprise of poultry litter generated by Goldi broiler farms in the area, as well as a low percentage of organic matter from the Goldi hatchery, the Goldi abattoir and its rendering facility.

The method of composting is known as the Windrow composting method and involves the production of compost by piling organic matter or biodegradable waste, such as animal waste, in long rows. The rows are frequently turned and watered in order to improve porosity and oxygen content, to mix in or remove moisture and to redistribute cooler and hotter portions of the pile. Windrow composting is an effective method to produce good quality compost on a large scale.

The illegal activities were commenced with on 22 November 2012. The activities that have already been completed include:

- Approximately 13ha of old cropland has been cleared to establish a Windrow-composting process area.
- Approximately 4 500m³ of poultry waste is currently stored onsite.
- A storm water control berm has been constructed on the Southern border of the site in order to divert affected storm water run-off from entering the adjacent earth dam.

Activities that still need to be completed:

- An evaporation pond would need to be constructed at the lowest point of the berm, in order to contain affected storm water run-off.
- Composting of approximately 11 315m³ of poultry waste (chicken manure, chicken hatchery waste, rendering facility carcass meal sediment and abattoir and rendering facility effluent waste).
 Waste will be fed into the composting plant at a daily rate of 31m³.

Legal requirements and legislative process

Goldi needs to conduct a rectification process for unlawfully commencing with activities listed in terms of the EIA regulations R.544 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), as amended.

The purpose of this document is to supply the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs with the requested information pertaining to the National Environmental Management Act (NEMA) Section 24G application (project reference: 17/2/10/24G (GS) – 01/2013/14).

The diagram below provides a visual representation of the approach followed.

Schedule	Process	Steps
Application date: 13/09/2013 PPP: 30/06/2014 – 18/08/2014	Application Phase: • S24G Application form	 Submission of Application form and obtaining Project reference number I&APs & Stakeholder register/database Background Information Document distributed, newspaper advertisement and site notices placed Telephonic and electronic notifications I&APs and Stakeholder comments recorded
dBAR PPP: 23/02/2015 – 16/04/2015 Current Process	 S24G Phase: Compile S24 Report Submission of S24G Report to competent authority Submission of S24G Report to I&APs 	 Letters to inform I&APs and Stakeholders of the availability of the S24G Report S24G Report for public and Stakeholder comment (available on www.shangoni.co.za) Consultation with local authorities and public (where relevant) Incorporation of comments and issues into S24G Report Final S24G Report submission
	Final Phase: Authorities decision- making stage 	 Notify I&APs and Stakeholders of government authority's decision on the S24G Application Available on www.shangoni.co.za

Identified impacts and way forward

The activities associated with the project are described in full in Part 2 and the anticipated and/or actual impacts of the project are described in Part 7. The table below summarises the impacts that have been identified and evaluated for the proposed project.

Potential Impact		Environmental Significance Pre Mitigation			Environmental Significance Post Mitigation		
	P ¹	M ²	S ³	Р	M	S	
General Environment							
Harm to the environment in general	4	3	Н	2	2	L	
Non-compliance to the Environmental Management Programme and Waste Management Licence	4	3	Н	2	3	М	
Stormwater				2	3	М	
Contamination of the natural "clean" habitat in the vicinity of the composting facility, soil erosion and erosion of access roads	4	3	Н	2	5	IVI	
Geohydrology, surface water, groundwater and soil							
Groundwater contamination from waste leachate and pollution of surface water with waste leachate	2	4	М	1	3	L	
Erosion of soil at the composting site	4	3	Н	2	3	М	
Soil, surface water and groundwater pollution and nuisance caused by odours and unsightly appearance of waste onsite	4	3	Н	2	3	М	
Soil, surface water and groundwater pollution due to unsanitary conditions onsite	3	4	Н	2	3	М	
Soil, surface water and groundwater pollution due to spillages of grease, chemicals, fuel and oil	3	4	Н	1	3	L	
Flora, Fauna and Wetlands				2	2		
Impact of the composting site on vertebrate species in general	3	2	М			L.	
Impact of the composting site on vertebrate species at the composting site	No negative impact		No negative impact				
Impact of the composting site on vertebrate species at the moist grasslands and Brakspruit north of the composting site	N	o negative i	mpact	No negative impact			
Impact of the composting site on vertebrate species at the moist grasslands south and south-west of the composting site	4	4	Н	3	3	М	
Impact of the composting site on vertebrate species as a result of the operation of the composting facility.	3	4	Н	2	3	М	
Loss of moist grassland and habitats for fauna species surrounding the site as a result of runaway veld fires.	3	4	Н	2	2	L	
Visual							
Negative impact on neighbours having to see the composting facility from their residences	5	5	Н	3	3	М	

¹ Probability
 ² Magnitude
 ³ Severity

Potential Impact	Environmental Significance Pre Mitigation			Environmental Significance Post Mitigation		
	P ¹	M ²	S ³	Р	М	S
Atmosphere						
Degradation of ambient air quality due to dust generation	5	4	Н	3	3	М
Disturbance and nuisance to neighbours due to the generation of noise	5	3	Н	2	3	М
Generation of atmospheric emissions, odours and nuisance to neighbours	5	5	Н	3	3	М
Infrastructure						
Wear of access roads, accidents on access roads, unpermitted transport of materials and loss of materials being transported						
on access roads	4	3	Н	3	2	М
Resource usage						
Wastage or depletion of valuable resources, such as water, due to inefficient or redundant usage	3	3	М	2	2	L
Heritage						
Loss of artefacts or sites protected by the National Heritage Resources Act, 1999 (Act No. 25 of 1999).	2	4	М	2	3	М
Worker's safety and the health of neighbouring residents	1	1				
Employees and neighbouring residents being exposed to pathogens or unhygienic conditions emanating from the composting site	3	3	м	1	2	L
Unsafe conditions on site in case of emergency, fire establishment and during the release of flammable gases	3	3	М	2	2	L

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DEFINITIONS

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 (DEA, 2014).

Compostable organic waste

A Carbon-based material of animal or plant origin that naturally enhances fertility of soil through a natural degradation process, but excludes human made organic chemicals and naturally occurring organic chemicals that have been refined or concentrated by human activity. This excludes infectious, poisonous, health-care and hazardous organic wastes (DEA, 2014).

Composting

A controlled biological process in which organic materials are broken down by micro-organisms (DEA, 2014).

Environment

The surroundings (biophysical, social and economic) within which humans exist and that are made up of

- (i) the land, water and atmosphere of the earth;
- (ii) micro-organisms, plant and animal life;
- (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and
- (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

Environmental Aspects

Elements of an organisation's activities, products or services that can interact with the environment.

Environmental Degradation

Refers to pollution, disturbance, resource depletion, loss of biodiversity, and other kinds of environmental damage; usually refers to damage occurring accidentally or intentionally as a result of human activities.

Environmental Impacts

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services.

Environmental Impact Assessment

A study of the environmental consequences of a proposed course of action.

Environmental Impact Report

A report assessing the potential significant impacts as identified during the environmental impact assessment.

Environmental impact

An environmental change caused by some human act.

Fertiliser

Any substance which is intended or offered to be used for improving or maintaining the growth of plants or the productivity of the soil (DEA, 2014).

Land use

The various ways in which land may be employed or occupied. Planners compile, classify, study and analyse land use data for many purposes, including the identification of trends, the forecasting of space and infrastructure requirements, the provision of adequate land area for necessary types of land use, and the development or revision of comprehensive plans and land use regulations.

Offensive odour

Any smell which is considered to be malodorous or a nuisance to a reasonable person (DEA, 2014).

Organic Waste

Waste of biological origin that can be broken down, in a reasonable amount of time into its base components by micro-organisms and other living things and/or by other forms of treatment (DEA, 2014).

Pollution Prevention

Any activity that reduces or eliminates pollutants prior to recycling, treatment, control or disposal.

Public Participation Process

A process of involving the public in order to identify needs, address concerns, in order to contribute to more informed decision making relating to a proposed project, programme or development.

Topography

Topography, a term in geography, refers to the "lay of the land" or the physio-geographic characteristics of land in terms of elevation, slope and orientation.

Vegetation

All of the plants growing in and characterising a specific area or region; the combination of different plant communities found there.

Waste

Waste is unwanted or undesired material left over after the completion of a process. "Waste" is a human concept: in natural processes there is no waste, only inert end products.

Water Resource

- a river or a spring;
- a natural channel in which water flows regularly or intermittently;
- a wetland, lake or dam into which, or from which, water flows;
- any collection of water which the Minister may declare to be a watercourse; and
- surface water, estuaries and aquifers (underground water).

All water bodies in the hydrological cycle, including underground water, are regarded as water resources.

Water Course

- a river or spring;
- a natural channel or depression in which water flows regularly or intermittently;
- a wetland, lake or dam into which, or from which water flows; and
- any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998).

Water Use

Water use includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation.

Wastewater

Wastewater is water containing waste, or water that has been in contact with waste material.

- Wastewater includes
 - domestic wastewater
 - biodegradable industrial wastewater
 - industrial wastewater.

Wetland

Means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

ABBREVIATIONS

BID	_	Background Information Document
BAR	_	Basic Assessment Report
CRR	_	Comments Response Report
DWA	_	Department of Water Affairs
EAP	_	Environmental Assessment Practitioner
ECA	_	Environmental Conservation Act of 1989
EIA	_	Environmental Impact Assessment
EIR	_	Environmental Impact Report
EMF	_	Environmental Management Framework
EMP	_	Environmental Management Programme
GN	_	Government Notice
I&AP	_	Interested and Affected Party
MDEDET	-	Mpumalanga Department of Economic Development, Environment and
		Tourism, Mpumalanga
NEMA	_	National Environmental Management Act, Act 107 of 1998 as amended
NEMWA	-	National Environmental Management: Waste Act, Act 59 of 2008 as
		amended
R	_	Regulation
S24G	_	Section 24 G of NEMA, 1998, as amended

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1. INTRODUCTION

This document forms part of an application for rectification (Section 24G) for the Goldi composting site, situated on Portion 15 of the farm Vlakfontein 388 IS, Mpumalanga. The application process is undertaken on behalf of the applicant, Goldi – A Division of Astral Operations Limited, by Shangoni Management Services (Pty) Ltd. Shangoni was appointed, as independent environmental practitioner, to prepare this Section 24G Basic Assessment Report and facilitate the application process.

This report is divided into the following parts:

- Part 1: Introduction;
- Part 2: Nature and extent of the activity;
- Part 3: Nature and extent of the environment affected by activity;
- Part 4: Environmental framework;
- Part 5: Applicable legislation and guidelines;
- Part 6: Public Participation Process; and
- Part 7: Conclusion.

1.1 Details of the project applicant

Name of Applicant	Goldi – A Division of Astral Operations Limited
Postal Address	PO Box 661, Standerton, 2430
Telephone No.	017 720 0149
Fax No.	017 712 7059
Farm name and portion on which the activities take place	Portion 15 of the farm Vlakfontein 388 IS, Mpumalanga
Title Deed Number and 21 Digit Code	TOIS000000038800015
Co-ordinates of operation	S26°53'58.23" E29°11'46.98"

1.2 Appointed Environmental Assessment Practitioner

Name of firm	Shangoni Management Services					
Postal address	PO Box 74726 Lynnwood Ridge Pretoria 0040					
Telephone No.	012 807 7036					
Fax	012 807 1014 / 086 643 5360					
E-mail	lizette@shangoni.co.za					
Team of Environmental Assess	Team of Environmental Assessment Practitioners on project					
Name	Qualifications & experience	Responsibility				
Mr Lourens de Villiers	 MSc.(UP) Water Resource Management Bsc. (Hons) (PU for CHE) Environmental Assessment and Management More than 13 years' experience conducting Environmental Impact Assessments and Waste Management License Applications 	EIA Project Leader and Coordinator				
Ms Lizette Crous	 MSc Environmental Management (University of London) More than 3 years' experience conducting Environmental Impact Assessments and Waste Management License Applications 	EAP				

* Detailed CVs for the project team are attached (Appendix C).

1.3 Unlawful activity and motivation

The activity that was illegally commenced with entails the development and operation of a composting process that can biodegrade organic poultry waste. The waste streams comprise of poultry litter (manure and bedding material) generated by Goldi broiler farms in the area, as well as a low percentage of organic matter from the Goldi hatchery (eggshells and dead embryos), the Goldi abattoir and its rendering facility (rendering facility carcass meal sediment and fats). These wastes can be deemed to be hazardous waste in terms of the definition of hazardous waste as contained in the National Environmental Management: Waste Act, 2008.

The property (Portion 15 of the farm Vlakfontein 388 IS) was used for agriculture in the form of crop production in the past. Google Earth imagery shows that this agricultural practice extends at least back to 2003.

The illegal activities were commenced with on 22 November 2012. The activities that have already been completed include:

- Approximately 13ha of old cropland has been cleared to establish a Windrow-composting process area.
- Approximately 4 500m³ of poultry waste is currently stored onsite.
- A storm water control berm has been constructed on the Southern border of the site in order to divert affected storm water run-off from entering the adjacent earth dam.

No infrastructure was constructed as part of the composting facility.

Activities that still need to be completed include:

- An evaporation pond needs to be constructed at the lowest point of the berm, in order to contain affected storm water run-off.
- Composting of approximately 11 315m³ of poultry waste (chicken manure, chicken hatchery waste, rendering facility carcass meal sediment and abattoir and rendering facility effluent waste). Waste will be fed into the composting plant at a daily rate of 31m³.

Figure 1 shows the regional locality of the property/activity.

In accordance with Section 24(G) read together with sections 24(F) and 12(3) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, the applicant is required to conduct a rectification process for unlawfully commencing with the following activities:

Number and date of the relevant notice	Activity No.	Description of activity undertaken		
EIA regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended				
		The construction of:		
		(i) canals;		
Government Notice		(ii) channels;		
R544 in Government		(iii) bridges;		
Gazette 33306 of 18	11	(iv) dams;		
June 2010 (Listing		(v) weirs;		
Notice 1)		(vi) bulk storm water outlet structures;		
		(vii) marinas;		
		(viii) jetties exceeding 50 square metres in size;		

Table 1: Unlawful activities undertaken

Number and date of the relevant notice	Activity No.	Description of activity undertaken
		 (ix) slipways exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.
		The composting site is, and the evaporation pond will be, within 32 metres of a watercourse.
Government Notice R544 in Government Gazette 33306 of 18 June 2010 (Listing Notice 1)	23(ii)	The transformation of undeveloped, vacant or derelict land to – (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; - except where such transformation takes place - (i) for linear activities; or (i) for purposes of agriculture or afforestation, in which case Activity 16 o Notice No. R545 applies
		Approximately 13ha of previously disturbed land (outside urban area) used for crop production in the past, was used for the establishment and operation of a poultry waste composting site.
Regulations in terms of	the National	Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), as amended
Government Notice No. 718 in Government Gazette 32368 of 3 July 2009, Category A	2	The storage including the temporary storage of hazardous waste at a facility that has the capacity to store in excess of 35m ³ of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons. Approximately 4 500m ³ of poultry waste is currently stored at the
		composting site.The storage, treatment or processing of animal manure at a facility with a capacity to process in excess of one ton per day.
Government Notice No. 718 in Government Gazette 32368 of 3 July 2009, Category A	17	The composting of the poultry litter (chicken manure), hatchery waste abattoir waste and rendering facility waste. Approximately 4 500m ³ c poultry waste is currently onsite for composting.
		Should the facility be authorised, the daily processing/composting rate will be 31m ³ of organic waste per day.
Government Notice No.	18	The construction of facilities for activities listed in Category A of this schedule.

Number and date of	Activity	Description of activity undertaken	
the relevant notice	No.		
2009, Category A		The construction of the above, Category A activities.	
Government Notice No. 718 in Government Gazette 32368 of 3 July 2009, Category B	1	The storage including the temporary storage of hazardous waste in lagoons. The storage of contaminated stormwater runoff from the site in an evaporation pond.	
Government Notice No. 718 in Government Gazette 32368 of 3 July 2009, Category B	4	The biological, physical of physic-chemical treatment of hazardous waste at a facility that has the capacity to receive in excess of 500kg of hazardous waste per day. The composting of the poultry litter, hatchery waste, abattoir waste and rendering facility waste. Approximately 4 500m ³ of poultry waste is currently onsite for composting. Should the facility be authorised, the daily processing/composting rate will be 31m ³ of organic waste per day.	
Government Notice No. 718 in Government Gazette 32368 of 3 July 2009, Category B Government Notice No.	5	The treatment of hazardous waste using any form of treatment regardless of the size or capacity of such a facility to treat such waste. The composting of the poultry litter, hatchery waste, abattoir waste and rendering facility waste. The construction of facilities for activities listed in Category B of this	
718 in Government Gazette 32368 of 3 July 2009, Category B	11	Schedule (not is isolation to associated activity). The construction of the above, Category B activities.	

Farm Name	Title deed				Owner		
Portion 15 of the Farm Vlakfontein	T26087/1974	Goldi	_	А	Division	of	Astral
388 IS		Operations Limited					

1.3.1 Site locality

The Goldi Farm Composting Site located on Portion 15 of the farm Vlakfontein 388 IS, approximately 2.8km to the North-west of Standerton, Mpumalanga. A gravel road forms the western boundary of the site, while cultivated land (including planted pasture) is situated north-east and east of the site. There are chicken houses situated approximately 500 metres south of the composting site and a dirty water dam, receiving effluent from the chicken houses, is also located to the south.

The site is situated within the Lekwa Local Municipalities' jurisdiction. This local municipality forms part of the Gert Sibande District Municipality, Mpumalanga province.

Table 3: Administrative and water management boundaries

Province	Mpumalanga
District Municipality	Gert Sibande District Municipality
Local Municipality	Lekwa Local Municipality
Ward	12
Mpumalanga Department of Agriculture, Rural	Ermelo
Development, Land and Environmental Affairs	
Office	
Department of Water Affairs (DWA) Office	Pretoria
Catchment Zone	C11M
Water Management Area	Upper Vaal

Table 4: Direction and distance to the nearest town(s)

Direction from town	Distance from site	Closest town		
North-west	2.8km	Standerton		

The site locality map is given below as Figure 1 and the site master plan is given as Figure 2. The maps are also attached in Appendix A. Site photographs are also provided in Section 2.1 (Figure 3 to Figure 14).

Goldi Farm Composting Site S24G Application - BAR

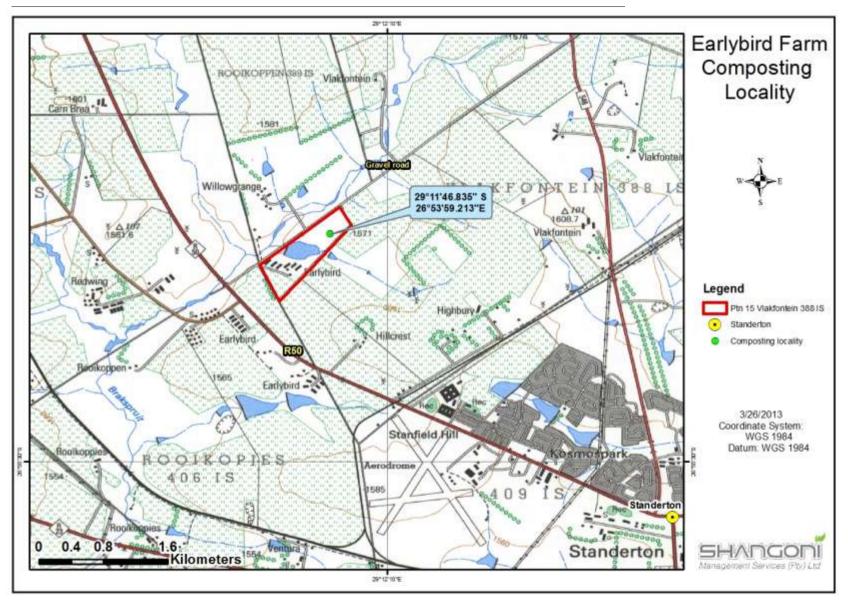


Figure 1: Location of the Site

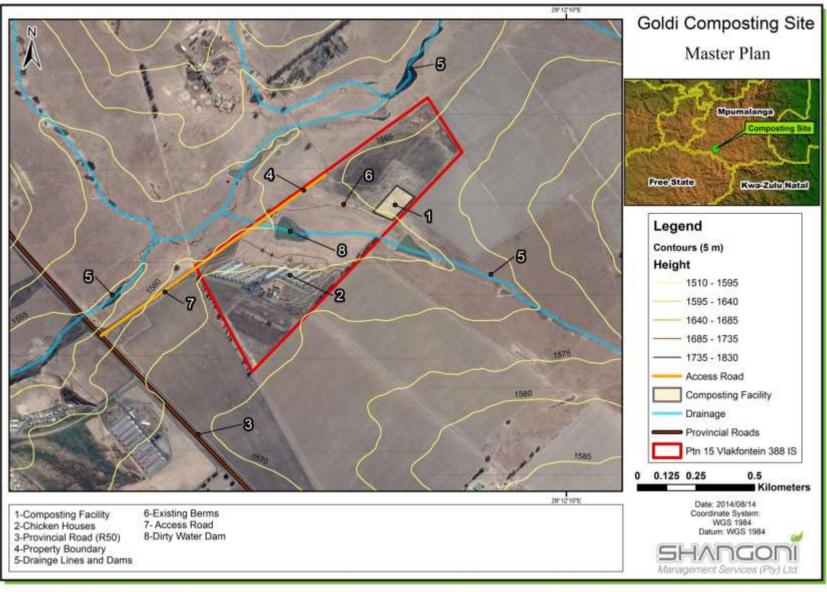


Figure 2: Master plan of the property and surrounding areas

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1.3.2 Land tenure and use of immediately adjacent land

The owners of the farm portions immediately adjacent to the Goldi Farm Composting site are listed in the table below. The adjacent land is mostly used for agricultural activities.

Refer also to Part 6 for more detail regarding the Public Participation Process.

Table 5: Adjacent land owners of the site

Adjacent Land Owners
Mr Thys Verster
Mr Theuns Schoonraad

2. NATURE AND EXTENT OF THE ACTIVITY

2.1 Process description

The activity that was illegally commenced with entails the development and operation of a composting process that can biodegrade organic poultry waste. The waste streams comprise of poultry litter generated by Goldi broiler farms in the area, as well as a low percentage of organic matter from the Goldi hatchery, the Goldi abattoir and its rendering facility.

The method of composting is known as the Windrow composting method and involves the production of compost by piling organic matter or biodegradable waste, such as animal waste, in long rows. The rows are frequently turned and watered in order to improve porosity and oxygen content, to mix in or remove moisture and to redistribute cooler and hotter portions of the pile. Windrow composting is an effective method to convert animal waste into good quality organic compost on a large scale. The rows are built in the direction of the prevailing wind and are up to 100m long, 2.5 to 3m wide and 1.5m high. The piles are kept in a triangular shape. The basic composition of the compost piles at Goldi is as follows:

Material	Percentage (%)
Chicken manure and sawdust from chicken houses	80%
Brown grass or extra sawdust	10%
Egg shells/dead chickens and slurry	5%
Biochar (if available)	2%
Zeolite	2%
Compost activator	1 litre

The illegal activities were commenced with on 22 November 2012. The activities that have already been completed include:

- Approximately 13ha of old cropland has been cleared to establish a Windrow-composting process area.
- Approximately 4 500m³ of poultry waste is currently stored onsite.
- A storm water control berm has been constructed on the Southern border of the site in order to divert affected storm water run-off from entering the adjacent earth dam.

Activities that still need to be completed:

- An evaporation pond would need to be constructed at the lowest point of the berm, in order to contain affected storm water run-off.
- Composting of approximately 11 315m³ of poultry waste (chicken manure, chicken hatchery waste, rendering facility carcass meal sediment and abattoir and rendering facility effluent waste).
 Waste will be fed into the composting plant at a daily rate of 31m³.

Photographs of the composting operation are given below.



Figure 3: Photograph from the centre of the site to the North



Figure 5: Photograph from the centre of the site to the East



to the South



Figure 4: Photograph from the centre of the site to the North-east



Figure 6: Photograph from the centre of the site to the South-east



Figure 7: Photograph from the centre of the site Figure 8: Photograph from the centre of the site to the South-west

C



Figure 9: Photograph from the centre of the site to the West



Figure 10: Photograph from the centre of the site to the North-west



Figure 11: The entrance road to the composting site



Figure 12: The entrance gate to the composting site



Southernmost point of the site



Figure 13: The view to the South from the Figure 14: One of the composting windrows with thermometer

Service delivery 2.2

Service delivery to the site is not applicable in this project. No bulk electricity, sewerage or water connections are present to the site.

3. NATURE AND EXTENT OF THE ENVIRONMENT AFFECTED BY ACTIVITY

3.1 Geology, Soil and Topography

The general geology, soils and topography of the site and its surrounding area are shown in the figures below. The soil at the site consist of S5 soils. These soils are swelling clay soils with high natural fertility. These soils are, however, limited by a high swell-shrink potential and can be characterised as very plastic and sticky (SANBI, 2009).

A geotechnical investigation of the composting site was undertaken by J Louis van Rooy in August 2014. The main objectives of the investigation were to:

- Identify the underlying geological formations and their near surface weathered, residual and transported soil cover;
- To delineate the site into the prescribed geotechnical zones according to the different founding conditions;
- To comment on the excavation characteristics of the site soils; and
- To comment on site water management aspect, particularly pertaining to shallow groundwater or seepage.

The following is a summary of the main findings of the geotechnical investigation. The full report is attached under Appendix D.

3.1.1 Site description

The site generally slopes to the west with local northerly and south-westerly gradients towards two drainage lines. The Brakspruit flows approximately 100m to the north of the property boundary and a tributary of the Brakspruit flows to south of the site (van Rooy, 2014). The tributary was historically dammed up in a number of places. The site was previously used for cultivation and also has a quarry in the northern corner of the site. The site has a high point in the eastern corner, local steep slopes in the north, into the quarry, and gradual slopes across the rest of the site. The maximum topographical contours are ± 1 575 masl in the east and the minimum contours are ± 1 570m in the west. The maximum slope angle at the site is no greater than 2°. The site is covered with grass and weeds and there is concrete and building rubble next to the quarry.

3.1.2 The Geotechnical Investigation

The fieldwork included a site walkover, trial pitting and profile descriptions. 10 test pits were excavated within the site boundary. The test pits are shown in Figure 2 of Appendix A of the Geotechnical Report (Appendix D of this report). The soil profile on site is generally uniform and the test pits are therefore regarded as being representative of the site. The soil profiles are included in

Appendix C of the Geotechnical Report. Eight disturbed soil samples were taken and submitted for foundation indicator tests. The corrosivity of the soils was also determined from four disturbed samples. Two seepage tests were conducted to determine the natural seepage rates from the surficial soil horizon. The site is not underlain by dolomitic rocks and a stability investigation was therefore not required.

3.1.3 Geology and Soil of the Composting Site

According to the 1:250 000 geological sheet 2628 East Rand, the site is underlain by a horizontal dolerite intrusion with shale and sandstone of the Vryheid Formation, Karoo Supergroup. There are a number of small exposures within the study area.

Dolerite intrusions form part of the Karoo Supergroup and occur as horizontal sheets in the nearly horizontal bedded sandstone and mudrock layers, or as vertical dykes. The horizontal sheet intrusions were initially covered by thick sequences of sedimentary rocks and are now exposed due to erosion of the overlying material. Depending on the thickness or weathering and erosion of a sheet, underlying sedimentary rocks may be exposed during trial pitting.

The generalised soil profile is as follows:

- Colluvial soils, comprising mainly *dark grey, medium dense with open vertical desiccation crack, sandy, clayey silt* with roots, at an average thickness of 0.14m, covering the entire site;
- Residual dolerite with an upper horizon of *black firm to stiff, slickensided, silty clay,* with occasional white speckles, with an average thickness of 0.4m;
- Deeper residual dolerite varying in thickness between 0.2m and 0.9m described as *olive brown*, mottled black to yellowish brown stiff, slickensided, clayey silt with occasional iron and manganese nodules. In the northern area near the quarry, the profile was terminated in dense jointed hard rock dolerite; and
- Weathered siltstone underlies the dolerite sheet on the lower elevated parts of the site, excluding the north and north-eastern parts. Siltstone was found from an average depth of 1.03m and refusal was generally reached at an average depth of 1.04m. The siltstone was generally described as *light brown, streaked black, medium dense to dense laminated weathered siltstone*.

3.1.4 Groundwater

No water seepage or sidewall instabilities were encountered during the investigation. It should, however, be noted that the excavated profiles were immediately inspected and then backfilled. Seepage through low permeability materials and sidewall instabilities in laminated sedimentary rocks may therefore occur in excavations that are left open for prolonged periods.

Groundwater will percolate down-slope towards the north and west with very little vertical percolation due to the clay horizons. Local runoff direction may vary due to the varying slopes towards the two

drainage features. The occasional ferruginisation of the residual soils, as well as the mottled appearance in some of the profiles, are also indicative of seasonally saturated soil profile conditions.

3.1.5 Geotechnical Evaluation

The foundation indicator tests showed that, according to the ASSHTO and Unified Soil Classifications, the soils on site are fair as subgrade, poor for use in subbase, and are not suitable as base course material. The drainage is poor to impervious when compacted. The compaction characteristics are fair, with medium compressibility/expansion. Low compressibility/expansion is experienced when the soil is compacted and saturated. Very high conductivity (>0.1 S/m) of the soils is indicative of extremely corrosive conditions. The residual soils have potential expansiveness. This is evident from the vertical desiccation cracks and slickensides in the black and olive clay horizons.

The slope gradients on site are shallow and therefore, no natural slope instabilities are expected, although steeper gradients are present in the north surrounding the quarry area. Erosion is not regarded as a serious problem due to the cohesive (clayey) nature of the surficial soils. Excavation difficulties are expected and the site is regarded as having "intermediate excavation" conditions (SANS 1200D, 1988). The residual soils are probably not suitable as fill and/or bedding for pipelines.

3.1.6 Geotechnical Assessment for the Composting Facility

Based on the fieldwork and soil properties, the following main geotechnical constraints were identified:

- Active soils with a moderate to high heave potential;
- Difficulty of excavation below 1.0m; and
- Seasonal shallow groundwater and perched groundwater.

The seepage values from field percolation tests lie between 68 and 146 mm/h. Percolation rates between 100 and 300 mm/h are suitable for on-site sanitation systems, although sites should be individually evaluated. Values of between 25-100 mm/h may be unsuitable for septic tank systems. According to the soil texture determined form grading analyses and the two nearest soil test results to the percolation test sites, the two soils fall into the *unsuitable* and *marginal* zones for efficient effluent disposal.

The soil profile indicates that the surficial soils are in a desiccated state with large open, vertical cracks and some shattering. If the clay percentage and the desiccated nature of the soil are taken into account it is obvious that the soil will be close to impervious when saturated (van Rooy, 2014).

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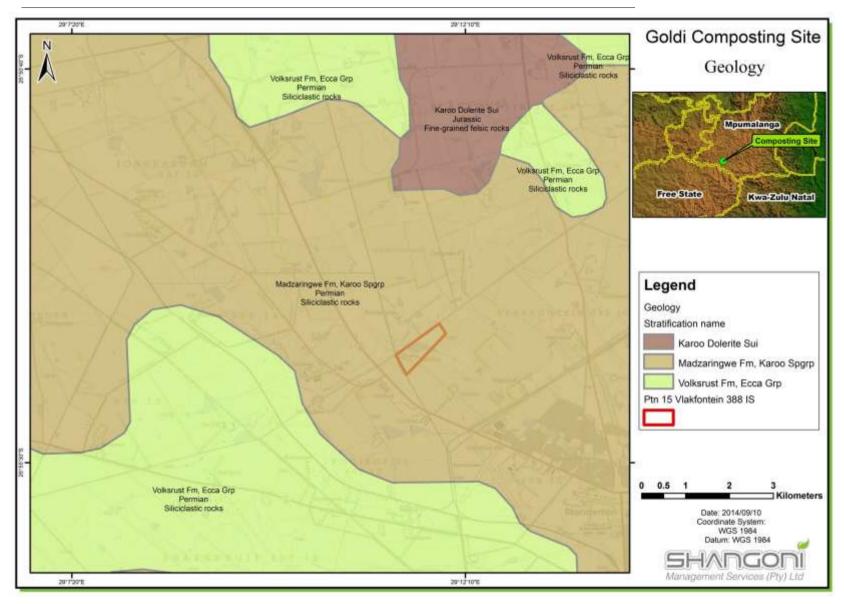


Figure 15: General geology underlying the area of the site

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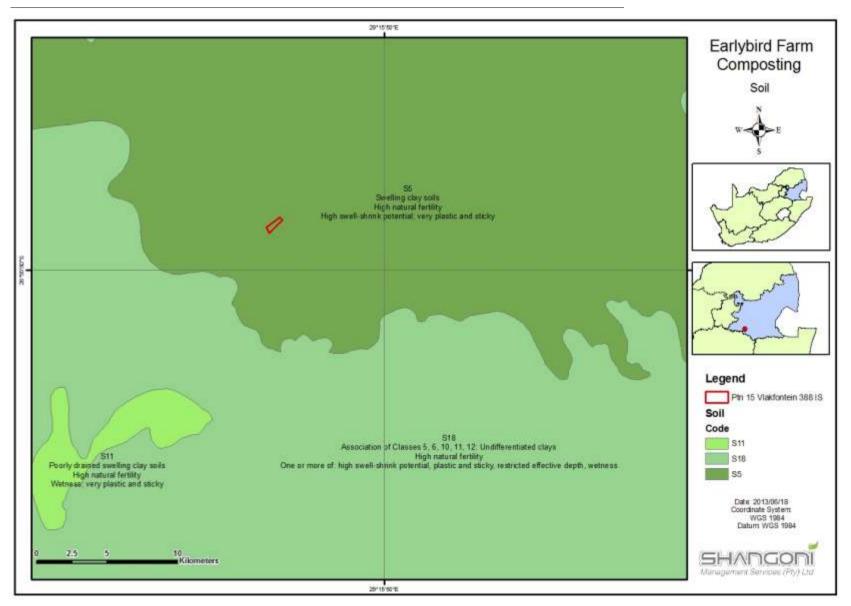


Figure 16: General soils present in the area of the site

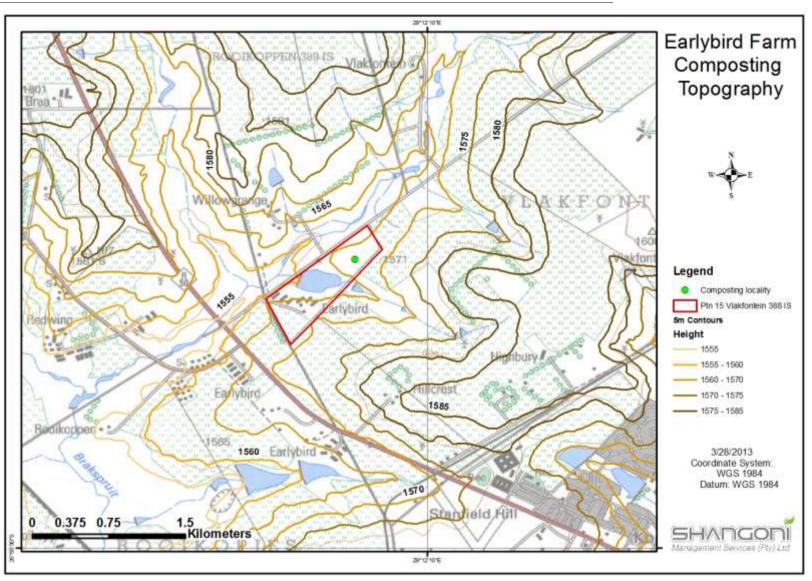


Figure 17: Topography of the Site

3.2 Regional climate

3.2.1 Rainfall

According to the AGIS Comprehensive Atlas (2007), the mean annual rainfall at the site area is 601-800mm per annum. The figure below shows the annual monthly rainfall at the site for 2013.

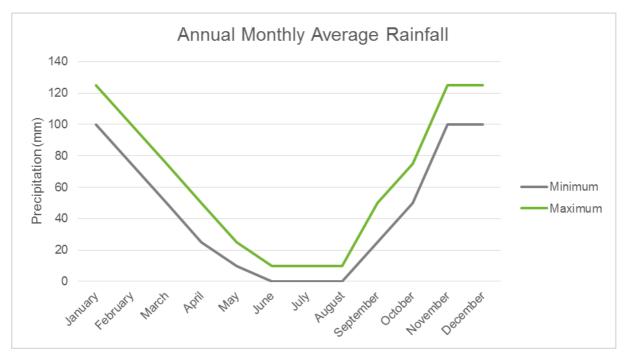


Figure 18: Annual Monthly Average Rainfall at the Site

3.2.2 Temperature

The maximum mean annual temperature for the site is between 25.1°C and 27°C and the minimum mean annual temperature for the site area is between -1.9°C and 0°C (AGIS, 2007). The figure below shows the annual monthly average temperature at the site for 2013.

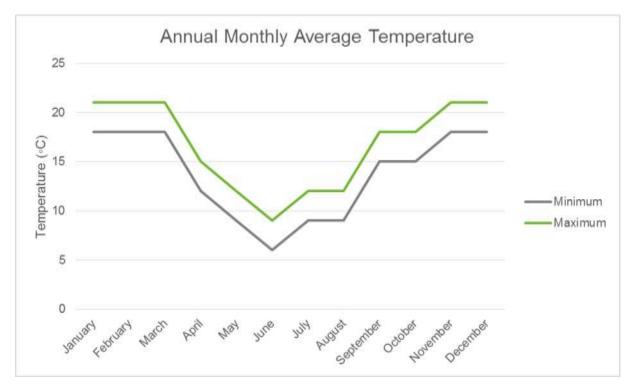


Figure 19: Annual Monthly Average Temperature at the Site

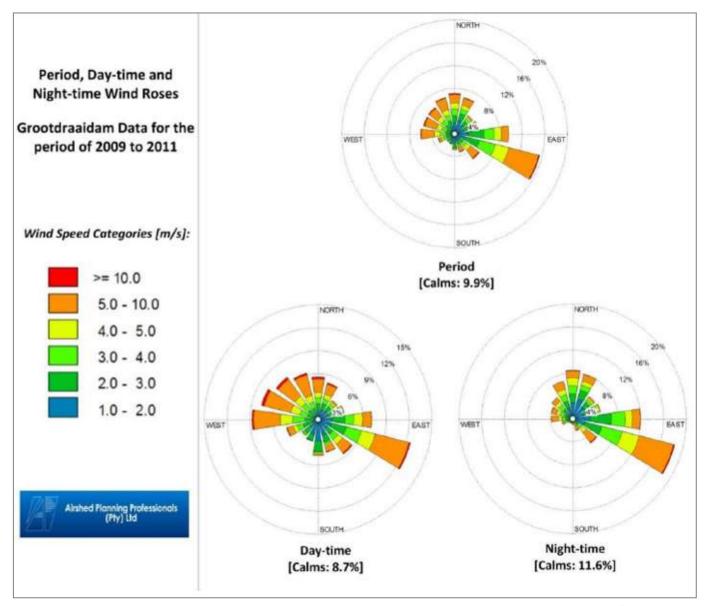
3.2.3 Evaporation

The Mean Annual Evaporation of the area is 1 601-1 800mm per annum (AGIS, 2007).

3.2.4 Wind

The predominant wind direction at the Grootdraai Dam Eskom monitoring station is east- southeasterly with an occurrence frequency of approximately 16%. South-westerly winds are infrequent with an occurrence frequency of less than 4%. Calm conditions, where wind speeds are less than 1m/s, have an occurrence frequency of 9.9%.

During the day, winds from the north-western sector increase. During night-time hours, these winds decrease and winds from the east-southeast sector increase (Airshed Planning Professionals, 2013). Refer to the figures below for period, day-time and night-time and seasonal wind roses.





3.3 Land use and land capability

According to the AGIS Comprehensive Atlas (2007) the land capability of the site is "Moderate potential arable land". Prior to the establishment of the composting facility, the site had been ploughed and used for crop cultivation for at least the last 9 years (based on Google Earth imagery). The dominant land use surrounding the property is agricultural activities such as chicken farms and crop fields. The property (Portion 15 of the farm Vlakfontein 388 IS) also has ten existing chicken houses on it.

3.4 Vegetation

A flora assessment was conducted by Dimela Eco Consulting during May 2014. The following is an extract from their report. The full report is attached under Appendix D.

3.4.1 Vegetation type(s) of the area

The study site is situated within the Grassland Biome of South Africa. This biome is dominated by grasslands wherein high summer rainfall, combined with dry winters, night frost and marked diurnal temperature variations, are unfavourable to tree growth. The majority of plant species in grasslands are non-grassy herbs (forbs), most of which are perennial plants with large underground storage structures. Frost, fire and grazing maintain the herbaceous grass and forb layer and prevent the establishment of thickets or encroachment by trees into the grasslands (Tainton, 1999).

The Grassland Biome can be divided into smaller units known as vegetation units. The Soweto Highveld Grassland vegetation unit (shown in the figure below) would be present on the site and surrounds, if there were no historic disturbances that degraded the vegetation from this reference state (Mucina & Rutherford, 2006). Soweto Highveld Grassland is species rich and has a dominance of the grass *Themeda triandra* (Red Grass). Other common grasses that characteristically occur include *Elionurus muticus, Eragrostis racemosa, Heteropogon contortus* and *Tristachya leucothrix*.

Due to urbanisation, cultivation and mining within the distribution of the Soweto Highveld Grassland, this grassland is nationally classified as an Endangered vegetation type. Therefore, the composting site and surrounds were assessed for the presence of intact (undisturbed or untransformed) Soweto Highveld Grassland, as remaining portions should be conserved in order to preserve this vegetation type and protect it from extinction.

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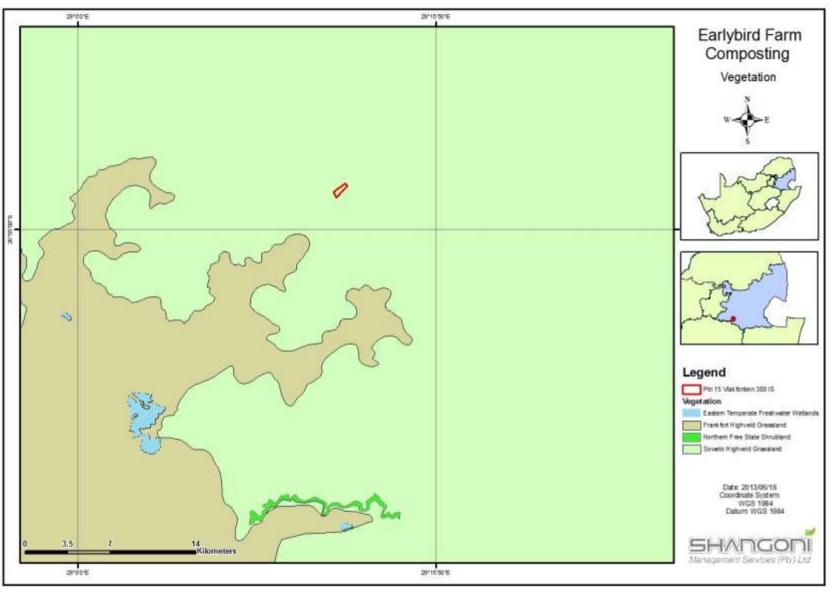


Figure 21: Vegetation types present at the Site

3.4.2 Observed vegetation communities at the study site

The vegetation assessment found that the vegetation on site consisted of transformed grassland (secondary and degraded grassland) with a high frequency of naturalised alien plant species. No primary Soweto Highveld Grassland was observed on site or in the immediate surroundings. A list of all the vegetation identified during the assessment is included in Appendix A of the flora assessment (attached under Appendix D of this report).

The vegetation on site was dominated by the naturalised, alien plants *Cosmos bipinnatus* (Cosmos), as well as *Tagetes minuta* (Khaki Weed). Some indigenous, pioneer grasses, such as *Hyparrhenia hirta* (Common Thatching Grass) and *Cynodo'n dactylon* (Couch Grass) were observed, as well as other grasses that can be associated with disturbed land such as *Panicum schinzii, Urochloa panicoides* and *Setaria sphacelata* var. *torta.* Where the composting activities were taking place, the vegetation was mowed short. No indigenous herbaceous species were observed on the site. The species diversity (i.e. number of different species) on site was particularly low and was dominated by alien plant species.

Mpumalanga Biodiversity Conservation Plan

The Mpumalanga Biodiversity Conservation Plan (MBCP) groups the biodiversity assets of Mpumalanga into six conservation categories, based on the measured distribution of hundreds of biodiversity and ecological features throughout the province that are analysed for rarity and response to the pressures of various forms of land-use that diminish them. The conservation categories are:

- 1. Protected areas currently under formal biodiversity protection;
- 2. Irreplaceable areas, in urgent need of Protected Area status;
- 3. Highly Significant areas, requiring strict land-use controls;
- 4. Important and Necessary areas, requiring special care;
- 5. Areas of Least Concern, providing areas for development; and
- 6. Areas with No Natural Habitat remaining, providing preferred sites for all forms of development.

The site is largely situated in areas of "No Natural Habitat" remaining. However, the Brakspruit River, tributary of the Brakspruit and wetland areas are listed as "Important and Necessary" (as shown in the figure below). These areas require protection due to their hydrological function and potential as habitat to threatened plants and movement corridors for fauna species (Dimela Eco Consulting, 2014).

The vegetation surrounding the site was also observed during the flora assessment. The land to the north-east and east of the site has also historically been ploughed and comprises of secondary grasslands or pastures. A dirt road separates the north-western boundary of the site from grasslands and the Brakspruit. The area was grazed by cattle and sheep. However, the grassland was observed to be in a near-natural state and the moist grassland surrounding the Brakspruit is likely to be a habitat to protected plant species.

A dam is situated just beyond the southern and south-western borders of the site. As per the National Freshwater Ecosystems Priority Areas' (NFEPA) spatial information, the dams were constructed within a wetland area flowing north-westward towards the Brakspruit. Since the current composting site slopes towards this wetland area, the vegetation here was also assessed. The composting area is separated from this wetland area by a fence, as well as a drainage channel and berm. The channel and berm form part of the management system of water runoff from the compost heaps.

The above described area comprised moist grassland that was disturbed and grazed. The dominant grass species included *Cynodon dactylon* (Couch Grass), *Eragrostis plana* (Tough Love Grass) and *Paspalum dilataum* (Dallis Grass). A limited number of *Themeda triandra* (Red Grass) also occurred. The sedge *Juncus effuses* (Soft Rush) occurred within the moist areas. Indigenous herbaceous species were limited to *Berkheya setifera*, while a number of weedy species such as *Cirsium vulgare* (Scotch Thistle), *Schkuhria pinnata* (Dwarf Marigold) and *Rumex crispus* (Curly Dock) occurred. Due to historic soil disturbances, as well as grazing of this area, the moist grassland was not in a primary state and no plants of conservation concern were observed. Although the moist areas could be suitable habitat to a number of plants species that are of conservation concern, it is unlikely that these plants survived the historical disturbances.

3.4.3 Endangered or rare species

Plants of conservation concern are plants that are important for South Africa's conservation decision making processes and include all plants that are *Threatened*, *Extinct in the wild*, *Data deficient*, *Near-threatened*, *Critically rare*, *Rare* or *Declining*. These plants are nationally protected by the National Environmental Management: Biodiversity Act, 2004 (Raimondo *et al*, 2009).

During the flora assessment, no plants of conservation concern were observed on site. Due to the historic cultivation and pioneer state of the vegetation, no plants of conservation concern are likely to occur on site. The moist grassland area south and south-west of the site could provide a habitat for *Crinum bulbispermum* and *Kniphofia typhoides*. The moist grassland was surveyed for these plants, but they were not observed. Although not on or in close proximity to the composting site, a number of *Crinum bulbipsermum* plants were observed along the Brakspruit, close to the R50 road to Standerton. Their localities are approximately 1.2km south west of the composting site.

3.4.4 Alien invasive species

The flora assessment found that the site has a high frequency of naturalised alien plant species, including *Cosmos bipinnatus* (Cosmos), as well as *Tagetes minuta* (Khaki Weed). Other alien invasive species observed on site include *Schkuhria pinnata* (Dwarf Marigold), *Verbena bonariensis* (Wild Verbena) and *Xanthium strumarium* (Large Cocklebur).

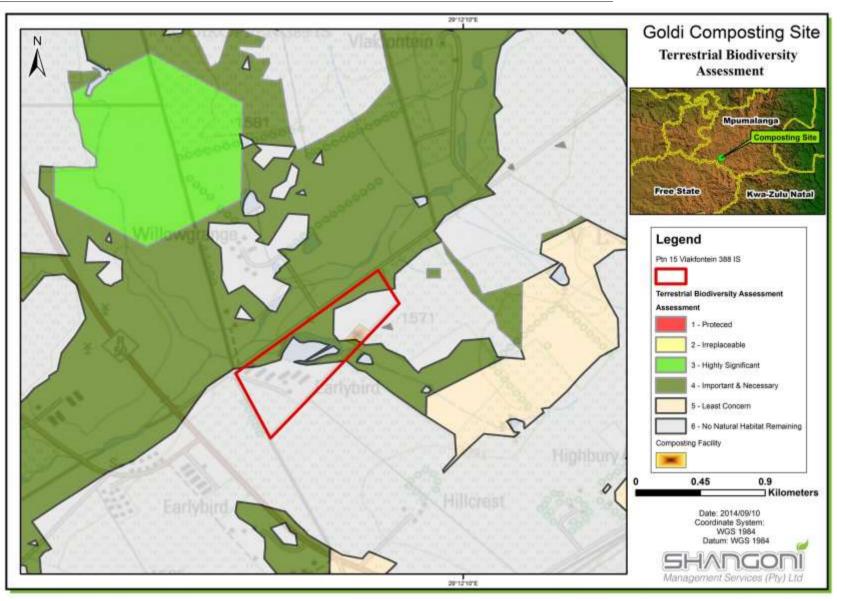


Figure 22: Mpumalanga CBAs present at the Site and surrounding areas

3.5 Animal life

Rautenbach *et al.* conducted an assessment of the ecological consequences of the composting facility on the local vertebrates on the site and its surroundings. The assessment retroactively investigated the effect that the composting facility has had and will have on the site. The assessment also investigated any Red Data species that may have persisted on the site prior to the composting development and the extent of species loss and ecological damage should the facility be developed to its intended extent. The following is an extract of the assessment report. The full report is attached in Appendix D.

The assessment was conducted by field survey as well as a desktop study. Due to the fact that the majority of mammal, reptile and amphibian species are nocturnal, secretive, hibernators or seasonal, and bird species are highly mobile, the presence of suitable habitats were used to determine the status of species. This was based on authoritative tomes, scientific literature, field guides, atlases and data bases. During the field survey, animals were also identified by visual sightings. No trapping or mist netting was conducted. Mammals were also identified by means of spoor, droppings, burrows and roosting sites.

3.5.1 Site characteristics

The site is located in the midst of an intensive maize production district. Similar to adjoining properties, the site has been entirely transformed in the past to alien monoculture. The site is presently fallow and is largely invaded by noxious weeds. The site and surrounding properties are devoid of indigenous trees, but exotics, especially blue gums, have been planted. These undoubtedly provide perches and nesting sites for some birds.

3.5.2 Commonly occurring or observed species

3.5.2.1 Vertebrates

Common vertebrates, such as *Lepus saxatilis* (Scrub Hare), *Cynictis penicillata* (Yellow Mongoose), *Streptopelia capicola* (Cape turtle doves) and *Numida meleagris* (Guinea fowl), were recorded during the site visit. It was obvious that these animals were vagrants and that the site was likely a portion of their home ranges or territories. Inconspicuous species such as *Mastomys natalensis* (multimammate mice) have become new inhabitants of the site. They are regarded as ecologically robust species with the capacity to be opportunist settlers of degraded areas. It is more than likely that common bats, such as Cape serotine bats, African yellow house bats and Greenish yellow house bats, commute from roosts in manmade structures to the area over and near the dam and occasionally fly over the site.

3.5.2.2 Avifauna

Alopochen aegyptiaca (Egyptian geese), Vanellus coronatus (Crowned plovers), Phoenicopterus roseus (Greater flamingos), Phalacrocorax lucidus (White-breasted cormorants) and Threskiornis

aethiopicus (Sacred ibises) were recorded on or near the dam south-east of the site. These species are typical of the water and wetland bird species that can be expected to pass over the site as they follow drainage lines (corridors for their movement). Various smaller bird species, especially seed eaters, are expected to visit the site for the abundant seeds from pioneer grasses and herbs that have re-colonised the fallow fields.

3.5.2.3 Herpetofauna

Two herpetological habitats (terrestrial and wetland-associated vegetation cover) are naturally occurring on or near the composting site. The terrestrial habitats are dominant and most of it is transformed grassland due to agricultural activities (ploughed and fallow fields). The ecologically disturbed state of the site is less than ideal for terrestrial herpetofauna, which rely on good vegetative cover for protection against predators. In some places the basal cover was lush and would provide adequate cover for small terrestrial herpetofauna. Due to the absence of indigenous trees, the low number of exotic trees and the collection of firewood, there are no dead logs on site, which would have provided shelter and food for some herpetofauna. No natural rupicolous habitats are present at the site.

Permanent and temporary water sources occur on or near the site. A major feature near the site is the perennial Brakspruit that lies north-east of the site. A tributary of the Brakspruit flows south-east of the site. There are quite a few wetlands, pans and dams on or near the site. Although some wetlands are artificial and originate from farm dams, these are functional with several wetland plant species and wetland fauna are also present. As a consequence, ample habitat is available for water- and moisture-reliant herpetofauna. No termitaria were observed. Moribund termitaria would have provided ideal retreats for small reptiles and amphibians.

The herpetofaunal species on the site are common and widespread. These species include *Lamprophis capensis* (Brown House Snake), *Pseudaspis cana* (Mole Snake), *Dasypeltis scabra* (Common Egg Eater), *Hemachatus haemachatus* (Rinkhals), *Trachylepis punctatissima* (Speckled Rock Skink), *Xenopus laevis* (Common Platanna), *Amietia angolensis* (Common River Frog), *Cacosternum boettgeri* (Boettger's Caco), *Kassina senegalensis* (Bubbling Kassina), *Amietophrynus gutturalis* (Guttural Toad) and *Amietophrynus rangeri* (Raucous Toad).

Potential breeding sites for the giant bullfrog are present near the study site. It is important to note that in the latest literature (Measey (ed.), 2011 and Carruthers & du Preez, 2011), the giant bullfrog's status has officially changed from Near Threatened (Minter *et al*, 2004) to Least Concern, in South Africa.

3.5.3 Endangered species

Due to its disturbed natures, it is unlikely that the site retained sufficient ecological resources to sustain Red Data vertebrate species. Based on the field observations, it was concluded that no Red

Data vertebrate species occur on the site, or probably have occurred since the site was initially tilled in the past.

Red data species such as the *Sagittarius serpentarius* (Secretary Bird), *Anthropoides paradiseus* (Blue Crane) and *Eupodotis caerulescens* (Blue Korhaan) might have been found on the original habitats of the site, but would be considered only rare vagrants if ever encountered on the site again, given its transformed nature.

3.6 Surface water

3.6.1 Catchment areas

The site lies within the C11M quaternary catchment. This quaternary catchment region is situated within the Upper Vaal Water Management Area. The Upper Vaal Water Management Area lies in the eastern interior of South Africa. Large quantities of water are transferred into the area from two neighbouring areas while the area also transfer large quantities of water to three other water management areas.

As shown in Figure 2, the Brakspruit is situated north of the site, flowing in a south-westerly direction. A tributary of the Brakspruit and its wetland area is situated south and south-west of the site. This wetland area was historically dammed and is used to collect effluent from the chicken houses to the south-west of the wetland area (Dimela Eco Consulting, 2014).

3.6.2 Mean annual runoff (MAR)

The total Mean annual runoff for the Upper Vaal Water Management Area is 2 423 million m³/annum while the Ecological Reserve is 299 million m³/annum (DWAF, 2004).

3.6.3 Surface water quantity and use

No surface water will be abstracted for use at the site. Water will be supplied to the site by means of a water cart. The water will be used to moisten the compost heaps at specific intervals.

3.6.4 Water authority

The relevant water authority is the Department of Water Affairs, Gauteng Region, based in Pretoria.

3.7 Groundwater

3.7.1 Aquifer type

The aquifer type of the area is d2, intergranular and fractured aquifers with median borehole yields of 0.1-0.5 litres/second (Geohydrological Map Sheet 2526, 1999). The aquifers are classified as "minor" aquifers (DWA, 2012).

The groundwater recharge is approximately 5mm per annum and the baseflow is approximately 34mm per annum in the area of the site (DWAF, 2010).

3.7.2 Depth of water tables

The depth to the water level is approximately 12.9 mbgl (metres below ground level) in the area of the site (DWAF, 2010).

3.7.3 Groundwater use

No groundwater is or will be used at the composting facility. There are not boreholes present at the composting facility.

3.7.4 Groundwater quality

The groundwater quality, in terms of mean TDS (total dissolved solids), underlying the area of the site is 291mg/ℓ (DWAF, 2010).

3.8 Storm water

A storm water management plan (Shangoni Management Services, 2014) has been compiled to describe the storm water management requirements at the composting site and to propose strategies for clean and dirty water separation so as to meet the requirements, in accordance with the best practise guidelines (DWAF, 2006), and Section 19 of the National Water Act, 1998. The following is an extract of the assessment report. The full report is attached in Appendix D.

Surface drainage within the perimeter of the composting facility will be in a southerly direction towards the natural drainage line. The northern boundary of the composting activity is situated on a water divide and surface runoff from this area will drain northwards towards another drainage line. A diversion berm was constructed downstream of the composting facility to prevent clean surface runoff from flowing into the dirty water dam that receives effluent from the chicken houses.

3.9 Sensitive landscapes

According to the flora assessment, wetland areas are situated south and south-west of the composting site. The wetlands are associated with the dammed tributary of the Brakspruit. The tributary flows to the south and south-west of the composting site and was historically dammed.

Figure 22 showed the critical biodiversity areas in the vicinity of the site, in terms of the Mpumalanga Biodiversity Conservation Plan (MBCP). The composting site is largely situated in areas of "No Natural Habitat" remaining. However, the Brakspruit River, tributary of the Brakspruit and wetland areas are listed as "Important and Necessary". These areas require protection due to their

hydrological function and potential as habitat to threatened plants and movement corridors for fauna species (Dimela Eco Consulting, 2014).

3.10 Sites of archaeological and cultural interest

The site was historically disturbed by agricultural practices (ploughing and crop production). No information is available relating to the possible presence or absence of any sites of cultural heritage (historical and/or archaeological). The South African Heritage Resources Agency has been informed of the project, but no feedback has been received from them as yet. No Heritage Impact Assessment was requested by the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs and therefore no heritage assessment has been conducted.

3.11 Air Quality

The site is situated within the Highveld Priority Area, as declared in terms of Section 18(1) of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004). The area was declared a Priority Area as the Minister of the Department of Environmental Affairs and Tourism believed that the ambient air quality within the area exceeds or may exceed ambient air quality standards, or alternatively, that a situation exists within the areas that is causing or may cause a significant negative impact on air quality, and that the area requires specific air quality management action to rectify the situation. It is required that an Air Quality Management Plan be developed for the Priority Area. The plan includes the establishment of emission reduction strategies and intervention programmes based on findings of a baseline characterisation of the area. Specific emission reduction strategies will be developed for industries within the areas and the strategies will have specific reduction targets (Airshed Planning Professionals, 2013).

The area surrounding the site is dominated by agricultural activities. The agricultural sector mainly produces emissions in the form of Carbon dioxide (CO₂), Methane (CH₄) and Nitrous oxide (N₂O) (Johnson *et al.*, 2007; Samer, 2013).

3.12 Noise

The site is situated in an agricultural area and the dominant land uses are agricultural activities, such as chicken farms and cattle feedlots. Noise is therefore mostly generated by agricultural activities and vehicles travelling on roads, such as the R50.

3.13 Visual aspects

The site is situated in an agricultural area and is visible from surrounding properties in all directions. The site is also visible from the dirt access road to the site, as shown in the figures below.

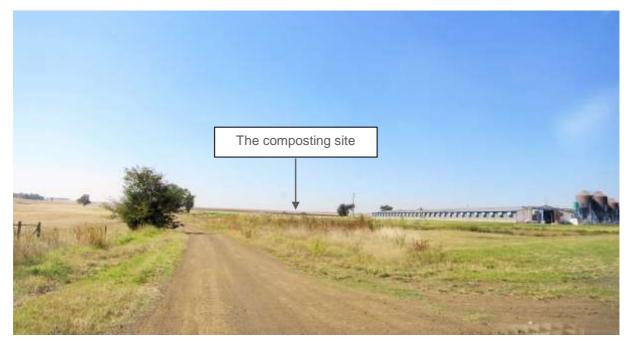


Figure 23: View of the composting facility from the access road (1)



Figure 24: View of the composting facility from the access road (2)

3.14 Socio-economic aspects

3.14.1 Demography

According to the 2011 census, 115 662 people formed part of the 31 071 households in the Lekwa Local Municipality. The average household size is 3.7 people per household. The growth rate in the municipality is 1.13% per annum. There are 99.4 men for every 100 women in the municipality (Statistics South Africa, 2011). The table below shows the age structure of the municipality.

Table 6: Demographic Profile of the Lekwa Local Municipality

Age Group	Percentage of Population (%)
Under 15 years of age	28.6
15 to 64 years of age	66.4
Over 65 years of age	5.0
Total	100

3.14.2 Major economic activities

The Lekwa Local Municipality is relatively industrialised and has a large number of sectors in the municipal area. These sectors include the mining of coal and the lignite sector, which is the main sector in the Lekwa Municipality (KV3 Engineers, 2009). Other sectors include textiles, engineering, animal feed producers, dairy producers, mining, hunting, farming, grain mills, community services, electricity, gas, trade, steam and hot water supply. The agricultural activities in Lekwa include sheep-, chicken- and cattle- farming and the cultivation of sorghum, mushrooms, maize, sunflower and flowers (KV3 Engineers, 2009).

The land use within the municipality is almost entirely dominated by agriculture. Many of the grasslands in the municipal area are used for the rearing of dairy cattle. In the last 15 years the poultry sector has developed substantially and there are approximately 50 poultry broiler farms in the Lekwa municipal area. Small areas in the vicinity of rivers are used for irrigated cultivation.

3.14.3 Unemployment and employment

The 2011 census found that the official unemployment rate was 25.9% and the youth unemployment rate (15 to 34 years of age) was 35.2%. The dependency ratio was 50.6 per 100 people between the ages of 15 and 64 years (Statistics South Africa, 2011).

4. ENVIRONMENTAL FRAMEWORK

4.1 Impact assessment methodology

The environmental risk of any aspect is determined by a combination of parameters associated with the impact. Each parameter connects the physical characteristics of an impact to a quantifiable value to rate the environmental risk.

Impact assessments should be conducted based on a methodology that includes the following:

- Clear processes for impact identification, predication and evaluation;
- Specification of the impact identification techniques;
- Criteria to evaluate the significance of impacts;
- Design of mitigation measures to lessen impacts;
- Definition of the different types of impacts (indirect, direct or cumulative); and
- Specification of uncertainties.

After all impacts have been identified, the nature of each impact can be predicted. The impact prediction will take into account physical, biological, socio-economic and cultural information and will then estimate the likely parameters and characteristics of the impacts. The impact prediction will aim to provide a basis from which the significance of each impact can be determined and appropriate mitigation measures can be developed.

The risk assessment methodology is based on defining and understanding the three basic components of the risk, i.e. the source of the risk, the pathway and the target that experiences the risk (receptor). Refer to the figure below for a model representing the above principle (as contained in the DWA's Best Practice Guideline: G4 – Impact Prediction).

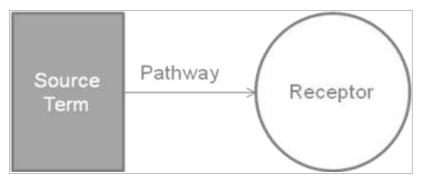


Figure 25: DWA's model for impact prediction (risk assessments)

Table 7 and Table 8 below indicate the methodology to be used in order to assess the Probability and Magnitude of the impact, respectively, and Table 9 provides the Risk Matrix that will be used to plot the Probability against the Magnitude in order to determine the Severity of the impact.

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Frequency of Aspect	Score	Availability of pathway from	Score	Availability of	Score
/ Unwanted Event		the source to the receptor		receptor	
Never known to have	1	A pathway to allow for the impact	1	The receptor is never	1
happened, but may		to occur is never available		available	
happen					
Known to happen in	2	A pathway to allow for the impact	2	The receptor is almost	2
industry		to occur is almost never available		never available	
< once a year	3	A pathway to allow for the impact	3	The receptor is	3
		to occur is sometimes available		sometimes available	
Once per year to up to	4	A pathway to allow for the impact	4	The receptor is almost	4
once per month		to occur is almost always		always available	
		available			
Once a month -	5	A pathway to allow for the impact	5	The receptor is	5
Continuous		to occur is always available		always available	

Table 7: Determination of Probability of the Impact

Step 1: Determine the **PROBABILITY** of the impact by calculating the average between the Frequency of the Aspect, the Availability of a pathway to the receptor and the availability of the receptor.

Table 8: Determination of Magnitude of Impact

				Source					F	Receptor	
Duration of	Score	Extent	Score	Volume/ Quantity/	Score	Toxicity / Destruction Effect	Score	Reversibility	Score	Sensitivity of environmental	Score
impact				Intensity						component	
Lasting days to a	1	Effect limited to the	1	Very small quantities/	1	Non-toxic (e.g. water)/ Very low	1	Bio-physical and/or social	1	Current environmental component(s)	1
month		site (metres)		volumes/ intensity (e.g.		potential to create damage or		functions and/or processes		are largely disturbed from the natural	
				<50L or <1hHa)		destruction to the environment		will remain unaltered.		state.	
										Receptor of low significance/ sensitivity	
_asting 1 month to	2	Effect limited to the	2	Small quantities/ volumes/	2	Slightly toxic/ Harmful (e.g.	2	Bio-physical and/or social	2	Current environmental component(s)	2
1 year		activity and its		intensity (e.g. 50L to 210L		diluted brine)/ Low potential to		functions and/or processes		are moderately disturbed from the	
		immediate		or 1Ha to 5Ha)		create damage or destruction		might be negligibly altered or		natural state.	
		surroundings. (tens				to the environment		enhanced / Still reversible		No environmentally sensitive	
		of metres)								components.	
Lasting 1 – 5 years	3	Impacts on	3	Moderate quantities /	3	Moderately toxic (e.g.	3	Bio-physical and/or social	3	Current environmental component(s)	3
		extended area		volumes / intensity (e.g. >		slimes)Potential to create		functions and/or processes		are a mix of disturbed and undisturbed	
		beyond site		210 L < 5000L or 5 – 8Ha)		damage or destruction to the		might be notably altered or		areas.	
		boundary				environment		enhanced/ Partially reversible		Area with some environmental	
		(hundreds of								sensitivity (scarce / valuable	
		metres)								environment etc.).	
Lasting 5 years to	4	Impact on local	4	Very large quantities /	4	Toxic (e.g. diesel & Sodium	4	Bio-physical and/or social	4	Current environmental component(s)	4
Life of		scale / adjacent		volumes / intensity (e.g.		Hydroxide)		functions and/or processes		are in a natural state.	
Organisation		sites (km's)		5000 L - 10 000L or 8Ha-				might be considerably altered		Environmentally sensitive environment	
				12Ha)				or enhanced / potentially		/ receptor (endangered species /	
								irreversible		habitats etc.).	
Beyond life of	5	Extends widely	5	Very large quantities /	5	Highly toxic (e.g. arsenic or	5	Bio-physical and/or social	5	Current environmental component(s)	5
Organisation /		(nationally or		volumes / intensity (e.g. >		TCE)		functions and/or processes		are in a pristine natural state.	
Permanent		globally)		10 000 L or > 12Ha)				might be		Highly Sensitive area (endangered	
impacts								severely/substantially altered		species, wetlands, protected habitats	
								or enhanced / Irreversible		etc.)	

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Step 2: Determine the MAGNITUDE of the impact by calculating the average of the factors above.

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Table 9: Determination of Severity of Impact

	ENVIRONMENTAL IMPACT RATING / PRIORITY											
		MAGNITUDE										
PROBABILITY	1 Minor	2 Low	3 Medium	4 High	5 Major							
5 Almost Certain	Low	Medium	High	High	High							
4 Likely	Low	Medium	High	High	High							
3 Possible	Low	Medium	Medium	High	High							
2 Unlikely	Low	Low	Medium	Medium	High							
1 Rare	Low	Low	Low	Medium	Medium							

Step 3: Determine the **SEVERITY** of the impact by plotting the averages that were obtained above for Probability and Magnitude in the table below.

4.2 Impacts Identified

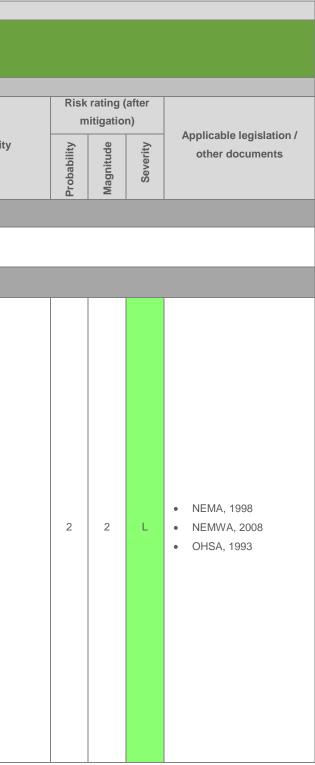
See tables below for a summary of impacts and their associated mitigating actions. The tables also provide an environmental risk assessment of pre- and post- mitigation of identified activities.

4.2.1 Environment in general

Table 10: Environmental impact assessment: Environment in general

Activity: Operation of the composting site	Interne	in gen					
Aspect:							
• Lack of knowledge amongst workers and contractors in term	ns of ho	w their a	actions m	nay impact on the environment.			
Auditing of the composting site.							
				Nat	ure and significance of environmental impact	1	
		rating (hitigatio					
human Description		1				Timefrom a	Deeneneihi
Impact Description	Probability	Magnitude	Severity	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsibi
Construction Phase							
As the composting facility is already operational, this phase is not applicable.	N/A						
Operational Phase							
Harm to the environment in general (this can include pollution of soil and water resources, as well as harm to employees and wasteful practices in terms of resource use and waste management).	4	3	Н	To prevent harm to the environment by educating workers and contractors.	 All employees must receive training as part of the safety, health and environmental induction, on waste management in order to identify, prevent, minimise or manage actions or behaviours that are likely to cause adverse impacts on air, water, land, fauna and flora as a result of operational activities at the facility. Members of staff must be trained to manage all types of wastes in accordance with the provisions of any norms and standards and legislative requirements applicable to composting facilities. Follow-up training may be required from time to time as new employees commence work or for specific activities that may potentially impact the environment. The facility manager is to maintain accurate records of any training undertaken. Training is to cover all aspects of the EMP and procedures to be followed. Pollution of the biological and physical environment (including habitats for animal and plant species, water resources, land, soil and air) as a result of operations within the facility must at all times be prevented or minimised. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager

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Non-compliance to the Environmental Maragement Programme and Waste Management Loence, if issued, and waste management). Non-compliance to the Environmental Maragement Programme and Waste Management Loence, if issued, and waste management). Second Management Loence, if issued, and waste management). Encourse management Loence are sub- relation to the environment ingeneit the issue and waste management). Encourse management Loence are sub- relation in half waster management loence are sub- relation in the environment and management loence are include patients of resource use and waster management). Encourse management loence are sub- relation in the environment and management loence are include patients of the compliance in terms of resource use and waster management). Encourse management loence are sub- insued. Encourse management loence are sub- and the management loence are insued. Encourse management loence are insued. Encourse management loence are sub- ingle. Encourse management loence are sub- encourse and decommission are encourse. Encourse and decommission are encourse. Encourse and decommission are encourse. Encourse and decommission are encourse and the loon are encourse. Encourse and decommission are encourse. Encou									
Closure and decommissioning of the composting facility is not anticipated for the foreseeable future. Should the facility close, a detailed closure and rehabilitation plan will be submitted to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs for approval not more than one (1) year prior to closure of the facility. The owner of the facility, including the subsequent owner of the facility, will remain responsible for any adverse impacts on the	Programme and Waste Management Licence, if issued, resulting in harm to the environment in general (this can include pollution of soil and water resources, as well as harm to employees and wasteful practices in terms of resource use and waste management).	4	3	Н	adequately in order to ensure compliance to the Environmental Management Programme and Waste Management Licence, if	•	 ensure early detection and addressing of environmental pollution. The relevant authority must be given access to audit or inspect the site at any time and at such a frequency as the authority may decide. The site owner must, during the audit or inspection, make any records or documentation available to the audit or inspection team as may be required. A record of any non-compliance findings by the relevant authority and the manner such noncompliances were addressed must be kept in a file. Internal audits detailing environmental performance of the facility must be conducted biannually and official reports prepared. All internal audits must be made available to external auditors and to the relevant authority upon request. External audits must be conducted biennially by an independent auditor and the auditor must brepare an official report documenting the audit findings. The external audit report must be 	the site receives Environmental	Site Manager
anticipated for the foreseeable future. Should the facility close, a detailed closure and rehabilitation plan will be submitted to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs for approval not more than one (1) year prior to closure of the facility. The owner of the facility, including the subsequent owner of the facility, will remain responsible for any adverse impacts on the		1							
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owner of the facility, including the subsequent owner of the facility, will remain responsible for any adverse impacts on the		IN/A							
facility, will remain responsible for any adverse impacts on the									
environment, even after operations nave ceased.									
	environment, even after operations have ceased.								

4.2.2 Stormwater

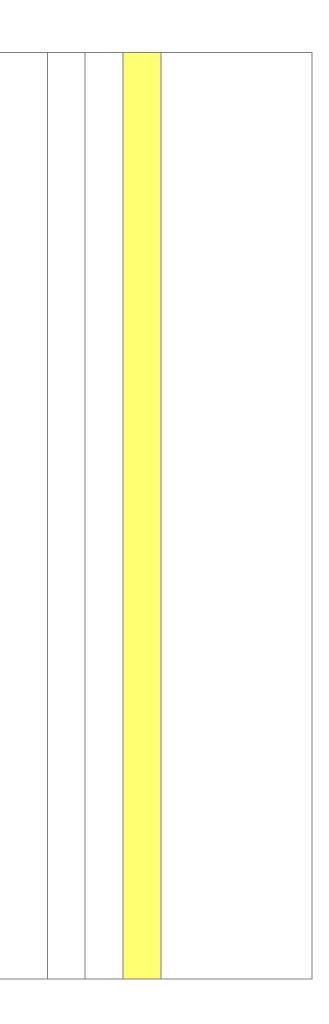
The proposed storm water management measures are given in the following Table 11 and Figure 26 below.

		2	3	М	• NEMA, 1998
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Table 11: Environmental impact assessment: Storm water

Activity: Rain events and rain water (storm water) flowing throu	-		-								
Aspect: "Clean" rainwater (stormwater) flowing through "dirty" a	reas at t	he comp	posting s		ure and significance of environmental impact						
Impact Description		rating (I nitigatio	on)	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsibility	r	c rating (nitigatio	n)	Applicable legislation /
	Probability	Magnitude	Severity					Probability	Magnitude	Severity	other documents
Construction Phase											
As the composting facility is already operational, this phase is not applicable.	N/A										
Operational Phase											
 Contamination of the natural "clean" habitat in the vicinity of the composting facility, including soil, surface water and groundwater pollution. Soil erosion. Erosion of access roads. 		3	Н	 To ensure effective storm water management and to prevent the contamination of clean storm water runoff. To prevent soil erosion. To prevent erosion of access roads. 	 The composting site must be maintained on a continuous basis and in such a manner so that runoff from the site does not come into contact with the materials received and processed at the site, including the final product and process residuals stored at the site. Where leachate is to be used for dust suppression, it may only be applied to areas within the facility's working surfaces, such as the material processing and storage areas. This is to ensure that leachate does not contaminate storm water runoff. Contaminated runoff from the working surface may be sprayed over the compost to facilitate the decomposition process. The facility must be operated in such a manner that surface water is prevented from mixing with organics received, processed and stored at the facility, including the final product. Runoff and leachate must be diverted to a retention pond from where the affected water can be re-applied to the compost heaps. This will serve as a moisture additive to enhance the composting process. All water that has entered the processing and storage areas, including the contaminated water, must be handled and treated as leachate. General storm water measures The containment facility, channel and berms should be inspected and serviced regularly to 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager	2	3	М	 NEMA, 1998 NWA, 1998

	ensure the design capacity and integrity is
	maintained. Storm water control measures
	should be kept clear of obstructions by objects
	as well as siltation, especially where the velocity
	of the runoff is induced.
	Affected runoff water should be controlled and
	should not contaminate the natural clean habitat
	within the vicinity of the composing facility.
	No affected water from the composting facility is
	allowed to spill into the clean water environment.
	This should be ensured through design as well
	as operational control measures.
	 Erosion prevention measures (e.g. grass,
	cement or rock) should be in place at all
	concentration points. These areas include roads,
	channels, berms and other infrastructure that
	may increase surface runoff.
	Erosion of access roads should be addressed by implementing energy discipators to drain surface.
	implementing energy dissipaters to drain surface
	runoff away from the roads into the adjacent
	veldt areas.
	Regular maintenance should be conducted to
	ensure that all infrastructures are functioning
	according to design capabilities.
	Effective management of surface water runoff
	and clean/affected water separation at the
	composting facility will contribute to the
	conservation of downstream, clean water
	resources.
	Infrastructure design recommendations and
	maintenance requirements in the Storm Water
	Management Plan should be integrated into
	existing operational management measures.
	The storm water management measures
	contained in the Storm Water Management Plan
	Report should be prioritised to prevent damage
	or failures during flood events. Efficiency and
	practicality are key aspects of a successful storm
	water management plan. Good management is
	based on separating clean and dirty water and
	therefore incorporates the fundamental principle
	of pollution prevention. All proposed measures
	prioritise the use of gravity and natural drainage
	lines to provide cost-effective solutions with
	minimum maintenance requirements. The
	following measures should be implemented, as
	shown visually in the figure below:
	1. A berm has been constructed below the
	composting facility and acts as a clean water
	diversion, thereby preventing surface runoff



 	_		
		from the composting site entering the dirty	
		water dam between the composting facility and	
		the chicken houses.	
		2, 3. A dirty water channel and a containment	
		facility is recommended to contain effected	
		runoff from the site. Water within the	
		containment facility will either be left to	
		evaporate or will be reused to wet the	
		composting windrows. The containment facility	
		should be constructed with a suitable lining	
		(HDPE) to prevent seepage to groundwater. A	
		silt trap should be installed prior to the entrance	
		of the containment facility to prevent siltation	
		and reduce maintenance on the facility.	
		An expected volume of 1 070 m ³ will flow to the	
		containment facility during a 1:50 year, 24-hour	
		flood. A conceptual containment facility with	
		dimensions of 24m x 24m x 2m will only	
		accommodate a 1:50 year, 24-hour flood event	
		and therefore any excess will overflow and will	
		require a suitable spillway design. The	
		containment facility should always be operated	
		at a "low as possible" level in anticipation of	
		rainfall events. Monitoring should be	
		undertaken within the containment facility to	
		assess quality and risks of discharge.	
		Note that the location of the dirty water storage	
		facility may require a Water Use Licence in	
		terms of the National Water Act (Act No. 36 of	
		1998) with reference to the location of the	
		waste water storage dams and waste water	
		disposal sites in close proximity of a	
		watercourse.	
		4. It is recommended that a clean water diversion	
		berm be constructed around the perimeter of	
		the composting activities to prevent clean runoff	
		from flowing into the dirty area. Regular	
		inspections should be conducted to detect and	
		manage degradation of the berm. Vegetation	
		growth should be encouraged to improve berm	
		stability.	

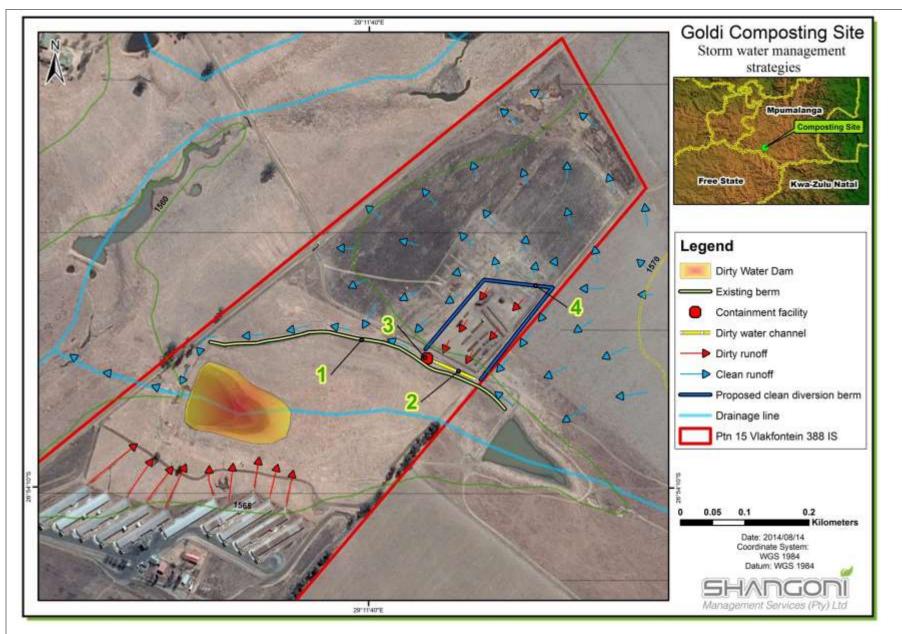


Figure 26: Proposed storm water management measures

Decommissioning Phase

Closure and decommissioning of the composting facility is not anticipated for the foreseeable future. Should the facility close, a detailed closure and rehabilitation plan will be submitted to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs for approval not more than one (1) year prior to closure of the facility. The owner of the facility, including the subsequent owner of the facility, will remain responsible for any adverse impacts on the environment, even after operations have ceased.

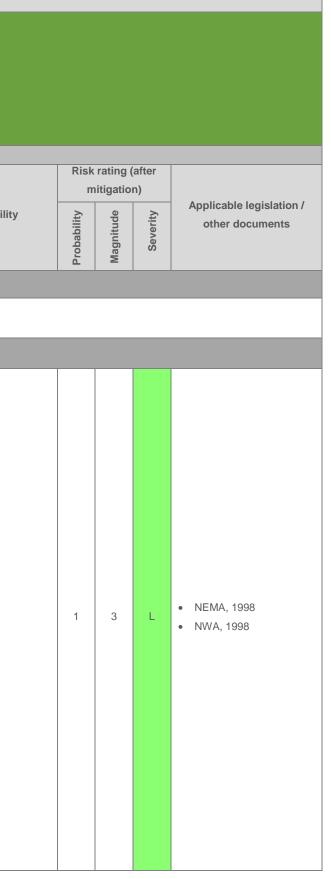
Shangoni Management Services (Pty) Ltd

4.2.3 Geohydrology, surface water, groundwater and soil

Table 12: Environmental impact assessment: Geohydrology, surface water, groundwater and soil

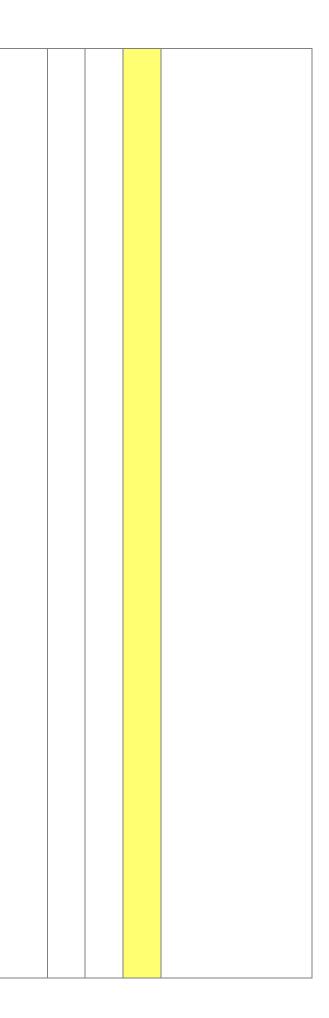
Activity: Operation of the composting site.							
<u>Ispect</u> :							
Leaching of water during rain events or if the moisture conte	nt of th	ne comp	ost heap	os is too high resulting in excess liquid	draining away.		
Surface water runoff during rain events.							
Poor waste management.							
Unsanitary conditions on site.							
Poor management and spills of hazardous chemical substan	nces ind	cluding	fuel, are	ases and oils.			
Leaking and/or spilling of fuels, greases and oils.							
				Nat	ure and significance of environmental impact		
	Risk r	ating (k	pefore				
		itigatio					
Impact Description		-	-	Environmental Objective	Management (Mitigation / Manitaring Magaura	Timefrome	Deenensihili
Impact Description	Probability	Magnitude	Severity	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsibili
	bat	Igni	Sev				
	Pro	Ma	57				
onstruction Phase							
s the composting facility is already operational, this phase is							
not applicable.	N/A						
perational Phase							
					Site drainage will need to be well managed to		
					prevent the build-up of moisture on the soil-		
					bedrock interface, which may lead to the		
he Phase 1 Geotechnical Site Investigation of the site found					development of a seasonal perched water table		
at the composting process may pose the following					that may eventually reach surface water courses.		
ydrogeological impacts:					• The areas where the compostable material will		
Groundwater contamination form waste leachate; and					be stored and processed (composted) as well as		
Pollution of surface water with waste leachate. Runoff and					the storage areas for the final product must be		
leaching of Nitrogen may contribute to water pollution					compacted to ensure that the drainage onsite is		
(Peigné & Girardin, 2004).					poor to impervious, to prevent leachate from		
					percolating into the ground.		
he vertical soil profile distribution comprises of surficial				To prevent contamination of the	• Bulking agents enhance the compost's water-	Ongoing and as soon as	
ayey sand of 0.14m covering black and olive coloured				surface and groundwater from	holding capacity and thereby reduce leachate	the site receives	
esidual clay from dolerite between 0.6m and 1.3m thick	2	4	М	waste leachate from the	loss (Ulén, 1993).	Environmental	Site Manager
llowed, in the vicinity of the composting facility, by				composting facility.	• Reduce the amount of water percolating through	Authorisation	
prizontally bedded and laminated weathered siltstone. This				composing idolity.	the compost by covering the compost piles		
ofile, if the moisture content is relatively high and the soils					using, for example, a straw or tarpaulin cover		
e kept form drying out will provide a virtually impervious					(Ulén, 1993).		
yer between the surface activities and the bedrock.					• Regular turning of the windrows will reduce the		
					moisture content by bringing wetter material to		
he horizontally bedded and laminated weathered siltstone is					the surface where it can dry (Hao & Benke,		
so nearly impervious to vertical water percolation due to the					2008).		
rientation of the beds and the silt to clay discontinuity infill					• According to results from the geotechnical		
ue to the clayey nature of the rock.					assessment of the site, the site soils are not		
					necessarily suitable for use as construction		
						1	1
					materials. All infrastructure will need special		

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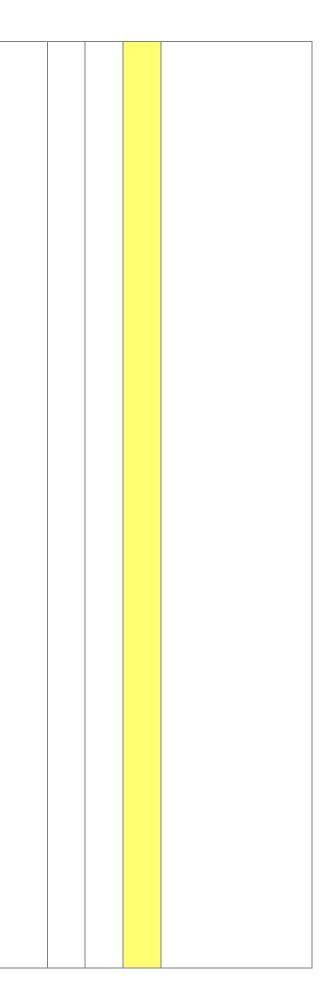


					, , , , , , , , , , , , , , , , , , , ,		
			volume changes in the active clay horizons				
			covering the entire site. This includes special				
			foundations for surface structures and the				
			removal and replacement of clay with inert				
			materials at road constructions.				
			• It is the responsibility of the applicant to ensure				
			that storm water control measures are designed				
			and constructed to be capable of withstanding				
			the maximum design flood. It should be taken				
			into consideration that the potential for erosion				
			To prevent erosion of the soil due increases where the surface runoff is	Ongoing and as soon as			
Erosion of soil at the composting site. 4			to the composting and related concentrated and must be addressed within the	the site receives Site Manager	2 3	м	• NEMA, 1998
Erosion of soil at the composting site. 4	3	Н	activities, especially when surface designs. Designs should incorporate gradual	Environmental		IVI	• NEWA, 1990
			runoff water is concentrated. drainage to avoid siltation of storm water	Authorisation			
			infrastructure.				
			Protect all areas susceptible to erosion and				
			ensure that there is no undue soil erosion				
			resultant from the composting and related				
			activities.				
			No waste water from the composting site may be				
			discharged or allowed to run into the				
			environment surrounding the site or into any				
			drainage lines or other water systems.				
			A material-screening system must be put in				
			place to prevent non-permissible waste from				
			entering the facility. Non-permissible waste must				
			be intercepted and diverted to a relevant waste				
			disposal facility.				
			All incoming compostable organic waste must be				
Soil, surface water and groundwater pollution. Nuisance			accurately weighed upon entering the				
caused by odours and unsightly appearance of waste onsite.			composting facility and accurate records of all				
caused by bubblis and unsignity appearance of waste offsite.			To prevent soil, surface and measured weights must be kept at the facility.				
			groundwater pollution and • Any solid or liquid waste generated at the facility,				
If the incoming waste is not well managed, it may contaminate			nuisance as a result of poor waste including contaminated products and process	Ongoing and as soon as			• NEMA, 1998
soil and water resources. The waste can produce	3	н	management (waste generated at residuals that cannot be processed at the facility	the site receives Site Manager	2 3	М	• NEMWA, 1998
contaminants such as pathogens, excess nutrients, veterinary			the facility and incoming organic must be stored in such a manner as to prevent	Environmental			• OHSA, 1993
pharmaceuticals, heavy metals, VOCs, antibiotics, bioaerosols			waste to be processed at the water pollution and amenity impacts, following	Authorisation			,
and particulate matter into the air compartment. There is also			composting facility). the requirements of the National Norms and				
a risk of zoonotic transmission and ill-health to humans			Standards for the Storage of Waste (GNR. 926				
(Humane Society International, 2013).			of 29 November 2013).				
			The waste must be sorted at source into various				
			categories (recyclables and non-recyclables) and				
			a document procedure must be implemented to				
			prevent the mixing of general and hazardous				
			waste.				
			The waste must be managed in terms of an				
			approved integrated waste management plan or				
			Industry Waste Management Plan, if available.				
			Liquid waste must be stored in leak resistant				
			containers which must be inspected weekly for				
	1			1	I I		

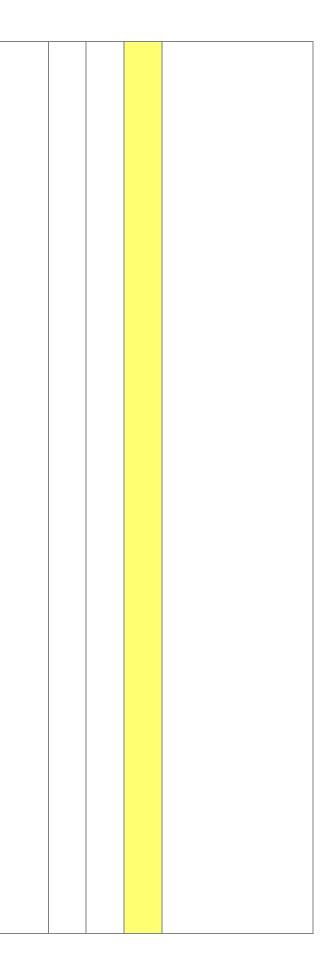
		early detection of leaks. The containers must be	
		of sufficient strength and structural integrity to	
		ensure that they are unlikely to burst or leak in	
		their ordinary use.	
		Waste that is spilled or blown by the wind during	
		operation, handling or storage must be	
		contained.	
		Hazardous waste must be stored in covered	
		containers that are only opened when waste is	
		added or emptied.	
		The quantities of incoming and processed	
		organics must not exceed the design	
		requirements of the storage and processing	
		areas.	
		Operational measures must minimise	
		contamination of final products to the lowest	
		practicable levels.	
		Records of the quantities of incoming organics	
		and of processed organic/mature compost stored	
		at the facility or leaving the facility must be kept.	
		Waste streams must not be mixed. General	
		waste must be disposed of at a general waste	
		management site and hazardous waste material	
		must be disposed of at a hazardous waste	
		disposal or handling facility.	
		Non-recyclable waste must be stored in	
		containers designed for such waste and must be	
		disposed of at a licenced waste disposal or	
		handling facility.	
		A certificate of compliance with relevant SANS	
		standards regarding the installation of waste	
		storage containers must be kept in a file and	
		made available to the relevant authority on	
		request.	
		All organic compost intended for use as	
		fertilisers must be registered with the DAFF and	
		meet all the necessary requirements as per the	
		Regulations Regarding Fertilisers (GNR 732 of	
		10 September 2012) issued in terms of the	
		Fertilizers, Farm Feeds, Agricultural Remedies	
		and Stock Remedies Act, 1947 (Act No. 36 of	
		1947), including any other amended version(s)	
		thereof.	
		Safe disposal certificates for hazardous waste	
		removed from site must be kept on record at the	
		site.	
		The hazardous waste storage area must be	
		registered with the competent authority.	
		The waste storage facility must have correct	
		access control and signage as stipulated in	



	GNR. 926 of 29 November 2013.
	The waste storage facility must be operated as
	stipulated in GNR. 926 of 29 November 2013.
	All waste storage containers must comply with
	the conditions as stipulated in GNR. 926 of 29
	November 2013.
	Training must be provided continuously to
	employees working with waste. The training
	programme must include the provisions
	stipulated in GNR. 926 of 29 November 2013.
	An Emergency Preparedness Plan must be
	compiled in accordance with GNR. 926 of 29
	November 2013.
	Monitoring, auditing, reporting and record
	keeping must be conducted in accordance with
	GNR. 926 of 29 November 2013.
	Implement a waste management plan/procedure.
	The waste management plan/procedure should
	consider the type of waste, description, source,
	storage, disposal method, disposal facility and
	responsible person.
	The implementation of the waste management
	plan/procedure should ensure:
	Installation of sufficient waste bins, skips or
	bulk containers, where necessary. The design
	of the bins, skips or bulk containers must
	ensure containment to prevent seepage, must
	be covered to prevent water ingress and must
	be placed on impermeable surfaces within
	bunded areas.
	 All containers (bins, skips or bulk containers)
	shall be kept in a clean and hygienic manner.
	Containers (bins, skips or bulk containers)
	utilised for the disposal of general and
	hazardous waste must be demarcated
	accordingly.
	 Waste material may only be temporarily stored
	at areas demarcated for such storage.
	 General waste shall be stored in a manner
	that prevents the harbouring of pests.
	 General and hazardous waste should always
	be stored and disposed of separately.
	 General and hazardous waste should be
	disposed of in appropriately demarcated bins.
	Bins are then emptied into appropriately
	demarcated skips or bulk containers once a
	day or more often, if required.
	 Skips or bulk containers should be removed to
	a nearby landfill site on a regular basis. No
	build-up of waste is permitted onsite.



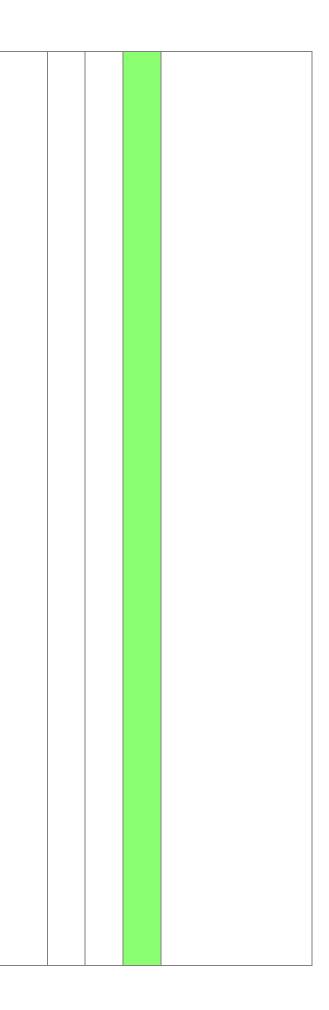
	 Safe disposal certificates should be requested
	from general and hazardous landfill sites with
	every waste disposal. Waste may only be
	disposed of at landfill in accordance with the
	Norms and Standards for Disposal to Landfill
	as stipulated in Section 7(1) of the NEMWA,
	2008.
	 These safe disposal certificates should be
	kept on file to illustrate compliance with the
	cradle to grave principle.
	All waste generated at the facility must be
	classified in terms of GNR. 634 of 23 August
	2013 (National Environmental Management:
	Waste Act, 2008 (Act No. 59 of 2008): Waste
	Classification and Management Regulations).
	Safety data sheets must be obtained or prepared
	for all hazardous waste as stipulated in GNR.
	634 of 23 August 2013.
	All waste storage containers must be labelled, as
	stipulated in GNR. 634 of 23 August 2013.
	Detailed records must be kept of all waste
	generated, as stipulated in GNR. 634 of 23
	August 2013. This includes the classification of
	the waste, quantities of waste generated and re-
	used, recycled, recovered, treated or disposed of
	(in tons or m^3 per month), and by whom the
	waste was managed.
	Waste manifest documents must be compiled for
	all hazardous waste generated onsite, as
	stipulated in GNR. 634 of 23 August 2013
	(specifically Annexure 2).
	All waste transporters must also complete waste
	manifest documents for each load of waste
	transported, as stipulated in GNR. 634 of 23
	August 2013 (specifically Annexure 2).
	Waste manifest documentation must be retained
	for a period of at least five (5) years.
	No incineration of any kind of waste will be
	permitted onsite.
	 Implement a surface- and groundwater
	monitoring programme.
	Undertake regular geohydrological studies to
	determine the impact of the composting facility
	on the groundwater resource.
	Regular review of the monitoring programme by
	a competent person to identify areas of
	improvement as well as areas that require
	attention.



Soil, surface water and groundwater pollution.	3	4	н	Prevent soil, surface and groundwater pollution from unsanitary conditions onsite.	 be supplied with toilet paper. Awareness of the importance of proper hygiene should be created among employees. Ablating anywhere other than in the toilets shall not be allowed. A septic tank system should be considered instead of french drains. Routine maintenance must be undertaken. Implement a surface- and groundwater monitoring programme. Undertake regular geohydrological studies to determine the impact of the composting facility on the groundwater resource. Regular review of the monitoring programme by a competent person to identify areas of improvement as well as areas that require attention. Identify all chemical substances used onsite including fuel, greases, detergents etc. Material Safety Data Sheets for all chemical products must be kept on site in an easily accessible location to employees. Ensure that the material safety data sheets have sufficient information to enable the user to take the necessary measures to protect his/her health and safety and that of the environment. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager
Soil, surface water and groundwater pollution.	3	4	Н	To prevent and minimise soil and water pollution as a result of poor management and accidental spills of hazardous chemical substances, including fuel, greases and oils used onsite, and leaking equipment and vehicles.	 Develop and implement a dangerous goods management plan based on the material safety data sheets of all identified chemical substances and the 1995 Hazardous Chemical Substances Regulations in terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993). Keep a stock inventory register of all chemicals in the store. Powders must be stored above liquids. Proper storage of chemicals in a lockable, well ventilated building. Ensure adequate access control for the storage area. Storage areas for hazardous chemicals are to comply with standard fire safety regulations. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager

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1	3	L	• NEMA, 1998

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on the groundwater resource.			Undertake regular geohydrological studies to
			determine the impact of the composting facility
Regular review of the monitoring programme by			on the groundwater resource.
			Regular review of the monitoring programme by



			a competent person to identify areas of
			improvement as well as areas that require
			attention.
			Inspection and maintenance of equipment and
			vehicles owned by Goldi shall take place on a
			regular basis.
			Security shall inspect vehicles on entering the
			facility to ensure vehicles are in sound condition.
			This will reduce the risk of oil or diesel spillages.
			Equipment and vehicles are to be repaired
			immediately upon developing leaks.
			Drip trays shall be supplied for all repair work
			undertaken on machinery on site.
			Drip trays are to be utilised during daily greasing
			and re-fuelling of machinery and to contain
			incidental spills and pollutants.
			Drip trays are to be inspected daily for leaks and
			effectiveness and emptied when necessary. This
			is to be closely monitored during rain events to
			prevent overflow.
			Soil contaminated with hazardous substances,
			fuel or oil shall be treated as hazardous waste
			and removed from site.
			All liquid fuels (petrol and diesel) are to be stored
			in tanks or containers with lids.
			Onsite fuelling and servicing of equipment and
			motor vehicles may only occur in a designated
			area. A motor vehicle requiring maintenance
			must be removed from the site and repaired at a
			garage or service workshop.
Decommissioning Phase			
Closure and decommissioning of the composting facility is not			
anticipated for the foreseeable future. Should the facility close,			
a detailed closure and rehabilitation plan will be submitted to			
the Mpumalanga Department of Agriculture, Rural			
Development, Land and Environmental Affairs for approval not	N/A		
more than one (1) year prior to closure of the facility. The			
owner of the facility, including the subsequent owner of the			
facility, will remain responsible for any adverse impacts on the			
environment, even after operations have ceased.			

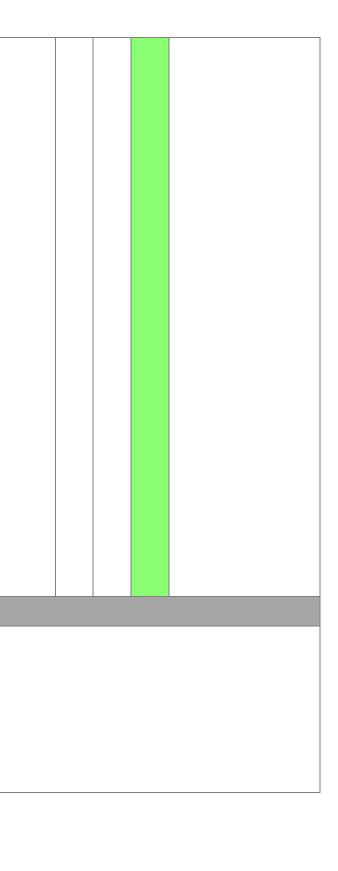
4.2.4 Fauna, Flora and Wetlands

Table 13: Environmental impact assessment: Fauna, Flora and Wetlands

Activity: Operation of the composting site.

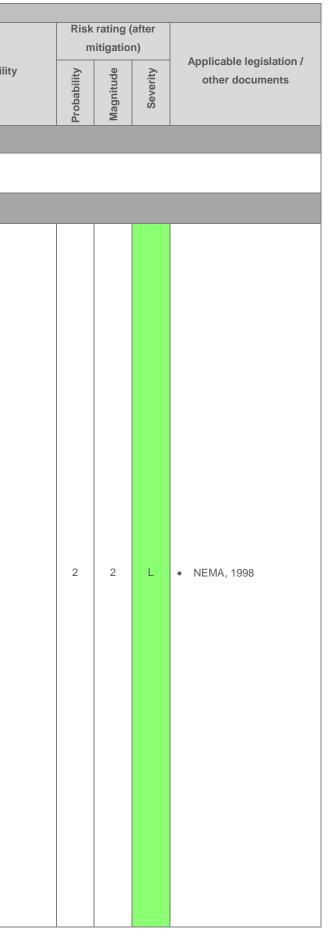
Aspect:

- Establishment and potential expansion of the composting site
- Poor veld management.

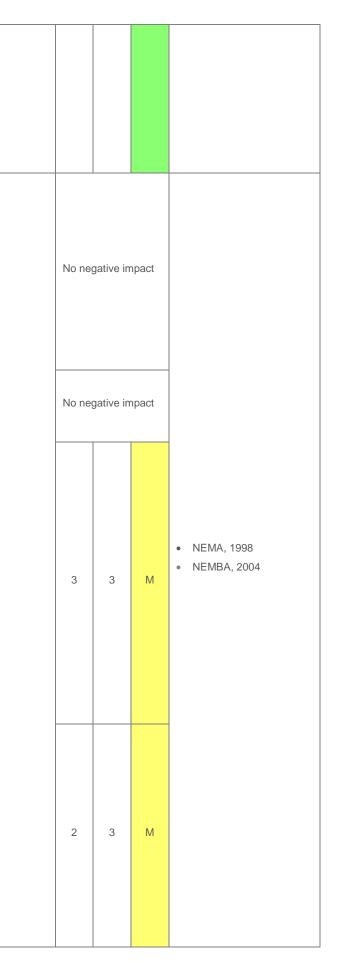




				Nat	ure and significance of environmental impact		
		rating (nitigatio					
Impact Description	Probability	Magnitude	Severity	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsib
Construction Phase							
As the composting facility is already operational, this phase is							
not applicable.	N/A						
Operational Phase							
An assessment of the ecological consequences of the							
composting facility on vertebrates found the following:							
 The site is too small and too homogenous to be ecologically capable of supporting genetically viable vertebrate populations. It is furthermore agricultural land and was used for growing maize until recently. It is currently fallow. Since cessation of maize production, regeneration of basal cover has not been managed. As a consequence, noxious weeds such as cosmos, blackjacks and khaki weeds are rife. The substrate consists of heavy clay that, when dry, is unyielding for burrowing species. The conservation status of the site is ranked as "Zero", or very little more than that. Ecological damage on the site is a historical event and another agricultural application (the composting) will not detract from or improve its conservation ranking. However, the site is on the upper edge of a gradient towards a dammed seasonal drainage line. Although the dam wall is broken, the reservoir still holds sufficient water to attract water birds such as sacred ibises, flamingos, geese, ducks and cormorants. Downstream of this dam the drainage line flows into the perennial Brakspruit that is flagged as being ecologically sensitive. The risk (<i>albeit</i> small) of noxious fluids from the compost heaps contaminating the Brakspruit requires management to prevent pollution and eutrophication of the waterways. This is considered a significant risk given the high clay content of the soils on site, which will provide little absorption of any runoff from the manure stored on site. It is understood that efficient composting does not leach hazardous exudates, and so scientifically optimised composting procedures should thus be a first level of risk management to avoid contamination of the Brakspruit. As a second level of risk management, it is suggested that the existing furrow between the proposed site and the dam be adapted as a trap and attenuation sump for 	3	2	М	To prevent pollution and eutrophication of the waterways in the vicinity of the composting site, i.e. the dammed drainage line to the south of the site as well as the Brakspruit downstream of the dam.	 It is suggested that the compost heaps are regularly monitored to ensure their prerequisite microbial health and to ensure that seepage from the compost heaps are properly controlled and ecologically benign. It is suggested that the furrow between the composting site and the dam downslope from the site be adapted as a trap and attenuation sump for possible contaminates as a precaution against excessive runoff. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager



			_			
 possible contaminates as a precaution against excessive runoff. The dam itself, especially if its wall is repaired, could be developed as a final, third level of risk management. From a vertebrate perspective, no reasonable objection can be raised to a switch in land-use practice from maize production to the efficient disposal of a waste product arising from the mass production of broiler chickens. A flora assessment of the composting site found the following: Illegal commencement of activities: On site: The vegetation on site, as well as around most of the site, were in a degraded state prior to the commencement of the composting activities. No plants of conservation concern were observed on the site and it is highly unlikely that these plants persist here. Therefore, the commencement of the composting activities had no negative, direct impacts on the vegetation on the site or its immediate surroundings. 	Non	egative	impact			
Moist grasslands and Brakspruit north of the site: The current composting activities did not have any impacts on the moist grasslands north of the site. Moist grassland south and south-west of the site: The site slopes southwards and water runoff from the composting area flows towards the dammed wetlands south and south-west of the composting site. The vegetation here is not in a natural state and no plants of conservation concern were observed. The composting activities had no direct impact on off-site moist grasslands. However, it is likely that the water separation management system (drainage channel and berm) that formed part of the composting activities, had some impact on the hydrology of the moist grassland. This could be confirmed by a wetland specialist or hydrologist. Wetlands and riparian areas, such as the Brakspruit, are protected by national legislation	No n	egative	H	 Maintain the current fence around the composting area and prevent vehicle access to the moist grasslands south and south west of the site. The water management system must be maintained, improved where necessary, and continuously monitored. Note that activities within 500m of a wetland area, as well as release of water into wetlands are likely subjected to a Water Use Licence (WUL). This should be clarified with a representative of the Department of Water Affairs. Ensure that the stormwater management system is adequate in times of high rainfall and flooding. Monitor the effectiveness of the water management system regularly. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager
and must be regarded as sensitive, no-go areas. Therefore, no on-site activities are allowed to impact on these off-site areas. Operation of the composting facility The continuation of the composting activities on site, as well as the potential expansion of the activities to the remainder of the site, are not considered to have a detrimental impact on the vegetation of the site or immediate surroundings. However, the composting area could have an indirect impact on the moist grasslands around the site. Polluted water reaching the moist grasslands south and south-west of the site, could possibly reach the Brakspruit. If the composting facility expands northwards on the remainder of the site, a small possibility exist that pollution could reach the Brakspruit north of the site. The Declining <i>Crinum bulbispermum</i> was confirmed to occur	3	4	н	 Ensure that no polluted water reaches the Brakspruit. No edge effect should be allowed to impact on any vegetated area, other than the site as indicated in the Fauna Assessment Report. 		



along the Brakspruit, about 1.2km downstream from the site, while suitable habitat also exist for the Near-Threatened <i>Kniphofia typhoides</i> . Therefore, the main concern with the continuation of the composting area would be the quality of water released into the wetland area south and south-west of the site, and subsequently the Brakspruit.									
Loss of moist grassland and habitats for fauna species surrounding the site as a result of runaway veld fires.	н	To prevent the occurrence and spreading of a veld fire.	 A fire break on the inside of the boundary fence surrounding the composting site must be regularly maintained (kept free of vegetation). Should the fire break be burnt, the provisions in terms of the National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998) must be complied with. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager	2	2	L	 NEMA, 1998 National Veld and Forest Fire Act, 1998
Decommissioning Phase									
Closure and decommissioning of the composting facility is not anticipated for the foreseeable future. Should the facility close, a detailed closure and rehabilitation plan will be submitted to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs for approval not more than one (1) year prior to closure of the facility. The owner of the facility, including the subsequent owner of the facility, will remain responsible for any adverse impacts on the environment, even after operations have ceased.									

4.2.5 Visual

Table 14: Environmental impact assessment: Visual

Activity: Operation of the composting site.							
Aspect: Existence of the site in view of receptors in the vicinity of	of the sit	e, such a	as adjac	ent neighbours.			
				Nat	ure and significance of environmental impact		
		rating (k nitigatio					
Impact Description	Probability	Magnitude	Severity	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsibil
Construction Phase							
As the composting facility is already operational, this phase is not applicable.	N/A						
Operational Phase							
Negative impact on neighbours having to see the composting facility from their residences. Also, a negative impact on the	5	5	Н	To minimise the visual impact of the composting site on receptors	 Operational measures must be put in place to keep the weed, pest and vermin populations as 	Ongoing and as soon as the site receives	Site Manager
				6			

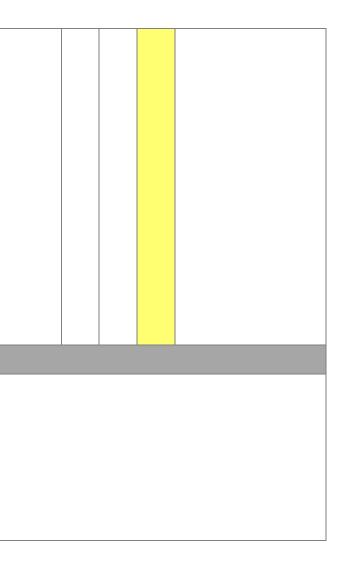


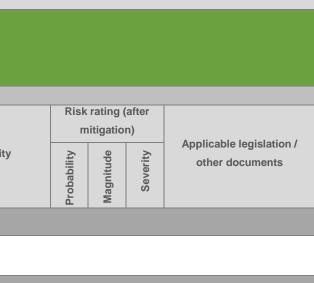
neighbour's value of their properties, being within viewing		in the vicinity of the site.	practicably low as possible.	Environmental	
distance of the composting site.			• Operational measures must be put in place to	Authorisation	
			ensure that vehicles leaving the composting site		
			do not track loose mud and litter outside the		
			facility.		
			Operational procedures that minimise the		
			generation and proliferation of windblown litter		
			must be introduced at the composting facility.		
			• A screen of fast growing trees must be planted		
			along the north-western boundary of the		
			composting site to screen the site from the		
			adjacent land owners to the west.		
			Scrape or sweep all areas where compostable		
			material is mixed, screened or stored on a daily		
			basis so that minimal compostable material is		
			visible in areas surrounding the process and		
			storage piles.		
Decommissioning Phase					
Closure and decommissioning of the composting facility is not					
anticipated for the foreseeable future. Should the facility close,					
a detailed closure and rehabilitation plan will be submitted to					
the Mpumalanga Department of Agriculture, Rural					
Development, Land and Environmental Affairs for approval not	N/A				
more than one (1) year prior to closure of the facility. The					
owner of the facility, including the subsequent owner of the					
facility, will remain responsible for any adverse impacts on the					
environment, even after operations have ceased.					

4.2.6 Atmosphere

Table 15: Environmental impact assessment: Atmosphere

Activity: Operation of the composting site.							
Aspect:							
Generation of dust.							
Generation of noise.							
• Release of odours and other atmospheric emissions.							
				Na	ture and significance of environmental impact		
		rating (I nitigatio					
Impact Description	Probability	Magnitude	Severity	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsibility
Construction Phase							
As the composting facility is already operational, this phase is not applicable.	N/A						
Operational Phase							
				G			

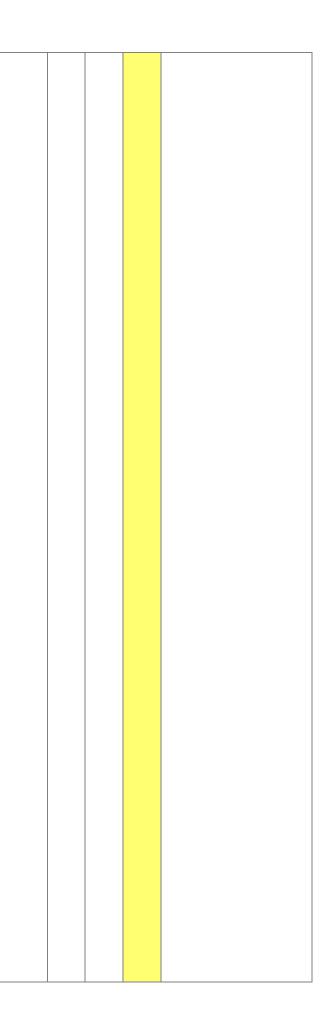




Degradation of ambient air quality.	5	4	Н	To minimise the impact of dust generated by the increased traffic frequency on the ambient air quality.	 A dustcart needs to be onsite to water down dusty roads so that the dust generation does not pose a threat to human health or the environment. Speed bumps or traffic speed signs need to be erected to reduce speeding onsite that could result in the generation of dust. Regular maintenance of vehicles to address wear of tires and breaks. Optimal engine combustion will allow for 'cleaner' exhaust emissions. A complaints register must be kept onsite. The register must record the following: Date when complaint was received, name of person who reported the complaint, details of the complaint and when and how concern was addressed. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager
Disturbance and nuisance to neighbours due to operational activities.	5	3	Н	To maintain a dB reading of less than 50dB at the site boundary and minimise nuisance to neighbours.	 The site workers and contractors will adhere to the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) regarding hearing protection and noise control measures. Regular maintenance of vehicles, back-up generators and equipment. All equipment and machinery should be fitted with adequate silencers. No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the facility manager. No noisy work is to be conducted over the weekends or on public holidays. A complaints register must be kept onsite. The register must record the following: Date when complaint was received, name of person who reported the complaint, details of the complaint and when and how concern was addressed. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager
Generation of atmospheric emissions, odours and nuisance to neighbours. Composting processes may result in significant atmospheric emissions of Ammonia (NH ₃), Nitrous oxide (N ₂ O) and Methane (CH ₄). Ammonia is the most significant emission from composting. Important factors that affect NH ₃ emissions during composting is temperature, pH, aeration, the initial nitrogen content of the manure substrate and the composting process itself (Zhao <i>et al.</i> , 2008). Ammonia emissions increase exponentially during the thermophilic first phase (>45°C) and then linearly during the mesophilic final stage (25-40°C) of	5	4	Н	To minimise the generation of odours at the composting facility and thus the nuisance to neighbours.	 Reasonable measures must be put in place to minimise odour emissions from odorous organic waste such as highly biodegradable organics, at the composting site. Should no effective preventative measures exist, provision must be made for the processing and storage of the waste in enclosed storage and processing facilities. Rapidly biodegradable organics, such as organic sludge, must be covered and the quantity of this material that is exposed to the atmosphere, must 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager

3	3	М	• NEMA, 1998
2	3	М	 NEMA, 1998 OHSA, 1993
3	3	М	 NEMA, 1998 NEM:AQA, 2004

composting (Pagans et al., 2006). High pH (>7) and aeration	be minimised. Alternatively, such organics must
rate increases NH ₃ volatilisation, while a high C:N ratio	be stored in moisture- and vermin-proof bins that
decreases it (Matsuda <i>et al.</i> , 2002).	can withstand the action of organic acids.
	Organics that are being processed must always
Once in the atmosphere, NH ₃ reacts with other particles to	be kept reasonably moist [at least 25% (m/m)
form smog and reduces air quality (Aneja <i>et al.</i> , 2001). N ₂ O	moisture content] to minimise the emissions of
emissions contribute to global warming (IPCC, 2007).	airborne pathogens.
Atmospheric NH ₃ deposition is also linked to increasing soil	Emissions of biogas in aerobic processes must
acidification and accelerated eutrophication of surface water	be controlled by keeping the organics adequately
(Aneja <i>et al.</i> , 2001).	aerated.
	Maintain a minimum oxygen content of at least
The final product from the process (compost) can be stored	5%, by volume, in the free air space of every
and applied to the soil with little to no odour, pathogen, weed	active and curing compost pile. Each compost
or fly breeding potential (Zhao et al., 2008).	pile must be tested at least once a week to
	determine the oxygen content.
	Maintain the moisture content of every active
	and curing compost pile between 45% and 60%,
	by weight. The moisture content must be tested
	every day that the pile is turned to determine the
	moisture content.
	Manage every active compost pile such that the
	initial carbon to nitrogen ratio is at least 25:1.
	The ideal C:N ratio is between 25:1 and 30:1.
	Compost stockpiles and windrows must regularly
	be turned to ensure that they have sufficient
	moisture contents. The piles should, however,
	not be turned more than required, as this
	stimulates aerobic decomposition processes and
	leads to elevated NH_3 emissions (Parkinson <i>et</i>
	al., 2004).
	 Cover all active compost piles within 3 hours of each turning with one of the following: a
	waterproof covering, a layer of finished compost
	or soil.
	Cover all curing compost piles within 3 hours of
	each turning with one of the following: a
	waterproof covering, a layer of finished compost
	or soil.
	Covering the piles has been shown to reduce air
	exchange and therefore NH ₃ emissions
	(Gottschall & Vogtmann, 1988).
	VOC emissions must be tested quarterly.
	The quantities of incoming and processed
	organics must not exceed the design
	requirements of the storage and processing
	areas.
	Operational measures must be put in place to
	ensure that the storage times for raw organics
	are controlled so as to minimise emissions of
	offensive odours.



		Containers or vehicles transporting waste,	
		including blood, to the composting facility must	
		be leak-proof.	
		 Incoming waste should be processed in a timely 	
		manner (i.e. when fresh).	
		An Odour Management Plan must be developed	
		and implemented.	
		• A complaints register must be kept onsite. The	
		register must record the following: Date when	
		complaint was received, name of person who	
		reported the complaint, details of the complaint	
		and when and how concern was addressed.	
Decommissioning Phase			
Closure and decommissioning of the composting facility is not			
anticipated for the foreseeable future. Should the facility close,			
a detailed closure and rehabilitation plan will be submitted to			
the Mpumalanga Department of Agriculture, Rural			
Development, Land and Environmental Affairs for approval not	N/A		
more than one (1) year prior to closure of the facility. The			
owner of the facility, including the subsequent owner of the			
facility, will remain responsible for any adverse impacts on the			
environment, even after operations have ceased.			
	1		

4.2.7 Infrastructure

Table 16: Environmental impact assessment: Infrastructure

Activity: Increased traffic frequency on road infrastructure.											
Aspect: Wear of access roads and insufficient vehicle inspection	IS.										
				Nat	ure and significance of environmental impact						
		rating (b nitigatio							c rating (nitigatio		Applicable logicletion /
Impact Description	Probability	Magnitude	Severity	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsibility	Probability	Magnitude	Severity	Applicable legislation / other documents
Construction Phase											
As the composting facility is already operational, this phase is not applicable.	N/A										
Operational Phase											
Wear of access roads, accidents on access roads, unpermitted transport of materials and loss of materials being transported on access roads	4	3	Н	To minimise the impact of an increase of traffic on access roads to the facility.	 Ensure that all vehicles using access roads are roadworthy. All loads are to be securely fastened when being transported. All vehicles are to adhere to the tonnage limitation and acquire a permit as required. All speed limits and other traffic regulations on the public roadways must be adhered to. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager	3	2	М	• NEMA, 1998

d

Decommissioning Phase	
Closure and decommissioning of the composting facility is not	ot
anticipated for the foreseeable future. Should the facility close,	se,
a detailed closure and rehabilitation plan will be submitted to	to
the Mpumalanga Department of Agriculture, Rural	ral
Development, Land and Environmental Affairs for approval not	ot
more than one (1) year prior to closure of the facility. The	he
owner of the facility, including the subsequent owner of the	he
facility, will remain responsible for any adverse impacts on the	he
environment, even after operations have ceased.	

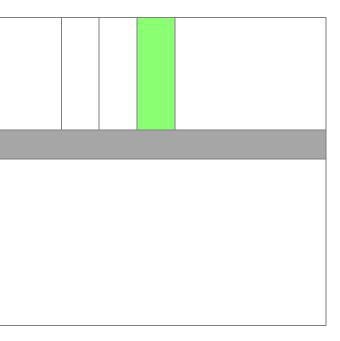
4.2.8 Resource usage											
Table 17: Environmental impact assessment: Resour	rce usa	age									
Activity: Usage of resources, such as water.											
Aspect: Inefficient and redundant use of valuable resources (suc	ch as wa	ater).									
		rating (t	n)		ure and significance of environmental impact				c rating	on)	Applicable legislation /
Impact Description	Probability	Magnitude	Severity	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsibility	Probability	Magnitude	Severity	other documents
Construction Phase											
As the composting facility is already operational, this phase is not applicable.	N/A										
Operational Phase											
Wastage or depletion of valuable resources, such as water, due to inefficient or redundant usage. A water cart will be used to supply water to the composting site.	3	3	М	To prevent the wastage or depletion of valuable resources like water.	 General Ensure that all employees have been informed of the importance of natural resources (proper environmental training and awareness). Regular site inspection by supervisors. Inspect operations regularly to determine areas of improvement with regards to resource consumption. Regular maintenance and inspection of equipment such as hose pipes, to prevent leaks. Monitoring of resource consumption. Identify areas where resource consumption can be minimised. Set targets to try minimise resource consumption. Identify technologies and practices that may reduce resource consumption. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager	2	2	L	 NEMA, 1998 NWA, 1998

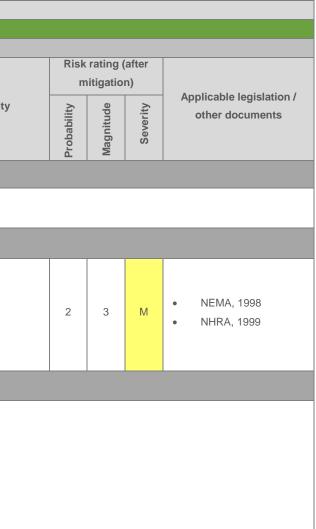
			•	 Water Running water taps and pipes may not be left unattended. All pipe, hose and tap connections are to be fitted with correct and appropriate plumbing fittings. 	
Decommissioning Phase					
Closure and decommissioning of the composting facility is not					
anticipated for the foreseeable future. Should the facility close,					
a detailed closure and rehabilitation plan will be submitted to					
the Mpumalanga Department of Agriculture, Rural					
Development, Land and Environmental Affairs for approval not	N/A				
more than one (1) year prior to closure of the facility. The					
owner of the facility, including the subsequent owner of the					
facility, will remain responsible for any adverse impacts on the					
environment, even after operations have ceased.					

4.2.9 Heritage

Table 18: Environmental impact assessment: Heritage

Activity: Operation of the composting site.							
Aspect: Disturbance of artefacts or sites of cultural heritage (arch	naeolog	ical and	l historica	al) significance.			
				Nat	ture and significance of environmental impact		
		rating (I nitigatio					
Impact Description		Magnitude	Severity	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsibility
Construction Phase							
As the composting facility is already operational, this phase is not applicable.	N/A						
Operational Phase							
Loss of artefacts or sites protected by the National Heritage Resources Act, 1999 (Act No. 25 of 1999).	2	4	М	To protect artefacts or sites of cultural heritage (archaeological and historical) significance.	 If any sites, features or objects are found during operational activities, all activities must cease and a heritage expert must be contacted to investigate the site. No sites, features or objects may be disturbed (e.g. picked up) by employees. 	Ongoing and as soon as the site receives Environmental Authorisation	Site Manager
Decommissioning Phase							
Closure and decommissioning of the composting facility is not anticipated for the foreseeable future. Should the facility close, a detailed closure and rehabilitation plan will be submitted to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs for approval not more than one (1) year prior to closure of the facility. The owner of the facility, including the subsequent owner of the	N/A						





facility, will remain responsible for any adverse impacts on the	
environment, even after operations have ceased.	

4.2.10 Worker's safety and health of neighbouring residents

Table 19: Environmental impact assessment: Worker's safety and health of neighbouring residents

Activity: Operation of the composting site.							
Aspect:							
Employees conducting work at the composting site and res	sidents I	iving in	the vicini	ty of the site.			
Unauthorised access to the site							
				Nat	ure and significance of environmental impact		
		rating (
	m	nitigatio	on)				
Impact Description	iť	qe	ity	Environmental Objective	Management / Mitigation / Monitoring Measures	Timeframe	Responsibili
	abil	nitu	Severity				
	Probability	Magnitude	ő				
Construction Phase	<u> </u>	~					
As the composting facility is already operational, this phase is	N/A						
not applicable.							
Operational Phase							
Employees and neighbouring residents being exposed to					Incoming waste should be processed in a timely		
pathogens or unhygienic conditions emanating from the					manner (i.e. when fresh).	Ongoing and as soon as	
composting site.				To ensure a safe working	• Installation of showers for all staff working on	the site receives	
	3	3	M	environment for employees at the	site.	Environmental	Site Manager
Close proximity to animal wastes increases human exposure				composting site.	Encourage workers to wash hands regularly.	Authorisation	
to pollutants and pathogens.					Installation of rodent bait traps and flytraps.		
					Unauthorised access to the site must be		
					prevented, as far as practicable.		
					• The site must be fenced off or secured to		
					prevent unauthorised entry.		
					• Entrance gates must be manned during		
					operational hours and locked outside of		
					operational hours.		
					Access to the premises should only be by prior		
					arrangement.	Ongoing and as soon as	
Unsafe conditions on site in case of emergency, fire				To ensure safe conditions at the	• The composting site must allow ready access to	the site receives	
establishment and during the release of flammable gases.	3	3	М	composting site.	emergency response personnel and equipment.	Environmental	Site Manager
colubioninient and during the foldate of naminable gabes.				composing site.	• A fire management plan or strategy must be in	Authorisation	
					place, containing at least the following:	Autionsation	
					• Fire extinguishers that are in good working		
					condition must be made available at the facility.		
					• Fires at the working surfaces must be		
					extinguished immediately through for example,		
					spreading and smothering of burning waste.		
					 Sources of fire should be identified and 		
					appropriate operational procedures be		
					undertaken to bring the fire under control.		
				6			

		rating (itigatio		Applicable legislation /
lity	Probability	Magnitude	Severity	other documents
	<u>c</u>	2		
	1	2	L	NEMA, 1998OHSA, 1993
	2	2	L	• NEMA, 1998

			 A firebreak must be constructed around the perimeter of the site to avoid the spread of fires. Fires should not be lit on or near areas where waste is deposited. Response measures must be put in place to deal with any eventuality of fires resulting from the working surfaces or at any other area on the site. Emergency incidents must be dealt with in accordance with Section 30 of the National Environmental Management: Waste Act, 2008. 	
			 The design and operation of aerobic composting must ensure that methane generation is minimised. The design and operation of aerobic composting must ensure that controls are in place for the containment, extraction and treatment of any biogas generated. 	
Decommissioning Phase				
Closure and decommissioning of the composting facility is not anticipated for the foreseeable future. Should the facility close, a detailed closure and rehabilitation plan will be submitted to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs for approval not more than one (1) year prior to closure of the facility. The owner of the facility, including the subsequent owner of the facility, will remain responsible for any adverse impacts on the environment, even after operations have ceased.	N/A			

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4.2.11 Cumulative Impacts

Cumulative impacts refer to the situation where an activity may in itself not have a significant impact, but may become significant when added to the existing and potential impacts from similar or different activities in the area.

The following potential cumulative impacts have been identified:

Activity	Aspect	Cumulative Aspect
Operation of the	Generation of noise	The noise that is generated at the composting site will
composting facility		combine with other existing noise sources in the area. As the
		site is located within an agricultural area, these other sources
		will include farming noise, such as from tractors and animal
		husbandry operations. Two Goldi chicken farms are located
		0.35km and 1.22km to the south-west of the composting site
		and a cattle feedlot operation is 0.72km to the north-west of
		the site. The remaining land surrounding the site is used for
		the cultivation of crops.
Operation of the	Generation of	A cumulative impact in terms of atmospheric pollution and
composting facility	odorous and	nuisance generation results from the combination of odours
	atmospheric	and emissions from the composting facility combining with
	emissions and	other odour and emission sources in the area. These sources
	subsequent nuisance	include two Goldi chicken farms located 0.35km and 1.22km
		to the south-west of the composting site as well as a cattle
		feedlot 0.72km to the north-west of the site.

5. APPLICABLE LEGISLATION AND GUIDELINES

The table below provides an indication of the main legislation, policies and/or guidelines applicable to the Goldi Farm Composting Site project.

Title of legislation, policy or guideline	Administering authority	Aim of legislation, policy or guideline
	Laws of General Application	
The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)	-	To establish a Constitution with a Bill of Rights for the RSA.
Environment Conservation Act, 1989 (Act No. 73 of 1989 as amended)	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To control environmental conservation.
National Environmental Management Act, 1998 (Act No. 107 of 1998)	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To provide for the integrated management of the environment, and to regulate the 'Duty of Care' Principle.
Promotion of Access to Information Act, 2000 (Act No. 2 of 2000 as amended)	-	To give effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights.
	Air Quality and Noise	
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	Gert Sibande District Municipality	To reform the law regulating air quality to protect the environment by providing reasonable measures for the prevention of pollution. To provide for national norms and standards regulating air quality monitoring, management and control.
Highveld Priority Area Air Quality Management Plan	Department of Environmental Affairs	To manage and control emissions within the Highveld Priority Area
Environmental Conservation Act, 1989, Noise Control Regulations in terms of Section 25 of the Environmental Conservation Act, 1989 (Act No. 73 of 1989)	Gert Sibande District Municipality	To regulate the generation of noise and its impact on the environment.
	Water Management	1
National Water Act (NWA), 1998 (Act No. 36 of 1998)	Department of Water Affairs	To provide for fundamental reform of the law relating to water resources.
	Waste Management	

Table 21: Applicable legislation, policies and/or guidelines

Title of legislation, policy or	Administering authority	Aim of legislation, policy or
guideline		guideline
National Environmental Management: Waste Act (Act No. 59 of 2008)	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation.
GNR. 926 of 29 November 2013 – National Norms and Standards for the Storage of Waste	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To provide a uniform national approach to the management of waste storage facilities, to ensure best practice in the management of waste storage facilities and to provide minimum standards for the design and operation of new and existing waste storage facilities.
GNR. 634 of 23 August 2013 – Waste Classification and Management Regulations	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To regulate the classification and management of waste in a manner that supports and implements the provisions of the Waste Act, to establish a mechanism and procedure for the listing of waste management activities that do not require a Waste Management Licence, to prescribe requirements for the disposal of waste to landfill, to prescribe requirements and timeframes for the management of certain wastes and to prescribe general duties of waste generators, transporters and managers.
	Biodiversity	
National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	Mpumalanga Department of Agriculture, Rural Development and Land Administration	To provide for control over the utilisation of the natural agricultural resources of South Africa in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants.
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To reform the law on veldt and forest fires.

Title of legislation, policy or	Administering authority	Aim of legislation, policy or
guideline		guideline
	Soil and Land Management	
NationalEnvironmentalManagement Act, 1998 (Act No. 107		
of 1998).	Mpumalanga Department of Agriculture, Rural Development,	To provide for the integrated management of the environment and to
NationalEnvironmentalManagement Amendment Act, 2008(Act No. 62 of 2008).	Land and Environmental Affairs	regulate the 'Duty of Care' Principle.
Environment Conservation Act, 1989 (Act No. 73 of 1989 as amended)	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To control environmental conservation.
H	eritage and Archaeological Reso	urces
National Heritage Resources Act No 25 of 1999 (Act No. 25 of 1999 as amended)	South African Heritage Resources Agency	To introduce an integrated and interactive system for the management of the national heritage resources; to promote good government at all levels, and empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations
	Protected Areas	
National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003 as amended)	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.
	Planning of New Activities	
NationalEnvironmentalManagement Act, 1998 (Act No. 107of 1998)	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To provide for the integrated management of the environment and to regulate the 'Duty of Care' Principle.
EIA Regulations R 543, R 544, R 545 and R 546, dated June 2010) under the NEMA, 1998	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To regulate and control the authorisation of certain listed activities.
Government Notice (GN) 921: "List of waste management activities that have, or are likely to have a detrimental effect on the environment", dated 2013.	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs	To regulate and control the authorisation of certain waste-related listed activities.

6. PUBLIC PARTICIPATION PROCESS

6.1 Objectives of the Public Participation Process (PPP)

Section 24 of the Constitution of the Republic of South Africa of 1996 guarantees everyone the right to an environment that is not harmful to their health and well-being and to have the environment protected for the benefit of present and future generations. In order to give effect to this right, the National Environmental Management Amendment Act (NEMA), 2008, came into effect.

In terms of Section 24 (4) of the NEMA, 2008, procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment must, *inter alia*, ensure, with respect to every application:

- Coordination and cooperation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state.
- That the findings and recommendations flowing from an investigation, the general objective of integrated management laid down in NEMA, 2008 and the principles of environmental management set out in Section 2 of NEMA, 2008 are taken into account in any decision made by the organ state in relation to any proposed policy, programme, process, plan or projects, consequences or impacts.
- Public information and participation procedures which provide all integrated and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures.

One of the general objectives of integrated environmental management laid down in Section 23(2) (d) of NEMA, 2008 is to: "ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment."

The National Environmental Management Principles as stipulated in NEMA, 2008, say that;

- "Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
- The participation of all interested and affected parties in environmental governance must be promoted, and all people must have an opportunity to develop the understanding, skills and capacity necessary to achieve equitable and effective participation, and participation by vulnerable and disadvantage persons must be ensured".

6.2 Legislation and guidelines followed for the PPP

The public participation process for this project was conducted by Shangoni Management Services in terms of:

- The procedures and provisions in terms of the NEMA (as amended), 2008;
- Chapter 6 of the EIA Regulations of 2010;
- GN 807, Public Participation Guideline in the Environmental Impact Assessment Process, dated October 2012; and
- Other relevant legislation such as the Promotion of Access to Information Act (PAIA), 2000.

Refer to Appendix E for an extract regarding the required public participation process to be followed, taken from the relevant legislation and guidelines

6.3 Public Participation Process followed

6.3.1 Identification and registration of I&APs and key stakeholders

The table below lists the adjacent landowners identified and notified (by means of e-mail, telephone, fax and/or post) of the activity. Copies of the notifications to the I&APs have been included in Appendix E.

Table 22: List of adjacent landowners i	identified and notified
---	-------------------------

Owner's Details
Mr Thys Verster
Mr Theuns Schoonraad

All organs of state that may have jurisdiction in respect of the activity are considered to be registered I&APs.

The following organs of state were notified of the project:

- Department of Water Affairs;
- Gert Sibande District Municipality;
- Lekwa Local Municipality;
- Mpumalanga Department of Agriculture, Rural Development and Land Administration;
- Mpumalanga Department of Co-operative Governance and Traditional Affairs;
- Mpumalanga Department of Health and Social Development;
- Mpumalanga Department of Human Settlements;
- Mpumalanga Department of Public Works, Roads and Transport;
- Mpumalanga Department of Safety, Security and Liaison; and
- South African Heritage Resources Agency (SAHRA).

Copies of the notifications to the organs of state have been included in Appendix E and examples are included in the sections below.

6.3.2 Methods of notification

6.3.2.1 Advertisement(s)

The activity was advertised in a local newspaper, the Standerton Advertiser, on 4 July 2014. The Standerton Advertiser was found to be the most appropriate newspaper in terms of its accessibility to the I&APs. A copy of the advertisement and proof of the placement thereof is attached in Appendix E. Refer also to the figure below.

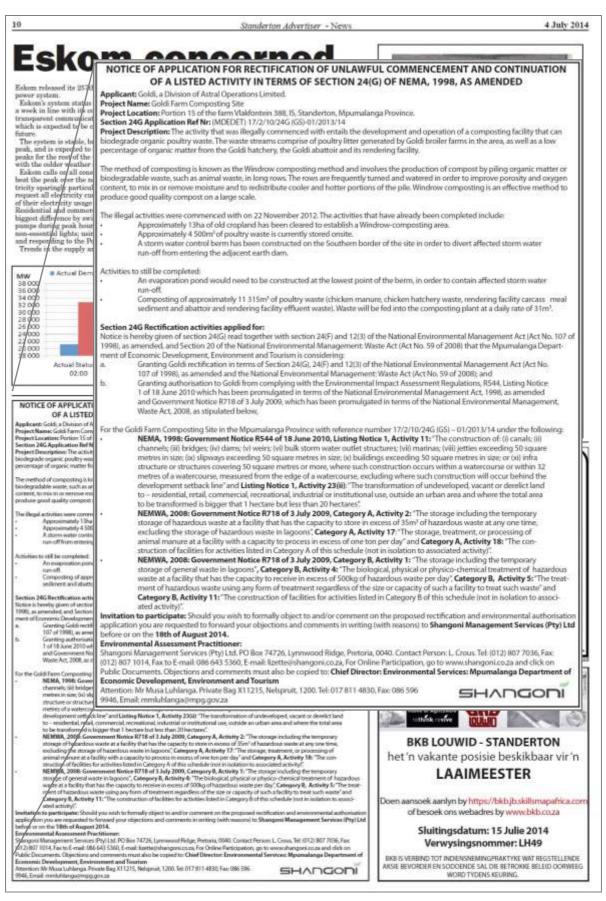


Figure 27: Proof of Placement of a Newspaper Advertisement in the Standerton Advertiser

6.3.2.2 Placement of site- and public notices

Notice was also given to Interested and Affected Parties (I&APs) via the placement of notice boards. Notice boards were placed at three different, noticeable and conspicuous places (at the entrance gate to the facility, at the junction between the R50 and the access road to the facility and at a local shop) on the 27th of June 2014. A copy of the site notice and photographs of the site notices are attached in Appendix E. Refer also to the figures below. The wording on the site notice is given after the photographs.



Figure 28(a-f): Proof of Placement of Notice Boards

GOLDI - A DIVISION OF ASTRAL OPERATIONS LTD

PUBLIC NOTICE OF APPLICATION FOR RECTIFICATION OF UNLAWFUL COMMENCEMENT AND

CONTINUATION OF A LISTED ACTIVITY

Tables as instance prove to detector 2010 into ingeneri vito occord part rules, caso de la reasona de constructiones assingtimento assingtimento. Tables as animates assingtimento astingtimento assingtimento assingtimento assingtimento assin

Reference Numbers: MORDET: 1772/10/2415 (051 - 01/2013/14)

Applicant: Gold, a division of Asiral Coarations Limited

Project Name: Gold Fann Composing Sta

Protect Location: Portion 15 of the farm Viakkintein 388, 15, Standarton, Mournalanga Province

Activity Description: The activity that was inequity commenced with entails the development and operation of a composing facility that can biodegrade organic positry waste. The waste stheams comprise of positry litter generated by Gold broker farms in the area, as well as a low percentage of organic matter from the Gold habitery, the Gold labelery and its wedering facility. The method of composing is known as the Windrew composing method and innovas the production of compositily pring organic matter or biodegradable weeks such as animal waste, in long rows. The rows are frequently tarred and valened in order to improve porcety and cogain.

upsterit, to mix in or remove moisture and to redistribute cooler and hotter portions of the pile. Window composing is an effective method to produce

The Sacral activities were conversioned with on 22 November 2017. The activities that have already bases convoluted includes

- Approximately 13hz of old cropland has been cleared to establish a Wedrow-compositive area.
- Approximately 4 500m² of poultry weate is currently stored oneite.
- A storm water control herm has been constructed on the Southern border of the site in order to divert affected storm water run off how entening the adjacent earth dan

Activities to still be completed

good quality composition a large scale

- An exaposition pand would need to be constructed at the lowest point of the berm in order to contain effected storm water run-off. Compositing of approximately 11 315m² of poulty vaste (choken manues, choken hatchery vaste, reodering builty carcase meal and ment and
- abattoir and rendering facility efficient vaste). Waste will be fed into the composting plant at a daily rate of 31ml

The following authorisation application is required for the uniavityl activities

Section 24G Rectification Application

Legislatio

- NEMA, 1999: Government Notice R564 of 18 June 2010, Listing Notice 1, Activity 11: "The construction of (i) canale, (ii) channels; (iii) bridges; (iv) dens; (iv) were; (iv) 5x8 store weter oxfet ethictane; (iv) memory, (iv) attains exceeding 50 spoars metres in size. (ii) aligneys: exceeding 50 square metres in size. (c) buildings exceeding 50 square metres in size, or (a) inflashinghan or inhighers covering 50 square metres or more, when such constitution occurs within a watercourse, or write 32 metres of a watercourse, measured in the the sign of a watercourse, excluding when such constitution will cours being the devicement extracts line and bailing before 1. Activity 33(1). The transformation of undeveloped, vacant or devolut land to - residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger that 1 hectare but less them 20 hectares."
- NEMWA, 2008: Government Notice R718 of 3 July 2008, Calegory A, Activity 2: The storage including the temporary storage of hazardous visite at a facility that has the capacity to store in excess of 35m² of hazardous waste at any one time, excluding the storage of hazardous visite in bigoons". Category A, Activity 17: "The storage twelvest or processing of annual mercure at a facility with a capacity to process in excess. of one ton per day, and Category A. Activity 18: The construction of facilities for anti-files listed in Category A of this schedule (not in isolation to associated activity?"
- NEMWA, 2008: Government Notice 9718 of 3 July 2009, Category B. Activity 1: The storage including the temporary storage of general visite in lagrons". Category B, Activity 4: The tectogoal physical of physica-chemical businers of lagradues wade at a facility that has the capacity to recover in escenar of 303bg of humandaux visite per day. Category B, Activity B. "The transmission functions in the analysis of the second sec for activities livied in Category B of this actividate (not in laciation to associated activity)?

institution to Participate

Brould you wish to formally object to and/or comment on the proposed rectification and eminumental authorisation application you are requested to forward your objections and comments in writing (with mesons) to Shangon Management Services (Pty) Ltd before or on the 19th of August 2014.

Environmental Consultants: Shangoni Maragement Services (Pty) Ltd PO Box 74726, Lynnvood Ridge, Pretoria, 0040, Tel: (012) 807 1038, Fax: (012) 807 1014 / 086 643 5360, E-mail: koste@shangon.co.za

Objections and comments must also be copied to: Project Official: 53/6 Application (MEEDET) Mr Music Linharge Tel. (017) 811 4830, Pay. (080) 595 9854, E-mail: miniumage@repi.gov.zn

GOLDI. 'N AFDELING VAN ASTRAL OPERASIES BEPERK

OPENBARE KENNISGEWING VAN AANSOEK OM REGSTELLING VAN ONWETTIGE AANVANG EN DIE VOORSETTING VAN 'N GELYSDE AKTIWITEIT

Notice is hereby given of section 24(G) read together with section 24(F) and 12(3) of the National Environmental Management Act (Act No. 107 of ... Kennis word geges, in terms van artikel 24(G); seangelees met artikel 24(F) en 12(3) van die Wet op Nationale Orgewingsbestuur (Wet No. 107 van (1981), acon gewysig, en antikel 20 van die Wet op Nasionele Omgewingsbestuur: Afrai Wet (Wet Nr 55 van 2006) dat die Mpurnelange. Departement van Ekonomiese Ontwikkeling, Omgewing en Toerisme dit oorweeg om omgewingsmagtiging toe te ken aan Sold, vir die onvertige stigting en voorsetting van die komposiering aktivitete op Gedaelte 15 van die plaas Vakfonken 355, 15, Standerkon in die Mosmatange Provinse.

Verwysingsnommers: 17(2):02/43(03) - 01/2013/14

Applikant: Gold. In aldeling van Astral Operasies Beperk

Projek Naam: Gold Farm Komposteringsterrein

Ligging: Gedeelte 15 van die plaas Vlaktontein 388, 15, Standerton, Npurnalangs Provinsie

Besktywing van aktivitet: Die huidige onveitige aktivitet behels die ontwikkeling en bedryf van 'n komposteringsterrein wat hiproses behels waar organisse plantwei afval afgebrein word. Die efval sal bestaan uit plantwei afval wat deur Godd se braakuiken plase gegenereer word, sowel as 'n tae persentanie van organiese materiaal uit die Gold broeiptaas, die Stappale en die levenings fasiliteit

Die metode van kompostering staan bekend as die Windry kompostering metode en behelk die vervaardiging van kompos deur die organisee materiaal of bio-afbroektore afval, soos diere-akval, in lang rye te plaas. Die rye word gereekt omgebrae en natgegoor om ponostelt en suurstof Inhoud te verboog Die materiaal word vermeng om vog by te voeg of afte dryf, skock om die koeler en vormer gedeeltes van die hope te henversprei. Windry kompostering is 'n doetbeffende metode om goeie gehalte kompos te produseer op 'n groot skaal.

- Die onwettige aktiwiteit het begin op 22 November 2012. Die aktiwiteite wat reests afgehandel is skult in:
- Ongeveer 13ha van ou landery grond was skoongemaak om die komposteringsterrein te vestig.
- Ongeveer 4 500m¹ plumvee alval word tans op die komposteringsterren gestoof
- 'n Keenvel is gebou op die suidelike grens van die kompositeingekenen om geefekteente stormwater afloop te beheer deur alt te hertei sodat dit nie in die aangrensende grond dam in loop nie.

Address leader and mag values most word.

'n Verdangsings dam sei gebou moet vord op die tegete punt van die keenval, om geoflekteerde stormvater afloop op te dam. Die kompostering van ongeveer 11 315m² plantwee afvel (hoendernike, hoender broeier) afvel, leverings tabilitet karkas meet sedment ascok utbildetsel afval afvanstig van die slagsale et sy leverings fasilitet). Ongeveer 31m² afval sal op is daaglikse basis in die komposteringsaanleg inginioel wire

Die volgente magiging aansoek vortitierodig vil die onvertige aktiviteite • Antikel 243 Registellings Aansoek

Opewermentskennisgewing R544 van 18 Junie 2018, Lyskennisgewing 1, Aktiviteit 11: "Die konstruksie van: (i) alote. (ii) kanale, (ii) brie: (iii) damme, (ii) keervialle, (iii) grootmaal diamvater uitaat shuktare, (iii) mannas, (iii) havehoofde groter as 50 viekumte meter, (iii) staapshallings groter as 50 viekumte meter (iii) staapshallings groter as 50 viekumte meter (iii) staapshallings groter as 50 viekumte meter of coll affrastrukture of shuktare wat 50 viekumte meter of coll affrastrukture of shuktare of shuktare meter of coll affrastrukture wat 50 viekumte meter of coll affrastrukture of shuktare o meer dei vaar sodange konstudie plaasind binne 'n valetoop of lante 12 meter van 'n valetoop, perceel van de taad van 'n valetoop, uitsutend vaar sodange konstudies als plaasind spise en de ontwikking temposity. Lyskenningewing 1, Athinkel 23 (1) temposity uitsutend vaar sodange konstudies als plaasind spise en en wekenadel, konstruiten van en en verkele of natuus e bute 'n stedelike gebied, en waar die totale gebied wat omskep word, groter as 1 hektaar, maar minder as 20 hektaar is"

Goewermentskenningening R718 van 3 Julie 2009, Kategorie A, Aktiwitert 2: "Die berging, inslutende die tydelike berging van gewachke Order op 'n fanities' out die verzoë het om never as 20m' prozentie afval op enge gegeve tret te stoor. Udsludeed de berging van gewaatlike afval in standmenn', Kalegorie A, Alatwicki TT. Die stoor, terkandering of ververking van dere mik by 'n foalder met kragende en trop en tig er erwerk 'n Kalegorie A, Alatwicki TD. Die stoor, terkandering of ververking van dere mik by 'n foalder net kragende Die standmenn', Kalegorie A, alatwicki TB. Die stoor, terkandering of ververking van dere mik by 'n foalder. A van berdie Djute intel to inclusive but the verturative skilladiest play

Operative states and the second state of the second states and sta "Die konstruksie van fasikteite vir bedryvighede gelys in Kategorie B van hende Bylee (vie in solwaie tot die vervante aktiviteit nie)"

Publicke Decinans Ultrodiging Inden uformeri vi besvaar en of kommentaar lever op die voorgestelde registeling en ongewingsmagliging aansoes word u versoek on alle besvare an kommentaar te stuur (ski/fe/k an met redes) na Shangon Management Services (5dms.) Bpk. voor of op die 18de Augustus 2014.

Orngewingskonsultante: Sbangoni Management Services (Edms.) Bpil. Postus 74726. Lynnvisod Rödge, Pietris. 0040. Tel: (012) 807 7036, Faiss (012) 807 1014 / 086 643 5380, E-pos. Izstielgishangoni zuza

Besware en kommentaar moet ook gesitaar word aan: Projek beampte: S24G aansoek (MDEDET) Min Nusa Lahanga Tel. (017) 011 4830, Faks: (000) 166 9664, E-pos: minkutianga@mop.gov.za



Figure 29: Wording on the Notice Board

6.3.2.3 Notification Letters and Background Information Document

Notification Letters and the Background Information Document (BID) developed for the project provide background information pertaining to the project and are intended to inform I&APs of the project. The BID also includes a registration form that I&APs, stakeholders and organs of state are encouraged to complete in order to register as an I&AP for the project.

The Notification Letters and BID were made available to all landowners adjacent to the site on which the project was undertaken, as well as to all organs of state that may have jurisdiction over any aspect of the activity.

Copies of the Notification Letters and the BID, as well as proof of their distribution to the adjacent landowners and organs of state have been attached as Appendix E. An example of a Notification Letter is shown in the figure below. Proof of postage of the Notification Letters are also given below. Further proofs are attached under Appendix E. Figure 34 and Figure 35 show proof that the notification letters were uploaded onto SAHRA's website (SAHRIS).

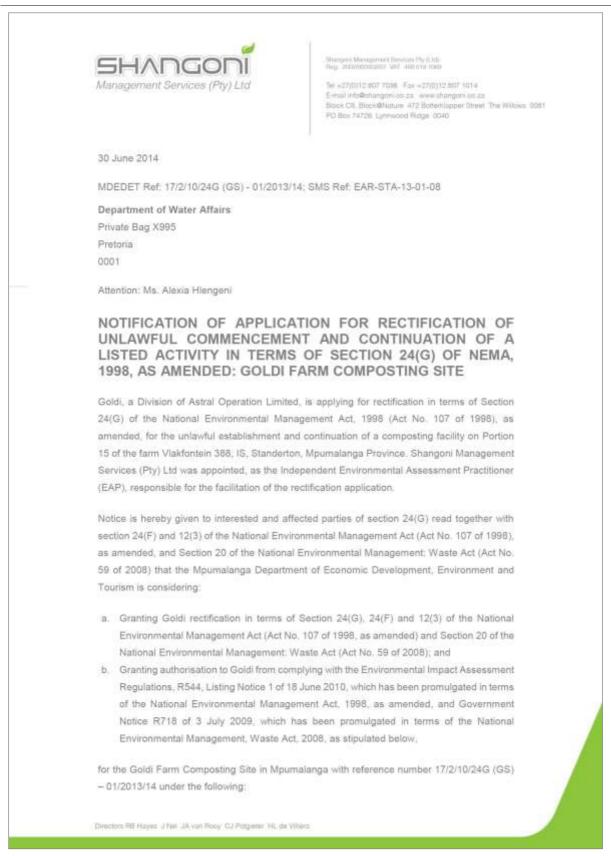


Figure 30: Notification Letter Example Page 1

Government Notice R544 of 18 June 2010, Listing Notice 1, Activity 11: "The construction of: (i) canals;
(ii) channels:
(iii) bridges;
(iv) dams;
(v) weirs;
(vi) bulk storm water outlet structures;
(vii) marinas;
(viii) jetties exceeding 50 square metres in size;
(ix) slipways exceeding 50 square metres in size;
(x) buildings exceeding 50 square metres in size; or
(xi) infrastructure or structures covering 50 square metres or more
where such construction occurs within a watercourse or within 32 metres of a watercourse,
measured from the edge of a watercourse, excluding where such construction will occur behind
the development setback line*.
Government Notice R544 of 18 June 2010, Listing Notice 1, Activity 23(ii): "The
transformation of undeveloped, vacant or derelict land to - residential, retail, commercial,
recreational, industrial or institutional use, outside an urban area and where the total area to be
transformed is bigger that 1 hectare but less than 20 hectares".
Government Notice R718 of 3 July 2009, Category A, Activity 2: "The storage including the
temporary storage of hazardous waste at a facility that has the capacity to store in excess of
35m ³ of hazardous waste at any one time, excluding the storage of hazardous waste in
lagoons".
Government Notice R718 of 3 July 2009, Category A, Activity 17: "The storage, treatment,
or processing of animal manure at a facility with a capacity to process in excess of one ton per
day".
Government Notice R718 of 3 July 2009, Category A, Activity 18: "The construction of
facilities for activities listed in Category A of this schedule (not in isolation to associated
activity)".
Government Notice R718 of 3 July 2009, Category B, Activity 1: "The storage including the
temporary storage of general waste in lagoons".
Government Notice R718 of 3 July 2009, Category B, Activity 4: "The biological, physical
or physico-chemical treatment of hazardous waste at a facility that has the capacity to receive
in excess of 500kg of hazardous waste periday".
5. D

Figure 31: Notification Letter Example Page 2

	July 2009, Category B, Activity 5: "The treatment o treatment regardless of the size or capacity of such a facility
to treat such waste".	reaction regardless of the size of capacity of soon a lability
Government Notice R718 of 3 J	uly 2009, Category B, Activity 11: "The construction o
facilities for activities listed in Ca activity)*.	tegory B of this schedule (not in isolation to associated
Attached please find a backgroun	d information document, locality map of the site, and a
stakeholder registration form in res	pect of the application.
Invitation to Participate: Parties w	ishing to formally object to and/or comment on the proposed
	nuthorisation application are requested to submit thein ng with reasons) to Lizette Crous before or on the <u>18th o</u>
August 2014.	
Objections and comments must	also be copied to:
Chief Director: Environmental Serv	ices: Mpumalanga Department of Economic Development
Environment and Tourism	
Attention: Mr Musa Luhlanga	
Private Bag X11215, Nelspruit, 120	0
Tel: 017 811 4830	
Fax: 086 596 9946	
Email: mmluhlanga@mpg.gov.za	
Please do not hesitate to conta	act the undersigned should you require any additiona
Information.	
Environmental Assessment Prac	titioners: Shangoni Management Services (Pty) Ltd.
Lizette Crous	E-mail: lizette@shangoni.co.za
Tel: 012 807 7036	Fax 2 E-mail: 086 643 5360
Fax: 012 807 1014	
Online Participation: Go to www.sh	angohi.co.za and click on Public Documents.
Regards,	
A	
Kizus	
Lizette Crous	
Environmental Assessment Practitione	

Figure 32: Notification Letter Example Page 3

d

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4	Letter lital Minicipality - who 12 PO Sex 60 storded 2430					RD 967 484 702 XX*
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	mentère bewys betaalbaar nie. Opsionele veraekering van tot slandse geregistreerde briewe van toepassing.	H2 000.00 H	5 Deskikbaal	en is slegs		701248

Figure 33: Proof of Postage of Notification Letters

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Status: DRAFT		
HeritageAuthority(s): SAHRA Case Type: Section 38 (8) - Statutory Comment Required		
Development Type: Agriculture		
ProposalDescription:		
PUBLIC NOTIFICATION OF APPLICATION FOR RECTIFICATION OF UNLAWFUL COMMENCEMENT AND CONTINUATION OF A LISTED ACTIVITY IN TERMS OF SECTION 24(G) OF NEMA, 1998, AS AMENDED: GOLDI FARM		
COMPOSTING SITE (MDEDET REF: 17/2/10/24G (GS) - 01/2013/14; SMS REF: EAR-STA-13-01-08)		
ApplicationDate: Wednesday, June 25, 2014 - 15:18 CaseID: 5871		
Applicants: Goldi - A Division of Astral Operations Limited		
Consultants/Experts: Lizette Crous	1º Chat (14)	~
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		2014-06-25

Figure 34: Proof of Uploading Notification Letters onto SAHRIS Page 1

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3. Stakeholder registration form.pdf Back to Top Back to Top Q South African Heritage Resources Agency (SAHRA) Head Office Tel 021 462 4509 Cape Town, 8000 Tel 021 462 4509 Chat (14)	HeritageAuthori Case Type: Sect Development Ty ProposalDescrij PUBLIC NOTIFIC CONTINUATION COMPOSTING S ApplicationDate CaseID: 5871 Applicants: Gold Consultants/Exp OtherReference: Dept MDEDET ReferenceList:	y(s): SAHRA ion 38 (8) - Statutory Comment Required pe: Agriculture otion: ATION OF APPLICATION FOR RECTIFICATION OF OF A LISTED ACTIVITY IN TERMS OF SECTION 2- ITE (MDEDET REF: 17/2/10/24G (GS) - 01/2013/14; Wednesday, June 25, 2014 - 15:18 i - A Division of Astral Operations Limited verts: Lizette Crous s: CaseReference 17/2/10/24G (GS) - 01/2013/14	F UNLAWFUL COMMENCEMENT AND 4(G) OF NEMA, 1998, AS AMENDED: GOLDI FARM ; SMS REF: EAR-STA-13-01-08) DueDate FinalDecision	
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Figure 35: Proof of Uploading Notification Letters onto SAHRIS Page 2

6.3.3 I&AP register

Once all landowners, adjacent landowners, organs of state and the public were notified of the activity, an I&AP register (as provided in Appendix E) was compiled. The table below provides an extract of the I&AP Register indicating the organs of state and other I&APs that have been registered.

No.	Department	Name
Organs	s of State	
1	Department of Water Affairs	Ms Alexia Hlengani
2	Mpumalanga Department of Agricultural, Rural Development and Land Administration	Mr C.H.P. Kleynhans and Mr Jan Venter
3	South African Heritage Resource Agency (SAHRA)	ТВА
4	Mpumalanga Department of Co-operative Governance and Traditional Affairs	Mr A van Niekerk, Mr Dani Ndhlovu and Ms M.Z. Lushaba
5	Mpumalanga Department of Safety, Security and Liaison	Mr S.T. Sibuyi
6	Mpumalanga Department of Health and Social Development	Mr M.R. Mnisi
7	Mpumalanga Department of Human Settlements	Mr David Dube / Mr S. Mstweni
8	Mpumalanga Department of Public Works, Roads and Transport	Mr Kgopana Mathew Mohlasedi
9	Gert Sibande District Municipality	Mr T.D. Hlanyane
10	Lekwa Local Municipality	Linda Tshabalala / Seppie Claassen / Jaco
		Prinsloo / Mr N.L. Maimela / Mr Fanie Peens
11	Lekwa Local Municipality Ward 12	Cllr. Sechaba Stephen Mosia
No.	Name	Interest
Regist	ered I&APs	
1	Mr Thys Verster	Adjacent Land Owner (Willow Beef Masters)
2	Mr Theuns Schoonraad	Adjacent Land Owner
3	Mr SP van Niekerk	van Heerden Schoeman Attorneys on behalf of M.A.V. Trust/Willow Beef Masters

Table 23: Registered I&APs

Refer also to Appendix E for a detailed I&AP Register including contact information for all registered organs of state and I&APs.

6.3.4 Public meeting(s)

No public meetings have been held nor is one anticipated at present.

6.3.5 Access and opportunity to comment on written submissions

The draft Basic Assessment Report was made available to I&APs and Organs of State for review and commenting for a period of fourty (40) days from the 23rd of February 2015 to the 16th of April 2015.

Electronic copies of the S24G Application Report were also be posted on the Shangoni Management Services' website (www.shangoni.co.za) for public comment for the same period of fourty days.

6.3.6 Consultation with the relevant Authorities

6.3.6.1 Application form in terms of the NEMA, 1998

The applicable application form for rectification of unlawful commencement or continuation of a listed activity in terms of S24G of the NEMA, 1998, was submitted to the Mpumalanga Department of Economic Development, Environment and Tourism (now the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs) on 13 September 2013. A reference number (17/2/10/24G (GS) – 01/2013/14) was issued by Mpumalanga Department of Economic Development, Environment and Tourism on 10 March 2014. The letter of acknowledgement indicating the above mentioned reference number is attached as Appendix F.

6.3.6.2 Authorities meeting(s)

No meetings have been held with any of the competent authorities nor are such meetings anticipated at present.

6.3.7 Further consultation with relevant Authorities

No further consultation has occurred.

6.3.8 Comments and responses

All issues, comments and questions received from the I&APs up to date have been summarised in the table below. Copies of the comments received have also been included in Appendix E.

Table 24: Comments and responses

Name of contact	Company	Date	Method of	Issue raised	Response
person			comment		
Mr A. Van Niekerk	Mpumalanga Department of Co-	23-07-2014	Email	SUBJECT: ACKNOWLEDGEMENT LETTER	Comments a
	operative Governance			The application for National Environmental Management Act, 1998 (Act 107 of 1998) for the unlawful establishment	
	and Traditional Affairs			and continuation of a composting facility on portion 15 of the farm Vlakfontein No. 388 IS, is acknowledged and has	
				been sent to Town Planning Section for Comments.	
Mr SP van	Van Heerden	17-08-2014	Email	RE: GOLDI: APPLICATION FOR RECTIFICATION OF UNLAWFULL COMMENCEMENT AND CONTINUATION	Initial respon
Niekerk	Schoeman Attorneys			OF A LISTED ACTIVITY	
	on behalf of M.A.V.				I hereby ack
	Trust/Willow Beef			Attached please find a stakeholder Registration form duly completed.	following pro
	Masters				Composting
				M.A.V Trust is the owner of Agricultural properties adjacent to the unlawful site, and herewith files its objection	
				against the application.	Second resp
					We acknowl
				The objection is based on scientific studies and facts which substantiate the probability of contamination of surface	provided in
				and underground water resources by the composting operation/site.	submission
					Society Inter
				Attached hereto find:	intensive far
				1. Stakeholder Registration Form	
				2. A scientific submission prepared by Dr C. Badenhorst.	The following
				3. A Humane Society International Report of which the findings are equally applicable in South Africa as in South	supporting d
				East Asia.	issue is also
				Our farming properties are adjacent to that of Goldi farms and materially affect our lively hood and also the health	1. Contar
				of our employees. We therefore request that you furnish us with details regarding the environmental authorization	eutrop
				in respect of Farm No. 7, also belonging to Goldi.	develo
					not co
				Will you please acknowledge receipt of this submission?	facility
					does
				Yours faithfully	contair
					water
14.05		40.00.0044	_	M.A.V. Trustee	not le
Mr SP van	Van Heerden	19-08-2014	Email	RE: GOLDI: APPLICATION FOR RECTIFICATION OF UNLAWFULL COMMENCEMENT AND CONTINUATION	enviro
Niekerk	Schoeman Attorneys			OF A LISTED ACTIVITY	the su
	on behalf of M.A.V.			Further to the chiestion delivered to you on the 15 th August 2014 we attach herets a set of photographs which	2. Contar
	Trust/Willow Beef			Further to the objection delivered to you on the 15 th August 2014 we attach hereto a set of photographs which	geotec
	Masters			depict the following:	when
				 Depicts the close proximity of housing to the composting site. Depicts the broken dominal on the composting site. It also shows the provinity of broiler housing 	been :
				 Depicts the broken damwall on the composting site. It also shows the proximity of broiler housing. Depicts the broken damwall, and water right on the composting site. 	that lea soil ar
				 Depicts the broken damwall, and water right on the composting site. Depicts the broken damwall on the composting site. 	
				 Depicts the broken damwall on the composting site. Depicts the provimity of Broiler bousing to the composting site. 	the gro
				 Depicts the proximity of Broiler housing to the composting site. Depicts the provimity of the Earning structures to the composting site. 	measu
				6. Depicts the proximity of the Farming structures to the composting site.	<u> </u>

þ

acknowledged and noted.

onse:

cknowledge receipt of your email and comments for the project: S24G Rectification Application - Goldi Farm ng Site - 17/2/10/24G (GS) - 01/2013/14.

sponse:

owledge your objection and the supporting documents in support of your objection, namely the scientific on prepared by Dr C. Badenhorst and the Humane nternational Report on the public health implications of farm animal production in South Asia.

wing main issues have been identified from the documents that you provided. Our response to each so given below:

ntamination of surface water resources and rophication: A Stormwater Management Plan has been eloped for the site to ensure that surface water runoff is contaminated when it runs through the composting lity. Berms will ensure that clean surface water runoff s not enter the composting site (dirty area). A tainment facility will ensure that contaminated surface er runoff and leachate from the composting piles does leave the composting site and does not enter the ironment south-west of the site where it could pollute surface water regime or cause eutrophication.

atamination of groundwater resources: According to the technical investigation, the soils on site are impervious en compacted and saturated. These conditions have n suggested as mitigation measures and will ensure leachate from the compost piles does not seep into the and eventually reach the groundwater. Monitoring of groundwater has also been included in the mitigation asures to ensure that the groundwater is not being

Name of contact	Company	Date	Method of	Issue raised	Response
person			comment		
				7. Depicts the broken damwall.	negative
				 Depicts further farming structures in near vicinity of the composting site. Depicts the watercourse (dom on the site. 	3. Human
				 Depicts the watercourse/dam on the site. Depicts the watercourse 	subsequ
				10. Depicts the watercourse.	operated including
				Will you please append the set of photos to the objection?	compost
				will you please append the set of photos to the objection?	Departm
				Yours faithfully.	process
					resulting
				M.A.V. Trustee	pathoger
					4. Emission
				A State of the second sec	operation
					ammonia
					in this re
					mitigate
				the second	operation
				and the second	manager
				and the second sec	of the en
				and the second s	5. Soil pollu
				1 2	the soils
					saturated
					mitigatio
				An antikaturi interiore interiore	compost
				and the second s	In terms of the
				and the second	measures have
					the compostin
					planting of tre
					longer visible
				3 4	measures to
					composting site
					The sections ir
				a star the start dealer was	house washdo
					cleaning metho
					manure as fe
				A second in the second in the second se	Production in
					addressed as
					which this recti
				5 6	With regards to
					the late 70s

vely affected by the composting activities.

an exposure to pollutants and pathogens and quent ill-health: The composting facility will be ed in accordance with best practice guidelines, ing the Draft Norms and Standards for organic waste osting (GN No. 68 of 2014), published by the tment of Environmental Affairs. The composting ss eliminates pathogens from the chicken waste, ng in a final product that has little to no odour, gen, weed or fly breeding potential.

ions to the atmosphere: It is known that composting ions generate atmospheric emissions, such as nia and nitrous oxide. Measures have been included report and the Environmental Management Plan to te and minimise the emissions from the composting tion. It was also recommended that an odour gement plan be compiled for the site. Measurement emissions has also been recommended.

ollution: According to the geotechnical investigation, bils on site are impervious when compacted and ted. These conditions have been recommended as tion measures and will ensure that leachate from the ost piles does not seep into the soil.

the risks to your livelihood and health of employees, ave been proposed to mitigate the negative effect of sting site on your operations. These include the tree screens so that the composting facility is no ble from your operations, as well as mitigation to minimise the generation of odours from the site.

s in the supporting documents referring to the poultry ndown water, stock and shed management, litter thodologies, shed construction, the use of untreated fertilizers, the siting of Intensive Farm Animal in urban and peri-urban areas etc. have not been as these do not relate to the composting facility for ectification process is being conducted.

to Farm No. 7: The chicken farm was constructed in Os or early 80s. The list of activities requiring

Name of contact	Company	Date	Method of	Issue raised	Response
person			comment		
				<image/>	environmer Identificatio substantial Environmer came into therefore c authorisatio
				<image/> <image/> <image/> <image/> <image/>	
Mr SP van Niekerk	Van Heerden	22-10-2014	Email	GOLDI: APPLICATION FOR RECTIFICATION OF UNLAWFULL ACTIVITY	Your letters
	Schoeman Attorneys				We are in t
	on behalf of M.A.V. Trust/Willow Beef			Our clients the M.A.V. Trust objected against the abovementioned application.	for the ab
	Trust/Willow Beef Masters			Can you please let us know what the present situation is.	finalised, it and Affecte
				Thanking you in advance.	
Mr SP van Niekerk		11-12-2014	Email	GOLDI: APPLICATION FOR RECTIFICATION OF UNLAWFULL ACTIVITY	
	Schoeman Attorneys on behalf of M.A.V.			We refer to your letter dated 23 October 2014.	
	Trust/Willow Beef Masters			Are you now in a position to respond?	
Mr SP van Niekerk		23-02-2015	Email	GOLDI: APPLICATION FOR RECTIFICATION OF UNLAWFULL ACTIVITY	Your letter
	Schoeman Attorneys				of February
	on behalf of M.A.V.			Our clients the M.A.V. Trust objected against the abovementioned application.	Report for
	Trust/Willow Beef				registered p
	Hadd Willow Bool			Can you please let us know what the present situation is	aammantin
	Masters			Can you please let us know what the present situation is.	
				Thanking you in advance.	
					commenting 16 th of April Please do

nental authorisation prior to construction (The ation under Section 21 of Activities which may have a ial detrimental effect on the environment) under the nental Conservation Act, 1989 (Act No. 73 of 1989) only to effect in September 1997. The chicken farm was a constructed before the requirement for environmental ation in terms of the environmental legislation.

ers dated 22 October 2014 and 11 December 2014 refer: In the process of compiling the Basic Assessment Report above mentioned project. Once the report has been it will be provided to yourselves and other Interested cted Parties for perusal and commenting.

er dated 22 October 2014 and received by us on the 23rd aary 2015 refers: We sent the draft Basic Assessment for the abovementioned project to you via e-mail and ad post on the 23rd of February 2015 for your review and ting. The cut-off date for review and commenting is the pril 2015.

do not hesitate to contact me if you did not receive the r should you require any additional information in this

Name of contact	Company	Date	Method of	Issue raised	Response
person			comment		
					regard.
Ms M.Z. Lushaba	Mpumalanga	25-02-2015	Post	APPLICATION FOR RECTIFICATION OF UNLAWFUL COMMENCEMENT AND CONTINUATION OF A LISTED	Comments a
and Mr. Dani	Department of Co-			ACTIVITY IN TERMS OF SECTION 24(G) OF NEMA 1998 AS AMENDED GOLDI FARM COMPOSTING SITE	
Ndhlovu	operative Governance			ON PORTION 15 OF THE FARM VLAKFONTEIN NO. 388-IS; LEKWA LOCAL MUNICIPALITY	Department
	and Traditional Affairs				land.
				The abovementioned application has reference:	
				1. Kindle note that according to information available to this Department of Co-operative Governance and	
				Traditional Affairs, the relevant farm is situated outside the urban edge of Standerton and has been earmarked for agriculture.	
				2. The Department has no objection against the proposed application, except to highlight that the existing facility	
				is regarded as an agricultural industry and that the necessary Land Use Rights in terms of relevant Provincial	
				Planning Legislation / Municipal Land Use Scheme must be obtained in order to ensure that the overall	
				existing composting facility is desirable in terms of the Spatial Development and Land Use Planning	
				considerations for the applicable Municipal area.	
Mr SP van Niekerk	Van Heerden	19-03-2015	Email	GOLDI: APPLICATION FOR RECTIFICATION OF UNLAWFULL ACTIVITY	I hereby ack
	Schoeman Attorneys				regarding th
	on behalf of M.A.V.			We have received your letter dated 16 March 2015 and also confirm receipt of the BAR copy on CD.	Rectification
	Trust/Willow Beef				SMS Ref: EA
	Masters			We have requested instructions from our client and take note of the cut of date.	

s acknowledged and noted.

nt informed that the property is zoned as Agricultural

cknowledge receipt of your letter dated 18 March 2015 the following project: Goldi Composting Site S24G on Application (Ref: 17/2/10/24G (GS) - 01/2013/14; EAR-STA-13-01-08).

6.3.9 Conclusions of the PPP

In conclusion, the Public Participation exercise has provided adequate information to enable an understanding of what the composting project entails and to address the concerns and comments received during the process.

7. CONCLUSION

This S24G Application has been carried out in accordance with the EIA regulations of 18 June 2010, Government Notice No. R. 544, of 18 June 2010, of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and Government Notice No. 718 of 3 July 2009 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

The establishment of the composting facility has the following positive impacts on Goldi and the environment:

• Composting is a cost effective way to convert the poultry waste into a valuable resource (compost) which can be used and sold as a fertiliser. The alternative would have been to dispose the waste at a hazardous landfill site. This would have had a negative impact on the available landfill airspace of the landfill site and would have wasted a valuable nutrient resource.

The establishment of the composting facility has had the following main negative impacts on the receiving environment:

- The composting site generates odours and atmospheric emissions which cause a nuisance to sensitive receptors in the vicinity of the site;
- The composting site is visible from neighbouring properties and this is a visual issue;
- The composting site has a potential negative impact on the value of properties surrounding the composting site; and
- The composting site has potentially negatively impacted upon the drainage line and receiving environment, including wetland area, south of the site through the runoff of contaminated stormwater from the composting site as well leachate from the compost piles.

The specialist studies conducted found the following:

- Geotechnical Investigation:
 - The drainage at the composting site is poor to impervious when compacted.
 - The soils will be close to impervious when saturated, due to the clay percentage and desiccated nature of the soils.
 - The horizontally bedded and laminated weathered siltstone is also nearly impervious to vertical water percolation due to the orientation of the beds and the silt to clay discontinuity infill due to the clayey nature of the rock.
 - Without adequate mitigation, the composting process may pose hydrogeological impacts, namely groundwater contamination and surface pollution from waste leachate.
- Stormwater Management Plan:
 - A dirty water channel and containment facility is recommended to contain affected runoff from the composting site. The containment facility should be constructed with a suitable lining (HDPE) to prevent seepage to groundwater. A silt trap should also be installed.

- The location of the dirty water storage facility may require a Water Use Licence in terms of the National Water Act, 1998 (Act No. 36 of 1998).
- It is recommended to construct a clean water diversion berm around the perimeter of the composting facility to prevent clean runoff water from flowing into the dirty area at the composting site.
- An existing berm downstream of the composting facility acts as a clean water diversion, preventing surface runoff from entering the dirty water dam located to the south-west of the composting facility.
- Fauna Assessment:
 - The site is too small and homogenous to be ecologically capable of supporting genetically viable vertebrate populations. It is agricultural land, was used for growing maize and is currently fallow. Regeneration of basal cover has not been managed. As a consequence, noxious weeds such as cosmos, blackjacks and khaki weeds are rife.
 - The conservation status of the site is ranked as "Zero", or very little more than that.
 - Ecological damage on the site is a historical event and another agricultural application (the composting) will not detract from or improve its conservation ranking. However, the site is on the upper edge of a gradient towards a dammed seasonal drainage line. Although the dam wall is broken, the reservoir still holds sufficient water to attract water birds such as sacred ibises, flamingos, geese, ducks and cormorants.
 - Downstream of this dam the drainage line flows into the perennial Brakspruit that is flagged as being ecologically sensitive. The risk (albeit small) of noxious fluids from the compost heaps contaminating the Brakspruit requires management to prevent pollution and eutrophication of the waterways. This is considered a significant risk given the high clay content of the soils on site, which will provide little absorption of any runoff from the manure stored on site.
 - It is understood that efficient composting does not leach hazardous exudates. Scientifically optimised composting procedures should thus be a first level of risk management to avoid contamination of the Brakspruit.
 - From a vertebrate perspective, no reasonable objection can be raised to a switch in land-use practice from maize production to the efficient disposal of a waste product arising from the mass production of broiler chickens.
- Flora Assessment:
 - On site: The vegetation on site, as well as around most of the site, was in a degraded state prior to the commencement of the composting activities. No plants of conservation concern were observed on the site and it is highly unlikely that these plants persist here. Therefore, the commencement of the composting activities had no negative, direct impacts on the vegetation on the site or its immediate surroundings.
 - Moist grasslands and Brakspruit north of the site: The current composting activities did not have any impacts on the moist grasslands north of the site.

- Moist grassland south and south-west of the site: The site slopes southwards and water runoff from the composting area flows towards the dammed wetlands south and south-west of the composting site. The vegetation here is not in a natural state and no plants of conservation concern were observed. The composting activities had no direct impact on offsite moist grasslands. However, it is likely that the water separation management system (drainage channel and berm) that formed part of the composting activities, had some impact on the hydrology of the moist grassland. This could be confirmed by a wetland specialist or hydrologist. Wetlands and riparian areas, such as the Brakspruit, are protected by national legislation and must be regarded as sensitive, no-go areas. Therefore, no on-site activities are allowed to impact on these off-site areas.
- Operation of the composting facility: The continuation of the composting activities on site, as well as the potential expansion of the activities to the remainder of the site, are not considered to have a detrimental impact on the vegetation of the site or immediate surroundings. However, the composting area could have an indirect impact on the moist grasslands around the site. Polluted water reaching the moist grasslands south and southwest of the site, could possibly reach the Brakspruit. If the composting facility expands northwards on the remainder of the site, a small possibility exist that pollution could reach the Brakspruit north of the site. The Declining *Crinum bulbispermum* was confirmed to occur along the Brakspruit, about 1.2km downstream from the site, while suitable habitat also exist for the Near-Threatened *Kniphofia typhoides*. Therefore, the main concern with the continuation of the composting area would be the quality of water released into the wetland area south and south-west of the site, and subsequently the Brakspruit.

From the fauna and flora assessments, it is clear that the establishment of the composting facility on previously disturbed ground (an old crop field) had no direct, negative impacts on the fauna or flora species at the site. There is, however, a risk that the composting operations may negatively impact upon the environment surrounding the site. Stormwater management measures have been proposed to ensure that affected runoff water from the composting site does not enter the environment beyond the site where it may cause pollution. The geotechnical investigation found that the soils on site are impervious and proper stormwater management, moisture management and compaction will ensure that seepage of waste leachate into the soil, and subsequently into the groundwater, is kept to a minimum.

Based on the outcomes of the risk assessments conducted as part of the Section 24G rectification process, coupled with the recommendations made by the EAP, the overall negative impact of the project is of **High significance**, which can be reduced to **Medium significance** through the implementation of simple, effective mitigation measures.

If the event that the proposed application is successful, the following recommendations are made:-

- 1) The mitigation measures proposed above, that have been incorporated into the EMP in more detail, must be implemented during the Operational Phase.
- 2) A communications pathway must be established that would allow the designated ECO to accept and deal with stakeholder complaints.
- 3) Mitigation measures proposed above should be incorporated as far as possible into the operation of the Goldi Farm Composting Site.
- 4) Strict monitoring and enforcement of requirements of the EMP must be undertaken to ensure that employees adhere to these requirements.