

# uMshwathi Local Municipality



---

## uMshwathi Sorting and Baling Facility

### DRAFT BASIC ASSESSMENT REPORT

---

J35158

July 2016



People • Expertise • Excellence

---

## Basic Assessment Report for the proposed uMshwathi Sorting and Baling Facility

<b>Application reference number (WMLA):</b>	DC22/WML/0062/2016
<b>File reference number (WMLA):</b>	KZN/WASTE/0062/2016

### CONTENTS

---

<b>Chapter</b>	<b>Description</b>	<b>Page</b>
	<b>EXECUTIVE SUMMARY</b>	<b>3</b>
<b>1</b>	<b>INTRODUCTION</b>	<b>10</b>
	1.1 Details of the Applicant	10
	1.2 Details of the Environmental Assessment Practitioner and Specialists	10
<b>2</b>	<b>ACTIVITY INFORMATION</b>	<b>12</b>
	2.1 Description of Project	12
	2.2 Feasible and Reasonable Alternatives	18
	2.3 Environmental Legal Requirements	19
<b>3</b>	<b>DESCRIPTION OF THE RECEIVING ENVIRONMENT</b>	<b>22</b>
	3.1 Biophysical Environment	22
	3.2 Social Environment	27
<b>4</b>	<b>BASIC ASSESSMENT PROCESS</b>	<b>30</b>
	4.1 Approach to the BA Process	30
	4.2 Guiding Principles for a BA Process	30
	4.3 BA Technical Process	31
	4.4 Public Participation Process	32
<b>5</b>	<b>IMPACT ASSESSMENT</b>	<b>33</b>
	5.1 Impact Identification and Assessment Methodology	33
	5.2 Impact Identification and Assessment of the proposed Activity	35

<b>6</b>	<b>CONCLUSIONS AND RECOMMENDATIONS</b>	<b>41</b>
6.1	Environmental Impact Statement	41
6.2	EAP's Recommendation	43

### Appendices

- Appendix A: Site Plan(s).
- Appendix B: Photographs.
- Appendix C: Facility Illustration(s).
- Appendix D: EAP & Specialist Experience.
- Appendix E: Specialist Reports.
- Appendix F: Environmental Management Programme (EMPr).
- Appendix G: Stakeholder Consultation
- Appendix H: Other Information.

### List of Figures

Figure 1:	Location of the proposed uMshwathi Sorting & Baling Facility	13
Figure 2:	Proposed Process Flow Diagram	15
Figure 3:	Map Showing watercourses identified in proximity of the proposed facility	23

### List of Tables

Table 1:	Details of the Applicant	10
Table 2:	Details of the EAP	10
Table 3:	Names and Expertise of the EAPs	11
Table 4:	Details of the Specialists	11
Table 5:	Site Description using Cardinal points	16
Table 6:	Listed activities	19
Table 7:	Relevant Legislation, Policies and/or Guidelines	20
Table 8:	Flora of conservation significance potentially occurring in the area under investigation	24
Table 9:	Fauna of conservation significance potentially occurring in the area under investigation	25
Table 10:	Impact Assessment Table: uMshwathi Sorting and Baling Facility	35
Table 11:	Summary of Impact Assessment	42

---

## **EXECUTIVE SUMMARY**

### **Project Description**

During bilateral negotiations between the Governments of South Africa and Germany in 2006 it was agreed to develop within the financial cooperation an Advanced Integrated Solid Waste Management Programme (AISWM). The main emphasis of the project will be the improvement of municipal infrastructure, in this case pre-treatment of municipal solid wastes prior to disposal to reduce the volumes of waste to be transported and disposed off at landfills. The uMgungundlovu District Municipality (UMDM) is one of the municipalities selected by DEA/KFW to be part of the advanced municipal waste management project.

The objective of the AISWM programme is the improvement of the general solid waste management (SWM) situation in UMDM with a strong focus on the implementation of advanced waste treatment systems in UMDM by establishing collection at source in the urban areas of the district municipalities with separation of recyclables at Material Recovery Facilities and a green waste composting facility.

Upon completion of a feasibility investigation, a Waste Sorting and Baling Facility for the Municipality of uMshwathi was identified for implementation.

The proposed uMshwathi Waste Sorting and Baling Facility is located within the uMshwathi Local Municipal (LM) area of jurisdiction in close proximity to the new uMshwathi Ridge Housing project, currently under development, and the Trust Feed settlement area.

Access to the facility will be via internal roads through Trust Feed area from feeder roads where waste is collected from several small urban areas within the uMshwathi local municipal. A short, internal access road will however be required from the public road to the facility. It is envisaged that this access road will be an unpaved gravel road.

The purpose of the project is to provide a sorting and baling facility for recovering recyclable materials from the mixed general waste being delivered by municipal vehicles servicing several areas within the uMshwathi Local Municipality area (currently urban areas in Wards 1, 2, 7 and 9, including Wartburg, New Hanover, Dalton, Cool Air, Trust Feed, Cramond/Albert Falls, Claridge and Harburg from a total of 3,800 households with approximately 17,000 inhabitants). The recyclables will be recovered, sorted and baled for sale to recyclers, while the residual waste stream will be transported to Msunduzi LM's New England Road landfill for disposal.

It is envisaged that the uMshwathi Facility will be a medium-sized semi-automated sorting and baling facility for mixed general waste. The approximate extent of the proposed development site is to be approximately 0.9 hectare and will be located on uMshwathi LM-owned, currently vacant, agricultural-zoned, land.

---

### Project Motivation

Waste management in South Africa is increasingly faced with imminent risks and problems, particularly since many of the landfill sites across the country are operating without waste licenses. Additionally, the unlicensed landfill sites are located within close proximity to residential areas and communities and sometimes within sensitive natural environments. Illegal and unlicensed landfill sites therefore, provoke substantial health risks to people as well as to the environment.

As a growing population and economy, this means increased volumes of waste generated. This puts pressure on waste management facilities, which are already in short supply. There are too few adequate, compliant landfills and hazardous waste management facilities, which hinders the safe disposal of all waste streams.

The purpose of the project is to provide a sorting and baling facility for the mixed general waste being delivered by municipal vehicles. The recyclables will be recovered and baled for sale to recyclers, while the residual waste stream will be transported to Msunduzi LM's New England Road landfill for disposal. Initially this should divert around 10% of uMshwathi LM's currently collected waste stream from landfill, thus reducing the associated transport costs; extending the life of the NER landfill; harnessing private sector involvement; creating employment opportunities within the Local Municipality; and aligning to the DEA National Waste Management Strategy objectives.

### Alternatives

The table below summarises the alternatives investigated:

Type of Alternative	Description
Site Alternative	<p><u>Site 1</u>: Located at the entrance to the uMshwathi Ridge Housing project from the Wartburg side on an area adjacent to the intersection of the District road and Route A. Site co-ordinates: 29°24'49.16" S and 30°32'50.45" E This site is relatively close to houses and would create noise and odour impact to the surrounding community. The site would create traffic impact from the trucks transporting waste and recyclables to and from the site. <b>Site 1 was not chosen as it is too close to the community.</b></p> <p><u>Site 2</u>: Located at the exit from the uMshwathi Ridge Housing project on the Trust Feed side. The proposed Site 2 is located adjacent to and north-west of this cemetery to the south west of the district road D75 intersection with Route B of the housing development. Site co-ordinates: 29°24'26.17" S and 30°32'30.88" E Noise and odour impact studies will be needed for the site. The traffic impact of the trucks transporting waste and recyclables to</p>

	<p>and from the site may also require investigation. <i>As a result, Site 2 was not chosen as it was also too close to the community.</i></p> <p><u>Site 3</u>: Is located at Thokozani Quarry, the site would require specialist noise and odour impact studies. Site co-ordinates: 29°26'6.59" S and 30°26'17.45" E It was noted on the site visit that Site 3 would not be recommended as there would have to be significant blasting. The geology of the area is also considered to be unsuitable for the proposed waste facility. <i>Site 3 was not chosen due to blasting and geology of the area.</i></p> <p><u>Site 4</u>: Is located in close proximity to the new proposed uMshwathi Ridge Housing Development Project. Site co-ordinates: 29°23'42.06" S and 30°32'6.25" E This site is further away from the nearest communities and it is also situated in such a manner so as to pose little concern to wetland or surrounding watercourses. <i>As a result Site 4 was preferred chosen site.</i></p>
<b>Layout Alternative</b>	No alternatives have been investigated. However, the engineers considered the findings of the environmental investigations and designed the proposed facility layout accordingly.
<b>Technology Alternatives</b>	No alternatives have been investigated, but the most appropriate materials will be used during the construction of the facility and the best practicable equipment will be sourced for use within the facility.
<b>No-Go Option</b>	The "no-go" alternative is the option of not establishing a waste facility site which will result in not meeting the targets set out in the National Waste Management Strategy (NWMS), meaning the eight goals set by the Department won't be met. This will create a problem with too much waste and reduced capacity to dump it.

### **Environmental Legal Requirements**

In terms of the National Environmental Management: Waste Act, 2008 (No.58 of 2008) [NEMWA] and associated Waste Management Listing Notice, Government Notice No. 921 of 29 November 2013 (in terms of NEMWA), a Waste Management License (WML) must be obtained from the relevant decision-making authority, the KZN Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA). This must be done prior to the commencement of such activities that may result in potential negative impacts on the environment. The proposed project involves the following listed activities, as per Government Notice No. R. 981:

Relevant Category	Activity No	Activity Description	Relevance to the Project
Category A	2	The sorting, shredding, grinding, crushing, screening or baling of general waste at a facility that has an operational area in excess of 1000m <sup>2</sup> .	The proposed uMshwathi facility will have activities which will entail the sorting and baling of general waste materials within an operational area of approximately 3000m <sup>2</sup> in size.
Category A	3	The recycling of general waste at a facility that has an operational area in excess of 500m <sup>2</sup> , excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.	The proposed uMshwathi facility will have activities which will entail the recycling of general waste materials within an operational area of approximately 3000m <sup>2</sup> in size.
Category A	12	The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity)	The construction of the proposed uMshwathi Sorting & Baling Facility, including all associated infrastructural requirements.
Category C	1	The storage of general waste at a facility that has the capacity to store in excess of 100m <sup>3</sup> of general waste at any one time, excluding the storage of waste in lagoons or temporary storage of such waste.	General waste will be delivered to the facility on a daily basis, this waste will then be sorted and baled and the residual waste temporarily stored on site until further transportation to its final destination.

In terms of the NEM:WA any person who wishes to commence, undertake or conduct a waste management activity listed within Government Notice No. 981, must conduct an environmental assessment process as set out in terms of the National Environmental Management Act, 1998 (No.107 of 1998) [NEMA] and associated Environmental Impact Assessment (EIA) Regulations 2014.

As the proposed uMshwathi Sorting and Baling Facility falls within the ambit of Category A and C listed activities, a Basic Assessment (BA) Process as outlined within Government Notice No. 982 need to be undertaken.

### **Impact Assessment**

It is the opinion of the EAP that should the project proceed, impacts on the receiving natural areas can be minimised through the careful adherence to suggested mitigation measures.

Considering the location alternatives investigated early on in project inception, the only feasible and reasonable location alternative identified to be further investigated, is the Preferred Alternative discussed throughout this document. The preferred development site has been investigated thoroughly and it has been found that the proposed uMshwathi Sorting and Baling Facility will have minimum impact on the surrounding environments, including terrestrial ecological and hydrological systems, with the implementation and monitoring of identified mitigation measures. Although now formal layout alternatives have been investigated for the facility, the project design engineers took the findings of the

environmental investigations into consideration during the facility design process. The final site layout of the facility also take environmental sensitivities into consideration by for example placement of facility infrastructure in such a manner so as to avoid sensitive *termitaria*.

In addition, it must be considered that the proposed project should divert around 10% of the waste stream from landfill, thus reducing the associated transport costs; extending the life of the NER landfill; harnessing private sector involvement; creating employment opportunities within the local municipality; and aligning to the DEA National Waste Management Strategy objectives.

Please refer to the table below for a summary of the impact assessment findings:

	<b>Pre-mitigation:</b>	<b>Post-mitigation:</b>
<b>Impact</b>	<b>Significance</b>	<b>Significance</b>
	<b>-66 to +66</b>	<b>-66 to +66</b>
Disruption to soil profiles	Low - negative	Very low - negative
Contamination of soil from leaks/spillages	Low - negative	Very low - negative
Loss of topsoil due to construction vehicles and stockpiling management of soils on site	Low - negative	Very low - negative
Contamination/Pollution of groundwater from leaks/spillages of either hydrocarbons waste or waste water.	Moderate - negative	Very low - negative
Contamination/Pollution of surface water from leaks/spillages of either hydrocarbons waste or waste water.	Moderate - negative	Very low - negative
Loss of vegetation as a result of site clearance	Very low - negative	Very low - negative
Increased noise generation from construction activities.	Very low - negative	Very low - negative
Loss of fauna as a result of clearance.	Very low - negative	Very low - negative
Increased job opportunities	Low - positive	Very Low - positive
Increased air emissions from construction activities.	Low - negative	Very low - negative
Reduced water quality from construction activities	Low - negative	Very low - negative
Construction Camp Management	Low - negative	Very low - negative
Stockpile Management	Very low - negative	Very low - negative
Soil Erosion and Sedimentation of water resources as a result of construction activities	Low - negative	Very low - negative
Loss of vegetation as a result of site clearance	Very low - negative	Very low - negative
Siltation/Sedimentation in storm water pipelines	Very low - negative	Very low - negative
Protection of heritage sites, artefacts and wildlife	Low - negative	Very low - negative
Colonization of alien vegetation as a result of stockpiling and clearance of vegetation	Low - negative	Very low - negative
Increased dust emissions as a result of construction activities	Very low - negative	Very low - negative
Reduced terrestrial functioning	Very low - negative	Very low - negative
Increased flooding and runoff due to soil compaction	Very low - negative	Very low - negative
Contamination/Pollution of groundwater	Moderate - negative	Very low - negative
Contamination/Pollution of surface water	Moderate - negative	Very low - negative
Increased noise generation from everyday vehicular use	Low - negative	Very low - negative
Impact on fauna as a result of fishing, hunting etc.	Low - negative	Very low - negative
Increased job opportunities	Very low - negative	Low - positive
Increased air emissions as result of dust generation and vehicle use.	Low - negative	Very low - negative
Reduced water quality as a result of illegal dumping in the watercourse	Low - negative	Very low - negative
Indirect impacts		
Soil Erosion as a result of poor rehabilitation	Moderate - negative	Very low - negative



Siltation/Sedimentation in storm water pipelines	Low - negative	Very low - negative
Management of all waste material on site	Moderate - negative	Very low - negative
Protection of heritage sites and artefacts	Low - negative	Very low - negative
<b>Cumulative Impacts</b>		
Increase in alien vegetation as result of poor rehabilitation	Moderate - negative	Very low - negative
Increased flooding and runoff due to soil compaction	Moderate - negative	Very low - negative
Loss of Topsoil	Low - negative	Very low - negative
Increased heavy vehicle traffic during site closure and rehabilitation	Very low - negative	Very low - negative
Increased noise generation from heavy vehicles during site closure and rehabilitation	Low - negative	Very low - negative
Vegetation loss from establishment of a material sourcing site	Very low - negative	Very low - negative
Contamination of soil	Low - negative	Very low - negative
Contamination/Pollution of surface water	Low - negative	Very low - negative
Contamination/Pollution of groundwater	Low - negative	Very low - negative
Job creation	Very Low - positive	Very Low - positive
Soil Erosion	Low - negative	Very low - negative
Loss of vegetation	Low - negative	Very low - negative
Siltation/Sedimentation in storm water pipelines	Low - negative	Very low - negative
Contamination of groundwater	Moderate - negative	Very low - negative
Increase dust emissions	Low - negative	Very low - negative
Increase in alien vegetation	Very low - negative	Very low - negative
Reduced terrestrial functioning	Low - negative	Very low - negative
Acceleration of climate change due to loss of vegetation	Low - negative	Very low - negative
Increased flooding and runoff on site	Very low - negative	Very low - negative

Considering the “No Go” alternative, the study area will not be impacted by the proposed facility construction. If the proposed uMshwathi Sorting & Baling Facility is not approved, the present state of the environment (in terms of the biological, physical, social and economic environment) would remain. However, it must be considered that the National Waste Management Strategy (NWMS) is a legislative requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), the “Waste Act”. The purpose of the NWMS is to achieve the objects of the Waste Act. Organs of state and affected persons are obliged to give effect to the NWMS. The NWMS is structured around a framework of eight goals, together with the targets for each goal that must be met by 2016. Not developing the proposed facility will hamper the achievement of the goals set out by the NWMS for the uMshwathi Municipal area.

### **Conclusions and Recommendations**

In conclusion, it is the EAPs opinion that the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for.

The careful management of potential development impacts through the application of the recommendations made in this report should reduce impacts to the ecosystems and surrounding environment to relatively low significance levels and improve the status quo. Key mitigation and management measures include:

- Apply for Permits of Protected Plants;
  - *Hypoxis hemerocallidea* (Starflower, African Potato) was found to occur on the site which have been identified as being Specially Protected Plants which will

---

require a permit for removal/relocation should their disturbance be unavoidable.

- Implementation of buffer zone/setback;
- Ensure skips/waste is clearly marked and separated;
- Focus on management of storm water and erosion control for construction & operation phases;
- The implementation of a range of practical on-site mitigation and management measures and guidelines to deal with site-based issues during the construction and operational phases of the project; and
- Recommendations to rehabilitate the project area to improve the status quo and to limit on residual impacts and surrounding environment during the operational phase of the development project.

For additional and more comprehensive environmental measures, please refer to the Environmental Management Plan Report in Appendix F.

# 1 INTRODUCTION

GIBB (Pty) Ltd were appointed as the independent Environmental Assessment Practitioner (EAP) to undertake a Basic Assessment (BA) as part of the process to secure Environmental Authorisation (EA) for the uMshwathi Sorting and Baling Facility situated within the jurisdiction of the uMshwathi Local and uMgungundlovu District Municipalities, KwaZulu-Natal (KZN).

The KZN Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA) confirmed that the proposed project triggers 'listed activities', and as such a Basic Assessment, in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) will be required before activities can commence. This Basic Assessment Report (BAR) has been prepared in accordance with the requirements for Government Notice R983, Environmental Impact Assessment (EIA) Regulations, 2014.

This report therefore presents the findings of the Basic Environmental Assessment and associated specialist studies.

## 1.1 Details of the Applicant

The details of the project applicant are provided in Table 1 below.

Table 1: Details of the Applicant

Name of Applicant	Postal Address	Relevant Numbers
Mr Pravir Hariparsad uMshwathi Local Municipality	Private Bag X29 Wartburg 3233	Tel: (033) 815 2249 Cell: 079 699 4566 Fax: (033) 502 0286 E-mail: pravirh@umshwathi.gov.za

## 1.2 Details of the Environmental Assessment Practitioner and Specialists

The tables below provide a summary of the Environmental Assessment Practitioners and Specialists involved in the assessment process. Please refer to Appendix D for relevant experience of the EAP and specialist.

Table 2: Details of the EAP

<b>Business name of EAP:</b>	GIBB (Pty) Ltd		
<b>Physical address:</b>	1st Floor, Norfolk House, 54 Norfolk Terrace, Westville, 3630		
<b>Postal address:</b>	PO Box 1365, Westville		
<b>Postal code:</b>	3620	<b>Cell:</b>	
<b>Telephone:</b>	031 267 6172	<b>Fax:</b>	031 266 3310
<b>E-mail:</b>	gbothma@gibb.co.za		

**Table 3: Names and Expertise of the EAPs**

<b>Name of representative of the EAP</b>	<b>Education qualifications</b>	<b>Professional affiliations</b>	<b>Experience at environmental assessments (yrs)</b>
Gerda Bothma	BSc Honours	IAIAsa	19
Charl Kruger	BSc	IAIAsa	2

**Table 4: Details of the Specialists**

<b>Name of specialist</b>	<b>Education qualifications</b>	<b>Field of expertise</b>	<b>Relevant Section/s in this BAR</b>	<b>Title report/s in Appendix E</b>
<b>Adam Teixeira-Leite</b>	MSc Environmental and Development (UKZN)	Ecologist/ Wetland Specialist	Section 3.1	Specialist Terrestrial Ecological Assessment Report/ Specialist Wetland Screening and Risk Assessment Report

---

## 2 **ACTIVITY INFORMATION**

### 2.1 **Description of Project**

#### 2.1.1 **Project Background**

During bilateral negotiations between the Governments of South Africa and Germany in 2006 it was agreed to develop within the financial cooperation an Advanced Integrated Solid Waste Management Programme (AISWM). The main emphasis of the project will be the improvement of municipal infrastructure, in this case pre-treatment of municipal solid wastes prior to disposal to reduce the volumes of waste to be transported and disposed off at landfills.

The AISWM programme consists of two components, a municipal component to assist several for South African Municipalities and a national component to assist the Environmental Advisory Services Branch of the Department of Environmental Affairs (DEA) as the Project Execution Agency, supported by KfW Development Bank with grant funds provided by the German Government.

Two municipalities, uMgungundlovu District Municipality (UMDM) and Rustenburg Local Municipality (RLM) have been selected by DEA/KfW following the execution of Feasibility Studies to obtain further support in the development of advanced municipal waste management projects.

The objective of the AISWM programme is the improvement of the general solid waste management (SWM) situation in UMDM with a strong focus on the implementation of advanced waste treatment systems in UMDM, to reduce negative environmental emissions from waste currently disposed without treatment at the landfills as sustainable implementation conditions for the municipality. A positive contribution to reduction of greenhouse gas emissions shall be provided by establishing collection at source in the urban areas of the district municipalities with separation of recyclables at Material Recovery Facilities and a green waste composting facility.

The above envisaged programme was initiated in 2014 with the appointment of COWI as the lead consultancy for the implementation of the AISWM UMDM Project. Under the management of COWI, the programme identified several Pilot Projects, including this project being applied for: uMshwathi Sorting and Baling Facility.

#### 2.1.2 **Project Description**

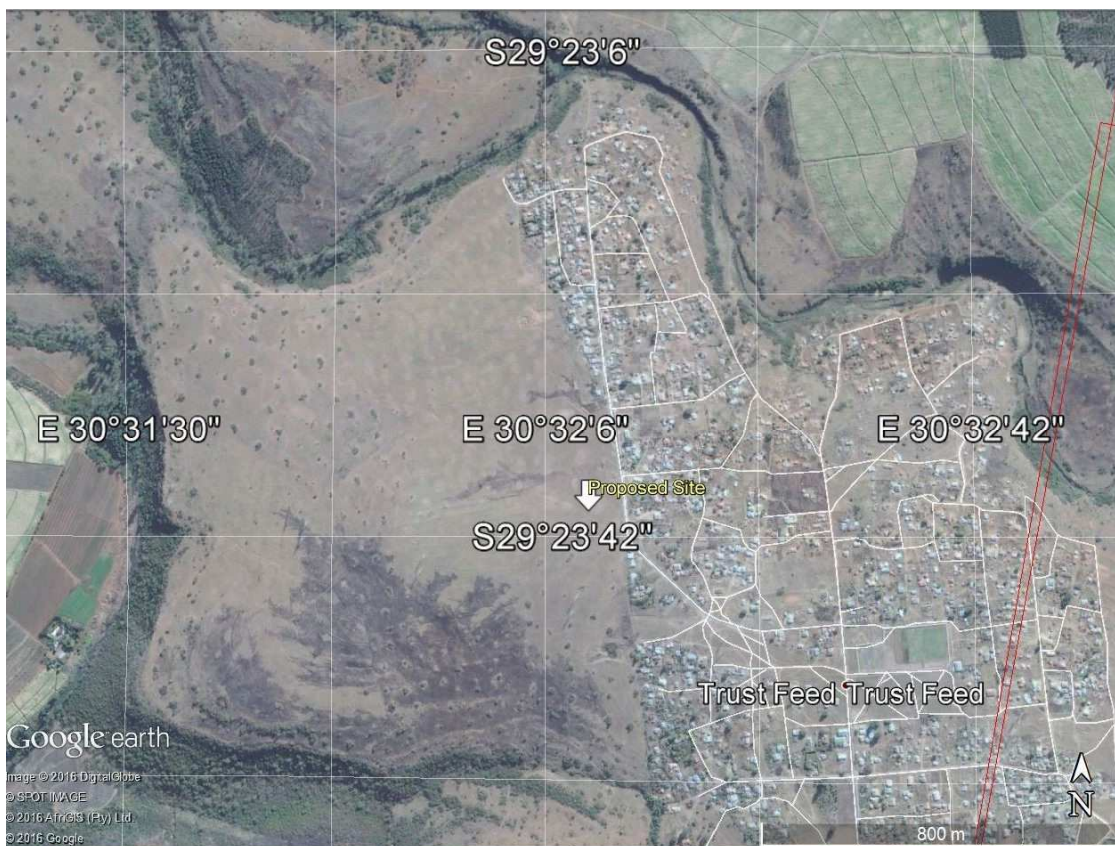
The proposed uMshwathi Waste Sorting and Baling Facility is located within the uMshwathi Local Municipal (LM) area of jurisdiction in close proximity to the new uMshwathi Ridge Housing project, currently under development, and the Trust Feed settlement area.

Access to the facility will be via internal roads through Trust Feed area from feeder roads where waste is collected from several small urban areas within the uMshwathi LM. A short,

internal access road will however be required from the public road to the facility. It is envisaged that this access road will be an unpaved gravel road.

The project is envisaged to provide a sorting and baling facility for recovering recyclable materials from the mixed general waste being delivered by municipal vehicles servicing several areas within the uMshwathi Local Municipality area (currently urban areas in Wards 1, 2, 7 and 9, including Wartburg, New Hanover, Dalton, Cool Air, Trust Feed, Cramond/Albert Falls, Claridge and Harburg from a total of 3,800 households with approximately 17,000 inhabitants). The recyclables will be recovered, sorted and baled for sale to recyclers, while the residual waste stream will be transported to Msunduzi LM's New England Road landfill for disposal.

The facility will be a medium-sized semi-automated sorting and baling facility for mixed general waste. The approximate extent of the proposed development site is to be nearly 0.9 hectare and will be located on uMshwathi LM-owned, currently vacant, agricultural-zoned, land. Refer to Figure 1 for the location of the proposed facility as well as Appendix A for the Locality Map.



**Figure 1: Location of the proposed uMshwathi Sorting and Baling Facility**

### 2.1.3 Process and Facility Description

As indicated previously, this is a middle-sized semi-automated sorting and baling facility for mixed general waste being delivered by municipal vehicles. The municipal waste collection vehicles deliver the waste to facility. Their weights are registered at the weighbridge after

---

which they empty their load into the input storage area. The wheel loader moves the waste to the in-feed system. The system transports the waste to the bag opening area. Staff open bags manually and sort out large cardboard and other bulky items.

The waste passes a sieve/screen (separation size 80 to 120 mm) to separate the fines from the bulky recyclables. The fines will be all the sand, broken glass, main part of organics including faeces, leaves, ash and most of the food wastes. A conveyor belt transports them into a container ready for transportation to landfill. The larger items left on the sorting conveyor consist mainly of packaging (= recyclables), and will be sorted efficiently by hand. The sorting staff picks out paper, cardboard, metals, glass and plastics. They throw the recyclables through chutes into compartments or skips.

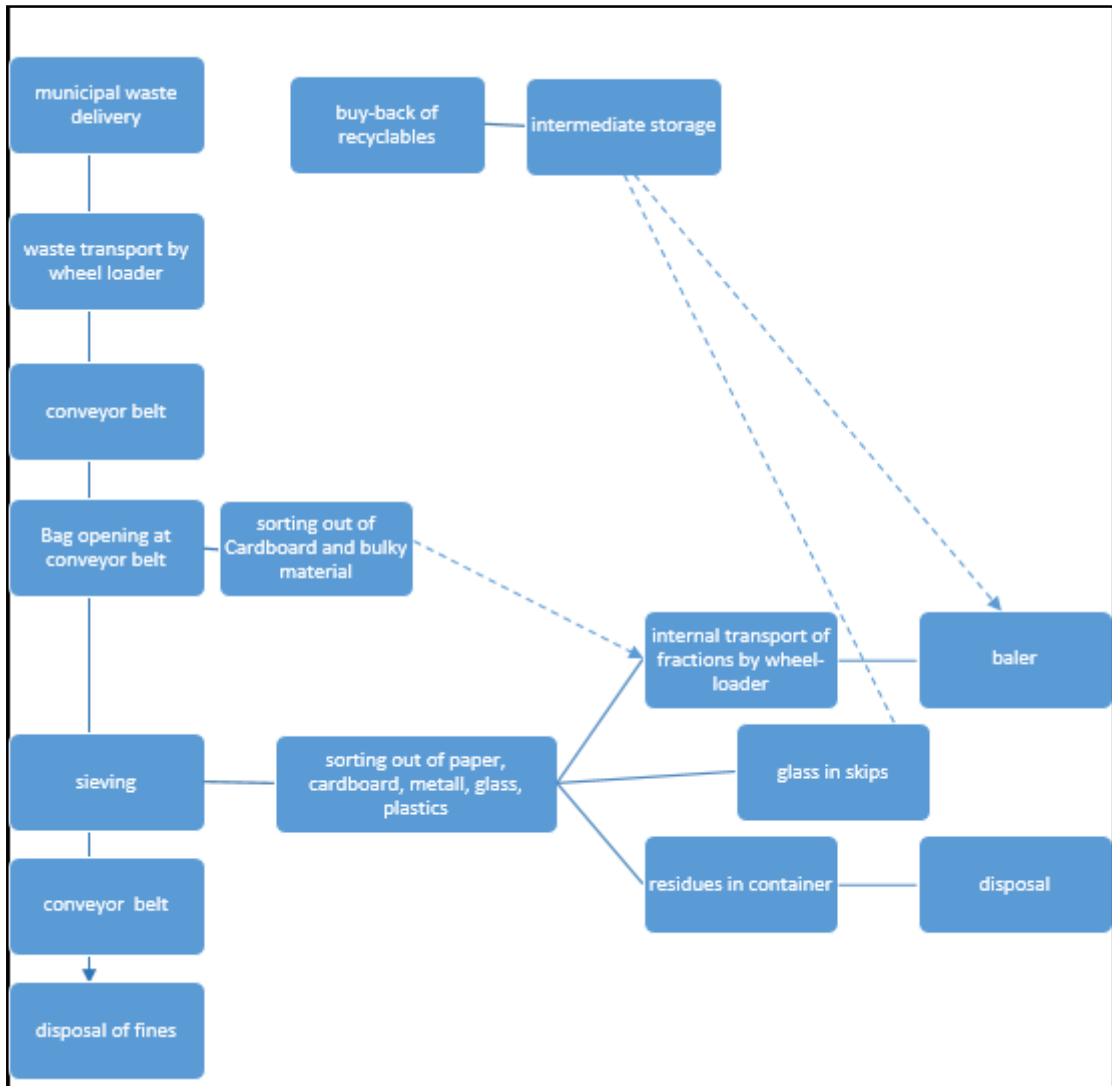
After main recyclables have been extracted the residual waste is placed into containers for transport and disposal by landfill.

The wheel loader transports the different fractions from the compartments to the horizontal baler. This machine compacts the material and generates bales. The forklift transports the bales into the bale storage area. These bales will then be sold to recyclers.

There is a small buy-back section equipped with a hand scale and a weigh pad where waste pickers, private people, shopkeepers etc. can sell their recyclables to the facility. Their recyclables are handled in the same way as material picked out by the staff. Intermediate storage in big bags. Later merged with other material of same fraction. Refer to Figure 2 for a process flow diagram and Appendix C for preliminary facility illustrations.

*Please note that the proposed process flow described within may be altered based on current best practicable options as presented by the final construction and design consultants appointed. The basic principles will however remain true.*





**Figure 2: Proposed Process Flow Diagram**

#### 2.1.4 Site Description and Layout

The proposed uMshwathi Waste Sorting and Baling Facility is situated on an elevated ridge which drains in a general south-westerly direction before reaching the uMgeni River approximately 7km downstream to the south-west. The local topography at the site and surrounding areas is characterised by a gradually sloping plateau on which the site as well as the 500m buffer zone is located (i.e. the assessment area which was the focus of this study). On the northern and southern borders of the 500m buffer zone, the gradient of the slopes increase significantly culminating in riverine areas and associated habitat.

The approximate extent of the proposed development site is to be <10 hectares and will be located on virgin terrestrial (untransformed) land. The proposed waste facility falls within the South Eastern Uplands Ecoregion (16.03), characterised by a complex range of terrain morphological classes which occur in this region, including plains with a moderate relief, lowlands with a low relief, lowlands with a high relief, open hills with low relief, open hills with high relief, closed hills with a moderate relief and low mountains with a high relief (Kleynhans et al., 2005). Refer to Table 5 for more details on the surrounding environment.



**Table 5: Site Description using Cardinal points**

<b>North:</b>	Sugar cane farmlands (Town of New Hanover ±4km to the north)
<b>East:</b>	Trust Feed Settlement
<b>South:</b>	uMshwathi Ridge Housing Project (Town of Wartburg ±6km to the south)
<b>West:</b>	Sugar cane farmlands

Please refer to Appendix B for photographs of the proposed site.

### **2.1.5 Site Access**

Current access to the site is via an earthen track off an unnamed road through Trust Feed.

Access to the facility will be obtained via an unpaved access road with a maximum width of <8m, to be formalised as part of the facility infrastructure.

### **2.1.6 Physical Size of the Activity**

The full extent of property initially investigated is approximately 9 ha. The final project site under investigation is approximately 0.9 ha but the final development footprint is however not expected to exceed 7 000m<sup>2</sup>.

### **2.1.7 Project Motivation**

The National Waste Management Strategy (NWMS) is a legislative requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), the “Waste Act”. The purpose of the NWMS is to achieve the objects of the Waste Act. Organs of state and affected persons are obliged to give effect to the NWMS. The NWMS is structured around a framework of eight goals, together with the targets for each goal that must be met by 2016.

Waste management in South Africa is increasingly faced with imminent risks and problems, particularly since many of the landfill sites across the country are operating without waste licenses. Additionally, the unlicensed landfill sites are located within close proximity to residential areas and communities and sometimes within sensitive natural environments. Illegal and unlicensed landfill sites therefore, provoke substantial health risks to people as well as to the environment.

As a growing population and economy, this means increased volumes of waste generated. This puts pressure on waste management facilities, which are already in short supply. There are too few adequate, compliant landfills and hazardous waste management facilities, which hinders the safe disposal of all waste streams.

The South African government recognizes the need to start to recycle and reduce the amount of waste going to our landfill sites, thereby prolonging the lifespan of our landfill sites.

---

The purpose of the project is to provide a sorting and baling facility for the mixed general waste being delivered by municipal vehicles. The recyclables will be recovered and baled for sale to recyclers, while the residual waste stream will be transported to Msunduzi LM's New England Road landfill for disposal. Initially this should divert around 10% of uMshwathi LM's currently collected waste stream from landfill, thus reducing the associated transport costs; extending the life of the NER landfill; harnessing private sector involvement; creating employment opportunities within the Local Municipality; and aligning to the DEA National Waste Management Strategy objectives.

### **2.1.8 Need and desirability of the activity**

The UMDM adopted the 7 Goals of the Provincial Growth and Development Plan (PGDP) within their Integrated Development Plan (IDP) of 2015/16. Of the 7 Goals, "Strategic Infrastructure" has been highlighted as the focus area by way of implementing strategic and catalytic projects. To give effect to the identified focus areas, the UMDM devised a "Back to Basics" (B2B) Implementation Plan within their IDP to eliminate backlogs in the municipality's core functions. The B2B Implementation Plan include several service delivery and maintenance projects which includes a project for "Solid Waste Recycling" as part of addressing a National Key Performance Area in Basic Service Delivery requirements. The intention of this B2B project specifically is to have solid waste recycled throughout the district municipal area by establishing waste transfer and recycling facilities within all of the Local Municipalities.

It should further be noted that the area within which the proposed uMshwathi Facility development site falls, has been highlighted within the UMDM Strategic Development Framework (SDF) as an area identified for future nodal development with specific reference to manufacturing practices, linking in with the primary development nodes of Wartburg and New Hanover as identified within the uMshwathi SDF.

In addition, as mentioned earlier in this report, the NWMS's purpose is to achieve the objects of the Waste Act which translates to appropriate waste management in accordance with the waste management hierarchy. The proposed uMshwathi Sorting and Baling Facility comfortably links in to all of the above national and local objectives and future plans.

The purpose of the project is to provide a sorting and baling facility for the mixed general waste being delivered by municipal vehicles. The recyclables will be recovered and baled for sale to recyclers, while the residual waste stream will be transported to Msunduzi LM's New England Road landfill for disposal. Initially this should divert around 10% of the waste stream from landfill, thus reducing the associated transport costs; extending the life of the NER landfill; harnessing private sector involvement; creating employment opportunities within the Local Municipality; and aligning to the DEA National Waste Management Strategy objectives.

## 2.2 Feasible and Reasonable Alternatives

In terms of the EIA regulations, attention needs to be given to all possible alternatives. The assessment of alternatives allows different approaches and ways of meeting the need, purpose and objectives of a proposed activity. Alternatives may include location or route alternatives, site alternatives, design/layout alternatives, activity alternatives and processes or technology alternatives, etc.

Note: For the purposes of this report, Site Alternatives and the no-go option have been assessed in detail.

Type of Alternative	Description
Site Alternative	<p><u>Site 1</u>: Located at the entrance to the uMshwathi Ridge Housing project from the Wartburg side on an area adjacent to the intersection of the District road and Route A. Site co-ordinates: 29°24'49.16" S and 30°32'50.45" E This site is relatively close to houses and would create noise and odour impact to the surrounding community. The site would create traffic impact from the trucks transporting waste and recyclables to and from the site. <b>Site 1 was not chosen as it is too close to the community.</b></p> <p><u>Site 2</u>: Located at the exit from the uMshwathi Ridge Housing project on the Trust Feed side. The proposed Site 2 is located adjacent to and north-west of this cemetery to the south west of the district road D75 intersection with Route B of the housing development. Site co-ordinates: 29°24'26.17" S and 30°32'30.88" E Noise and odour impact studies will be needed for the site. The traffic impact of the trucks transporting waste and recyclables to and from the site may also require investigation. <b>As a result, Site 2 was not chosen as it was also too close to the community.</b></p> <p><u>Site 3</u>: Is located at Thokozani Quarry, the site would require specialist noise and odour impact studies. Site co-ordinates: 29°26'6.59" S and 30°26'17.45" E It was noted on the site visit that Site 3 would not be recommended as there would have to be significant blasting. The geology of the area is also considered to be unsuitable for the proposed waste facility. <b>Site 3 was not chosen due to blasting and geology of the area.</b></p> <p><u>Site 4</u>: Is located in close proximity to the new proposed uMshwathi Ridge Housing Development Project. Site co-ordinates: 29°23'42.06" S and 30°32'6.25" E</p>

	This site is further away from the nearest communities and it is also situated in such a manner so as to pose little concern to wetland or surrounding watercourses. <b><i>As a result Site 4 was preferred chosen site.</i></b>
<b>Layout Alternative</b>	No alternatives have been investigated. However, the engineers considered the findings of the environmental investigations and designed the proposed facility layout accordingly.
<b>Technology Alternatives</b>	No alternatives have been investigated, but the most appropriate materials will be used during the construction of the facility and the best practicable equipment will be sourced for use within the facility.
<b>No-Go Option</b>	The “no-go” alternative is the option of not establishing a waste facility site which will result in not meeting the targets set out in the National Waste Management Strategy (NWMS), meaning the eight goals set by the Department won’t be met. This will create a problem with too much waste and reduced capacity to dump it.

## 2.3 Environmental Legal Requirements

The Application form for the Waste Management License was submitted to the KZN EDTEA on 20 June 2016. Formal registration and application numbers are currently awaited from the Department. Refer to Appendix H for the Waste Management License Application Form and Appendix G for the KZN EDTEA acknowledgement of receipt of the application.

The legislation, guidelines and policies applicable to this project are as follows:

### 2.3.1 Waste Management License

In terms of the National Environmental Management: Waste Act, 2008 (No.58 of 2008) [NEMWA] and associated Waste Management Listing Notice, Government Notice No. 921 of 29 November 2013 (in terms of NEMWA), a Waste Management License (WML) must be obtained from the relevant decision-making authority, the KZN Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA). This must be done prior to the commencement of such activities that may result in potential negative impacts on the environment. The proposed project involves the following listed activities, as per Government Notice No. R. 981:

**Table 6: Listed activities**

Relevant Category	Activity No	Activity Description	Relevance to the Project
<b>Category A</b>	<b>2</b>	The sorting, shredding, grinding, crushing, screening or baling of general waste at a facility that has an operational area in excess of 1000m <sup>2</sup> .	The proposed uMshwathi facility will have activities which will entail the sorting and baling of general waste materials

			within an operational area of approximately 3000m <sup>2</sup> in size.
<b>Category A</b>	<b>3</b>	The recycling of general waste at a facility that has an operational area in excess of 500m <sup>2</sup> , excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.	The proposed uMshwathi facility will have activities which will entail the recycling of general waste materials within an operational area of approximately 3000m <sup>2</sup> in size.
<b>Category A</b>	<b>12</b>	The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity)	The construction of the proposed uMshwathi Sorting and Baling Facility, including all associated infrastructural requirements.
<b>Category C</b>	<b>1</b>	The storage of general waste at a facility that has the capacity to store in excess of 100m <sup>3</sup> of general waste at any one time, excluding the storage of waste in lagoons or temporary storage of such waste.	General waste will be delivered to the facility on a daily basis, this waste will then be sorted and baled and the residual waste temporarily stored on site until further transportation to its final destination.

### 2.3.2 Environmental Impact Assessment

In terms of the NEM:WA any person who wishes to commence, undertake or conduct a waste management activity listed within Government Notice No. 981, must conduct an environmental assessment process as set out in terms of the National Environmental Management Act, 1998 (No.107 of 1998) [NEMA] and associated Environmental Impact Assessment (EIA) Regulations 2014.

As the proposed uMshwathi Sorting and Baling Facility falls within the ambit of Category A and C listed activities, a Basic Assessment (BA) Process as outlined within Government Notice No. 982 need to be undertaken.

### 2.3.3 Other applicable Legislation, Policies and/or Guidelines

Legislation, policies and/or guidelines that are relevant to the application as contemplated in the EIA regulations:

**Table 7: Relevant Legislation, Policies and/or Guidelines**

<b>Title of legislation, policy or guideline:</b>	<b>Administering authority:</b>	<b>Date:</b>
The Constitution of the Republic of South Africa, Section 24 (Environmental Right)	Constitutional Assembly	1996
National Environmental Management Act 107 of 1998 (NEMA)	National & Provincial	1998
National Water Act 36 of 1998	Department of Water and Sanitation	1998

National Environmental Management: Air Quality Act 39 of 2004	National & Provincial	2004
National Environmental Management: Waste Act 59 of 2008	National & Provincial	2008
National Environmental Management: Biodiversity Act 10 of 2004	National & Provincial	2004
National Forest Act 84 of 1998	National & Provincial	1998
National Heritage Resources Act 25 of 1999 / KwaZulu-Natal Heritage Act 4 of 2008	Amafa-AkwaZulu-Natali / Heritage KwaZulu-Natal (Amafa)	1999 / 2008
Conservation of Agricultural Resources Act 43 of 1983	National & Provincial	1983
Occupational Health and Safety Act 85 of 1993	Department of Labour	1993
Hazardous Substances Act 15 of 1973	National & Provincial	1973
National Road Traffic Act 93 of 1996	National & Provincial	1996
Integrated Environmental Management (IEM)	All spheres of Government	1992
Schedule 5 of the KwaZulu-Natal Nature Conservation Management Amendment Act 5 of 1999	Provincial	1999
uMgungundlovu District Municipality Spatial Development Framework (SDF) and Integrated Development Plan (IDP)	Local Government	2011/12
uMshwathi Municipality IDP	Local Government	2013/14
All relevant Provincial Regulations and Municipal bylaws	Local Government	-

---

## 3 DESCRIPTION OF THE RECEIVING ENVIRONMENT

### 3.1 Biophysical Environment

#### 3.1.1 Climate

The typical climate of the area under investigation which is located near the town of New Hanover, is characteristic of the subtropical climate of the drier interior regions of KwaZulu-Natal. The area experiences generally warm summers and cool, dry winters. The winters can produce very cold spells, with frost common overnight. Most of the rainfall is experienced during mid-summer, with significantly drier winters. The town of New Hanover normally receives approximately 793mm of rain per year, with the lowest rainfall (5mm) in June and the highest (127mm) in January. Average midday temperatures range from 20.1°C in June to 26.8°C in February. The region is the coldest during June when the mercury drops to 5.3°C on average during the night.

#### 3.1.2 Topography

The proposed uMshwathi Sorting and Baling Facility is situated on an elevated ridge where the local topography at the site as well as the surrounding areas is characterised by a gradually sloping plateau. Within approximately 500m from the site, towards the north and south, the gradient of the slopes increase significantly culminating in riverine areas.

#### 3.1.3 Geology and Soils

The site is underlain by Natal Group Sandstone (reddish, feldspathic and micaceous sandstone with subordinate quartz arenite, mudrock, granulestone and conglomerate). Soils at the site were found to be generally very thin/shallow (<30cm depth to bedrock in places) and sandy. The site is therefore deemed to be located on stable soils with no geological or groundwater concerns or sensitive areas.

#### 3.1.4 Hydrology

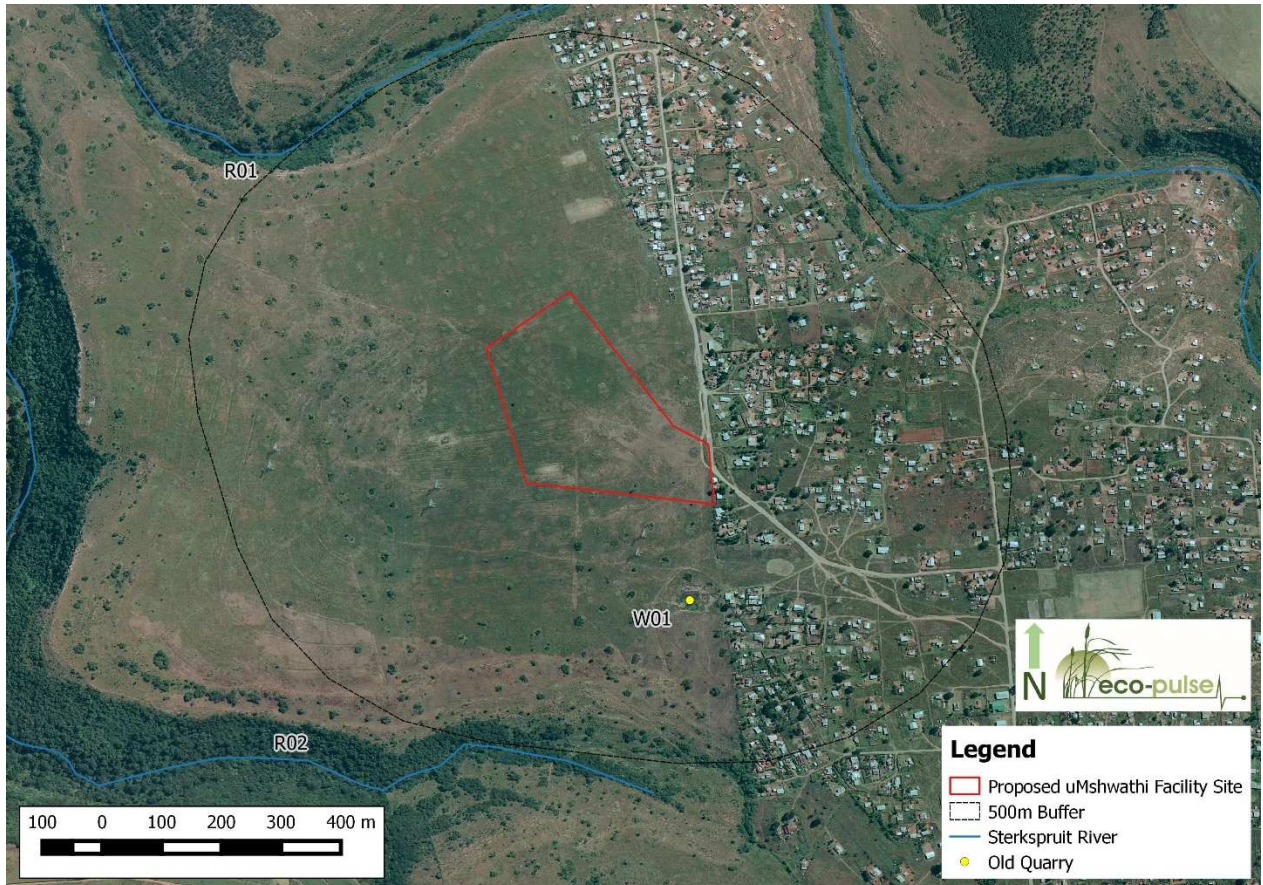
The area under investigation for the proposed uMshwathi Sorting and Baling Facility falls within the Mvoti to uMzimkhulu Water Management area and more specifically within the U20F Quaternary Catchment which is drained by the uMgeni River. The uMgeni River is a perennial river system which flows in a south-easterly direction towards the South Indian Ocean. The proposed site for the facility is located within the upper reaches of the uMgeni River which is drained by a tributary of the main river system located approximately 10-12km downstream and to the south-west of the site.

Three water course/resources were identified within the vicinity of the proposed uMshwathi Sorting and Baling Facility:

- **R01:** A reach of the **Sterkspruit River:** a mixed alluvial/bedrock perennial river system occurring in the far north of the site



- **R02:** A reach of an **unnamed seasonal tributary bedrock stream** of the Sterkspruit located in the far south of the site
- **W01:** A small **artificial wetland/open water pond** created by excavations to the south of the site (old informal sand/rock quarry)



**Figure 3: Map Showing watercourses identified in proximity of the proposed facility**

It was found that due to the watercourse locations being more than 500m away from the development site and beyond the potential zone of impact, these watercourses will not be directly or indirectly impacted by the proposed development in a way which would alter their integrity/functioning. Given the very low risk, further assessments are not required. In addition, as there will be no impedance/diversion of flows within these watercourses, no Section 21 water use is triggered and as such, no water use license is required.

### 3.1.5 Biodiversity

#### (a) Ecoregion

In accordance with the Department of Water and Sanitation’s online “Water Dictionary”, ‘Ecoregions’ are essentially regions within which there is a relative similarity in the mosaic of ecosystems and ecosystem components such as physiography, climate, rainfall, geology and potential natural vegetation. The area under investigation falls within the South Eastern Uplands Ecoregion (16.03), which is characterised by a complex range of terrain morphological classes which occur in this region, including plains with a moderate relief, lowlands with a low relief, lowlands with a high relief, open hills with low relief, open hills with high relief, closed



hills with a moderate relief and low mountains with a high relief. Vegetation types are equally diverse and include a variety of Grassland types, Bushveld types, Thicket types and Afromontane Forest. The drainage density is low to moderate with stream frequency being moderately high.

(b) Flora

The area under investigation falls within both the Savanna Biome (one of the four main biomes in KwaZulu-Natal as described by Mucina and Rutherford, 2006) and regionally within the Sub-Escarpment Savanna Bioregion (Mucina & Rutherford, 2006).

At a local level, the proposed development site falls within the Ngongoni Veld, referred to as Dry Coast Hinterland Grassland (Gs 19) in accordance with the KZN Vegetation Map (EKZNW, 2012). This vegetation type is regarded as **Vulnerable** (VU) in terms of its threat status and can be described as sour sparse wiry grassland dominated by unpalatable Ngongoni grass associated with low species diversity.

In accordance with the KZN Terrestrial Systematic Conservation Plan the proposed development site does not fall within any specific area of biodiversity or ecological concern.

Species of conservation concern which may occur within the area under investigation are tabulated below.

**Table 8: Flora of conservation significance potentially occurring in the area under investigation**

Species Name	Threat Status	Description
<i>Alepidea peduncularis</i>	Data Deficient	Perennial Herb
<i>Brunsvigia undulata</i>	Rare	Perennial Geophyte
<i>Crotalaria dura</i> (Wild Lucerne)	Near Threatened	Perennial Dwarf shrub, herb.
<i>Dierama pumilum</i>	Vulnerable	Perennial Geophyte, herb
<i>Helichrysum oligopappum</i>	Vulnerable	Perennial Herb
<i>Hermannia sandersonii</i>	Vulnerable	Perennial Dwarf shrub
<i>Merwillia plumbea</i>	Near Threatened	Perennial Geophyte
<i>Watsonia canaliculata</i>	Endangered	Perennial Geophyte, herb

Field investigations did not confirm the presence of any of the species listed in Table 8 at the site, however a specially protected plant species in KZN, *Hypoxis hemerocallidea* (Starflower/African Potato, SANBI Threat Status: 'Declining'), was found to be fairly abundant at the site under investigation (>50 individual plants estimated).

(c) Fauna

Fauna of conservation significance for the study area were highlighted by investigating biodiversity features for the study area as outlined within the KZN C-Plan, known species records, existing environmental investigations and professional experience.

Nineteen (19) different indigenous mammal species are known to occur in the broader region, ranging from small mammals such as Natal multimammate mouse, Tete veld rat and Scrub hare, common Duiker and Oribi to larger species including Reedbuck and Impala, also including some charismatic species such as the white Rhino and Leopard and a range of much more inconspicuous species such as Serval and African striped weasel. Mammals species of conservation significance that could potentially occur within the grassland habitat at the site based on available distribution records are listed below in Table 10, below. No mammals were observed at the site during field investigations, with the only signs of *wildlife* being local livestock (cattle and goats) with signs of extensive grazing of the veld having occurred.

It has been found that there is a number of avifaunal species of conservation significance which could potentially visit the terrestrial grassland habitats at the proposed development site (but are highly unlikely to rest/breed/nest in the habitat owing to the level of degradation caused by overgrazing and the proximity to human settlement). These species have been listed in Table 10 below. No threatened bird species were observed during the field survey, with only locally common swallows observed flying over the grassland habitat.

The area under investigation is not deemed to be particularly important area for the conservation of reptile and amphibian species. However, it has been noted that up to eleven (11) species of reptiles and fifteen (15) species of amphibians occur within the uMshwathi region. As all reptile species are sensitive to major habitat alteration and fragmentation. As a result of human presence in the area coupled with high levels of disturbances, alterations to the original reptilian fauna are expected to have already occurred. No reptile or threatened amphibian species were observed at the site during the field survey.

A wide range of invertebrate species have been observed within the study area and surrounds, with 164 species of invertebrates recorded or modelled to occur in the study area, including 14 earthworm species, 28 species of snails, 26 millipede species and 96 other insect species. Invertebrate species of conservation significance for grassland habitat adjacent to the development site which may occur on the proposed site, include a variety of endemic invertebrates which are generally terrestrial grassland and forest specialists. These species have been listed in Table 9 below. No invertebrates of conservation importance were observed at the site during field investigations.

**Table 9: Fauna of conservation significance potentially occurring in the area under investigation**

Taxon	Species Name	Threat Status	Description
Mammals	<i>Poecilogale albinucha</i>	Data Deficient	African striped weasel
	<i>Crocidura cyanea</i>	Data Deficient	Reddish-grey Musk Shrew
	<i>Myosorex varius</i>	Data Deficient	Forest Shrew
	<i>Suncus infinitesimus</i>	Data Deficient	Least Dwarf Shrew
	<i>Chrysospalax villosus</i>	Critically Endangered	Rough-haired golden Mole
	<i>Proteles cristatus</i>	rare	Aardwolf
Avifauna (birds)	<i>Tyto capensis</i>	Vulnerable	African Grass-Owl
	<i>Balearica regulorum</i>	Endangered	Grey crowned crane

	<i>Anthropoides paradiseus</i>	Vulnerable	Blue crane
Reptiles	<i>Python natalensis</i>	Vulnerable	Southern African Rock Python
Invertebrates	<i>Doratogonus cristulatus</i>	Endemic to KZN	Crustulate millipede
	<i>Doratogonus peregrinus</i>	Endemic to KZN	Wandering black millipede
	<i>Spinotarsus destructus</i>	Narrow-range endemic	Destructive slender-spined millipede

### 3.1.6 Ecological Sensitivity

Dry Coastal Hinterland Grassland (formerly Dry Ngongoni veld) is provincially listed as Vulnerable and Nominally Protected. A 25% conservation target has been set for this vegetation type that is not currently met by existing statutory protected areas in the Province and with statistics suggesting that only 44% of this vegetation type remains in KZN (based on KZN Vegetation Targets & Statistics December 2014, obtained from Ezemvelo KZN Wildlife/EKZNW). This suggests that further loss of this grassland type will contribute in a reduction in the ability to meet conservation targets set for this vegetation type.

Given the small extent of the site (<10ha) and the degraded/secondary nature of much of the vegetation community within the proposed development area, with only small portions of fairly intact and moderately sensitive/importance natural grassland, the site is unlikely to contribute significantly to meeting ecosystem conservation targets for the region. Where the development is restricted to the sections of degraded secondary grassland (which is recommended by the specialist), the impact of the proposed development in terms of meeting ecosystem conservation targets for this grassland type is likely to be of a relatively low significance.

Grassland ecosystems provide a range of important ecosystem goods and services to society. They typically support a rich diversity of grasses, wild flowers, invertebrates, reptiles, birds and other animals. Other services provided by these ecosystems include their role in reducing runoff and attenuating downstream flooding, assisting with binding topsoil and controlling erosion as well as their role in storing carbon, especially in the topsoil. Benefits to local communities may include medicinal plants and thatching grass.

Disturbance can affect processes and structure within an ecosystem or the outside forcing functions driving the ecosystem. Whether a disturbance causes a loss of ecosystem function depends on the degree of redundancy in the ecosystem to buffer ecosystem function from disturbance (US EPA, 1992). Potential loss of ecological goods and services currently supplied by the grassland (in terms of habitat, harvestable goods and grazing land mainly) are likely to be limited due to the degraded/secondary nature of much of the site, with plentiful alternative areas of more intact and functional grassland habitat to the west, north and south of the development site. Where the development is restricted to the sections of degraded secondary grassland (which is recommended by the specialist), the impact to ecological functioning provision is likely to be low and is also unlikely to have a measurable impact on the continued supply of services.

---

Activities involving the clearing/harvesting of natural vegetation could result in the destruction or loss of plants and animal species of conservation significance. This of course depends on whether these species are present at a site or not and on the threat status of individual species. If a subpopulation of a species of conservation concern is found to occur on a proposed development site, it would be one indicator that development activities are likely to result in the loss of biodiversity, bearing in mind that loss of subpopulations of these species will either increase their extinction risk or may in fact contribute to their extinction risk.

No species of fauna of conservation concern (such as rare, endangered, protected plants/animals) were recorded onsite nor are they expected to be habituated within the degraded and secondary grassland habitat at the site. Where the development is restricted to the sections of degraded secondary grassland close to the existing road and community (which is recommended by the specialist), the impact on faunal species is likely to be very low. The presence of numerous individual *Hypoxis hemerocallidea* (Starflower, African potato) plants within the grassland ecosystem at the development site is likely to negatively affect the local population of this provincially-protected species which is classified as “Declining” (due to over-harvesting for medicinal use and agriculture/development of grassland habitats in the region). Loss of these plants can be mitigated by translocating these plants to suitable adjacent grassland habitat, reducing the impact on the local population of this species to a low significance level.

## 3.2 Social Environment

### 3.2.1 Demographic Conditions

#### (a) Demographic Information

uMshwathi Local Municipality has a population of about 106 374, with a gender ratio of 90 males per 100 females. The dependency ratio is significantly high (61). Black Africans constitutes 95%, the white population constitutes 3%, while there is a smaller proportion of Indian people (2%).

There are 28 124 households in uMshwathi Municipality, with an average of 3.8 persons per household. Almost 49% of households are headed by females. Formal dwellings make up 63% of households. Approximately 80% of households have access to piped water from either inside the dwelling, inside the yard, or water on a community stand.

Proper sanitation infrastructure is very low in Umshwathi, with only 21% of households having access to a flush toilet. There is relatively high access to electricity, with 73% of households using electricity for lighting.

#### (b) Economic profile of the local municipality:

The economy of uMshwathi is currently not able to provide sufficient jobs for its workforce. The main employer the agricultural sector is focused on mono-crops of timber and sugar cane. The concentration exposes the economy to market fluctuations making it vulnerable.

---

According to uMgungundlovu District Municipality IDP 2012/13, there are six critical sectors that contribute more than 92% of the district economy: agriculture, manufacturing, wholesale and trade, finance, community service and households. Agriculture and forestry is showing a slight decline of 2.4% when compared to the provincial trend in the period. While manufacturing is showing a 2% decline for the province, at district level it seems consistent at just over 14%. Community service is growing at around 2%.

(c) Level of unemployment:

KwaZulu-Natal has the second largest provincial economy in South Africa after Gauteng. With a total area of 94 361 square kilometres, KwaZulu-Natal is the country's third-smallest province, taking up 7.7% of South Africa's land area, and is home to the largest percentage (20.6%) of the population - an estimated 9.9 million people. It contributes R206,8 billion or 16.5% towards the country's Gross Domestic Product (GDP). Currently the unemployment rate in the uMshwathi Municipality is 24.9% with the youth unemployment rate being 31.5%.

Unemployment has been identified as one of the major structural constraints within the Province and contributes to high levels of poverty and income inequality, which deteriorates the overall quality of life of the people of the Province. High unemployment results in high dependency ratios, with many more people relying on fewer wage earners. This has resulted in the phenomenon of a large number of working households living near or below the poverty line. Currently an unequally large proportion of the population of KZN relies on grants and related forms of welfare as a source of income.

(d) Level of education:

Education levels in the Municipality are very low. Only 1.6% of the population has attained tertiary education, 11% hold a secondary education qualification and 0.3% of the population have secondary schooling. The majority of the population can be considered illiterate with 69.5% of the population with a primary education and 17.5% with no formal schooling.

Education expands a person's basic capacity to choose and opens further options for a fulfilling life. A major proportion of the population of uMshwathi Municipality aged above 20 years has absolutely no schooling. This accounts for 29.2 percent of out of a total of 55 993. This is compounded by the fact that 27.9% has only attained some primary education. What this reveals is that literacy levels of the population are low and require strategic intervention in future. The other worrying point is that only 3.2% has attained a level of education above standard 10 / Grade 12. This has serious implications in terms of the overall skills profile of the area.

### **3.2.2 Socio-economic value of the activity**

The proposed uMshwathi Sorting and Baling Facility will contribute towards the uMshwathi Local Municipality's municipal service infrastructure provision. In addition, *limited* employment opportunities will be provided during construction and operation of the facility.

---

### **3.2.3 Cultural/Historical Features**

The project does not require further investigation in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999) and the site visit by the EAP did not identify any heritage resources.

If however any items or artefacts deemed to have any significant importance during the construction phase of the project, the necessary actions as outlined within the Environmental Management Plan Report (EMPr) for this project must be implemented. (Refer to Appendix F for the EMPr)

---

## 4 BASIC ASSESSMENT PROCESS

### 4.1 Approach to the BA Process

A Basic Assessment (BA) is an effective environmental planning tool. It identifies the environmental impacts of a proposed project and assists in ensuring that a project will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

The BA process for this project complies with the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998) [NEMA] and the NEMA EIA Regulations, 2014 of the DEA. The guiding principles of a BA Process are listed below.

### 4.2 Guiding Principles for a BA Process

The BA Process must take an open participatory approach throughout. This means that there should be no hidden agendas, no restrictions on the information collected during the process and an open-door policy by the proponent. Technical information must be communicated to stakeholders in a way that is understood by them and that enables them to meaningfully comment on the project.

There should be ongoing consultation with Interested and Affected Parties (I&APs) representing all walks of life. Sufficient time for comment must be allowed. The opportunity for comment should be announced on an on-going basis. There should finally be opportunities for input by specialists and members of the public. Their contributions and issues should be considered when technical specialist studies are conducted and when decisions are made.

The eight guiding principles that govern the entire process of BA Process are as follows:

- **Participation:** An appropriate and timely access to the process for all interested parties.
- **Transparency:** All assessment decisions and their basis should be open and accessible.
- **Certainty:** The process and timing of the assessment should be agreed in advanced and followed by all participants.
- **Accountability:** The decision-makers are responsible to all parties for their action and decisions under the assessment process.
- **Credibility:** Assessment is undertaken with professionalism and objectivity.
- **Cost-effectiveness:** The assessment process and its outcomes will ensure environmental protection at the least cost to the society.
- **Flexibility:** The assessment process should be able to adapt to deal efficiently with any proposal and decision making situation.
- **Practicality:** The information and outputs provided by the assessment process are readily usable in decision making and planning.

A BA process is considered as a project management tool for collecting and analysing information on the environmental effects of a project. As such, it is used to:

- 
- Identify potential environmental impacts;
  - Examine the significance of environmental implications;
  - Assess whether impacts can be mitigated;
  - Recommend preventive and corrective mitigating measures;
  - Inform decision makers and concerned parties about the environmental implications; and
  - Advise whether development should go ahead.

The Public Participation Process forms an integral part of the Basic Assessment Process and is discussed in greater detail in Section 4.4 of this BAR.

### 4.3 BA Technical Process

This section provides a summary of the technical process that has been followed to date for this BA process.

#### 4.3.1 EA Liaison Meeting

An EA enquiry meeting was held between GIBB, the AISWM Project Team representatives and KZN EDTEA on 21 January 2016. The objectives of this meeting were to obtain guidance from KZN EDTEA regarding the proposed development as well as the Basic Assessment (BA) Process under the 2014 EIA Regulations; and to obtain requirements from KZN EDTEA on the BA Process. Refer to the minutes of the EIA Liaison Meeting and the Attendance Register in Appendix G.

#### 4.3.2 Application for Authorisation

Subsequent to the EIA Liaison Meeting as explained above, the Application Form informing the Department of the intent to obtain a Waste Management License (WML) in terms of NEM:WA was submitted to the KZN EDTEA on 20 June 2016. The project was subsequently registered and KZN EDTEA issued the project with reference number DC/WML/0062/2016 and NEA Ref No: KZN/WASTE/0062/2016. Refer to Appendix H for the WML Application Form and Appendix G for the KZN EDTEA acknowledgement of receipt of the application.

#### 4.3.3 Information Gathering

Early in the BA process, the technical specialists identified the information that would be required for the impact assessment and the relevant data was obtained. In addition, the specialists sourced available information about the receiving environment from reliable sources, I&APs, previous documented studies in the area and previous BA and EIR Reports.

#### 4.3.4 Specialist Studies

The following specialist studies have been undertaken for the BA process:

- Terrestrial Ecological Assessment
- Wetland Screening and Risk Assessment



---

## 4.4 Public Participation Process

The principles of NEMA govern many aspects of the BA process, including consultation with I&APs. These principles include the provision of sufficient and transparent information to I&APs on an ongoing basis, to allow them to comment; and ensuring the participation of historically disadvantaged individuals, including women, the disabled and the youth.

The principal objective of public participation is thus to inform and enrich decision-making.

### 4.4.1 Identification of Interested and Affected Parties

I&APs representing the following sectors were identified (see Appendix G for a complete preliminary I&AP distribution list):

- National Departments;
- Provincial Authorities; and
- Local Authorities.

### 4.4.2 Public Announcement of the Project

I&APs were informed of the project and were requested to register and send their comments to GIBB in the following manner (see Appendix G for public announcement documentation):

- Publication of media advertisement in the Witness on 19 July 2016 and in the Isolezwe on 20 July 2016;
- On-site notices detailing the proposed development, the BA process and invitation to register and comment, were placed on and around the site; and
- Distribution of letters by email to I&APs identified in Section 4.4.1 above.

### 4.4.3 Database of Registered and Affected Parties

A preliminary database was compiled for this project and will be updated as the public participation process progress. All I&APs who register will be included within this database (refer to Appendix G).

### 4.4.4 BAR for Public Review

A period of 30 calendar days (19 July 2016 to 19 August 2016) is allowed to the State Departments, and the general public for the review and commenting phase of the Basic Assessment Report. The availability of the Basic Assessment Report was announced by means of public notice (refer to Section 4.4.2 above) and personal letters to all identified stakeholders on the distribution list (refer to the pro-forma notification letter in Appendix G).

Comments that will be received during public review of the BAR, will be captured in a Comments & Response Report and will be attached to the Final BAR in Appendix G.

---

## 5 *IMPACT ASSESSMENT*

### 5.1 *Impact Identification and Assessment Methodology*

The assessment criteria must clearly identify the environmental impacts of the proposed development. The environmental impacts identified will be quantified and the significance of the impacts assessed according to the criteria set out below. The EAP must make a clear statement, identifying the environmental impacts of the construction, operation and management of the proposed development. As far as possible, the EAP must quantify the suite of potential environmental impacts identified in the study and assess the significance of the impacts according to the criteria set out below. Each impact will be assessed and rated. The assessment of the data must, where possible, be based on accepted scientific techniques, failing which the specialist is to make judgements based on his/her professional expertise and experience.

#### **5.1.1 Assessment Procedure: Proposed Impact Assessment Methodology**

The objective of the assessment of impacts is to identify and assess all the significant impacts that may arise as a result of the proposed development.

For each of the main project phases the existing and potential future impacts and benefits (associated only with the proposed development) were described using the criteria listed in the Impact Assessment Methodology below. This was done in accordance with Government Notice R.982, promulgated in terms of Section 24 of the NEMA and the criteria drawn from the IEM Guidelines Series, Guideline 5: Assessment of Alternatives and Impacts, published by the DEAT (April 1998). The assignment of ratings has been undertaken based on past experience of the EIA team, as well as through research. Subsequently, mitigation measures have been identified and considered for each impact and the assessment repeated in order to determine the significance of the residual impacts (the impact remaining after the mitigation measure has been implemented). Please refer to the tables below for the proposed assessment methodology.

**IMPACT ASSESSMENT METHODOLOGY TABLES:**

1	Duration	Extent		Irreplaceable Resources		Severity		Probability		Consequence = (Duration+Extent+Irr) x Severity		Significance		Confidence
		1	2	1	Yes	-3	High - negative	0	Improbable	-25 to -33	Extremely detrimental	-49 to -66	Very high - negative	
2	Short term	2	Site	0	No	-2	Moderate - negative	1	Probable	-19 to -24	Highly detrimental	-37 to -48	High - negative	Medium
3	Medium term	3	Local			-1	Low -negative	2	Definite	-13 to -18	Moderately detrimental	-25 to -36	Moderate - negative	High
4	Long term	4	Regional			0	Negligible			-7 to -12	Slightly detrimental	-13 to -24	Low - negative	
		5	National			1	low -positive			0 to -6	Negligible	0 to -12	Very low - negative	
		6	International			2	moderate - positive							
						3	high - positive			0 to 6	Negligible	0 to 12	Very Low - positive	
										7 to 12	Slightly beneficial	13 to 24	Low - positive	
										13 to 18	Moderately beneficial	25 to 36	Moderate - positive	
										19 to 24	Highly beneficial	37 to 48	High - positive	
										25 to 33	Extremely beneficial	49 to 66	Very high - positive	

Criteria	Rating Scales	Notes
Nature	Positive	An evaluation of the effect of the impact related to the proposed development
	Negative	
Extent	Footprint	The impact only affects the area in which the proposed activity will occur
	Site	The impact will affect only the development area
	Local	The impact affects the development area and adjacent properties
	Regional	The effect of the impact extends beyond municipal boundaries
	National	The effect of the impact extends beyond more than 2 regional/ provincial boundaries
	International	The effect of the impact extends beyond country borders
Duration	Temporary	The duration of the activity associated with the impact will last 0-6 months
	Short term	The duration of the activity associated with the impact will last 6-18 months
	Medium term	The duration of the activity associated with the impact will last 18 months-5 years
	Long term	The duration of the activity associated with the impact will last more than 5 years
Severity	low	Where the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected
	moderate	Where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected
	high	Where natural, cultural or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.
Potential for impact on irreplaceable resources	No	No irreplaceable resources will be impacted.
	Yes	Irreplaceable resources will be impacted.
Consequence	Extremely detrimental	A combination of extent, duration, intensity and the potential for impact on irreplaceable resources
	Highly detrimental	
	Moderately detrimental	
	Slightly detrimental	
	Negligible	
	Slightly beneficial	
	Moderately beneficial	
	Highly beneficial	
Extremely beneficial		
Probability (the likelihood of the impact occurring)	Improbable	It is highly unlikely or less than 50 % likely that an impact will occur.
	Probable	It is between 50 and 70 % certain that the impact will occur.
	Definite	It is more than 75 % certain that the impact will occur or it is definite that the impact will occur.
Significance	Very high - negative	A function of Consequence and Probability
	High - negative	
	Moderate - negative	
	Low - negative	
	Very low	
	Low - positive	
	Moderate - positive	
	High - positive	
Very high - positive		

## 5.2 Impact Identification and Assessment of the proposed Activity

The impacts identified and assessed in accordance with the procedure outlined in Section 5.1 above has been tabulated below in Table 10.

For the purpose of assessing impacts of the proposed development, the project has been divided into three phases from which impacting activities has been identified, namely:

- Construction Phase
- Operational Phase
- Decommissioning Phase

Table 10: Impact Assessment Table: uMshwati Sorting and Baling Facility

	Pre-mitigation:		Post-mitigation:
Impact	Significance	Recommended Mitigation	Significance
	-66 to +66		-66 to +66
<b>CONSTRUCTION PHASE</b>			
<b>Direct Impacts</b>			
Disruption to soil profiles	Low - negative	1. Topsoil to be removed prior to construction and stockpiled for rehabilitation during decommissioning. 2. Soil storage areas must be located further than 50 meters from any water body or water source.	Very low - negative
Contamination of soil from leaks/spillages	Low - negative	1. Topsoil to be adequately stockpiled on site and protected from contamination and windblown pollution. Make sure the soil is protected from leaks/spills.	Very low - negative
Loss of topsoil due to construction vehicles and stockpiling management of soils on site	Low - negative	1. Adequate stockpiling of topsoil, away from prevalent winds, high gradient slopes and within the facility boundary. 2. Make sure construction vehicles stay on demarcated areas. 3. To prevent erosion of material that is stockpiled for long periods, the material must be retained in a bermed area.	Very low - negative
Contamination/Pollution of groundwater from leaks/spillages of either hydrocarbons waste or waste water.	Moderate - negative	1. The proper storage and handling of hazardous substances (e.g. fuel, oil, cement, bitumen, paint, etc.) needs to be administered. Construction materials liable to spillage are to be stored in appropriate containment structures (e.g. drip-trays). 2. Storage containers must be regularly inspected to enable early detection of leaks. 3. All employees handling fuels and other hazardous materials are to be properly trained in their safe use, environmental restrictions and methods for proper disposal. Hazardous storage and re-fuelling areas must be bunded prior to their use on site during the construction period. The bund wall should be high enough to contain at least 110% of any stored volume. 4. Mixing and/or decanting of all chemicals and hazardous substances must take place on a tray, shutter boards or on an impermeable surface and must be protected from the ingress and egress of storm water. 5. Cement/concrete batching is to be located in an area to be hardened and must first be approved by the ECO. No batching activities shall occur directly on the ground. 6. Drip trays should be utilised at all fuel/chemical dispensing areas. Provide drip-trays beneath standing machinery/plant. 7. No refuelling, servicing nor chemical storage should occur outside the established construction camp. 8. Routinely check machinery/plant for oil or fuel leaks each day before construction activities begin. 9. Vehicle maintenance should not take place on site unless a specific lined and bunded area is constructed within the construction camp for such a purpose. 10. Ensure that transport, storage, handling and disposal of hazardous substances is adequately controlled and managed. Correct emergency procedures and cleaning up operations should be implemented in the event of accidental spillage. 11. Spillages of fuels, oils and other potentially harmful chemicals should be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil from the construction site must be removed and rehabilitated timeously and appropriately. 12. An emergency spill response procedure must be formulated and staffs are to be trained in spill response. All necessary equipment for dealing with spills of fuels/chemicals must be available at the site. 13. Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered hazardous landfill site. 14. Sanitation – portable toilets (1 toilet per 10 users is the norm) to be provided where construction is occurring and away from watercourses such as rivers and wetlands. Workers need to be encouraged to use these facilities and not the natural environment.	Very low - negative
Contamination/Pollution of surface water from leaks/spillages of either hydrocarbons waste or waste water.	Moderate - negative	1. Provide drip-trays / or use other methods to reduce leaking of standing machinery/plant. 2. The machinery on site is not to be refuelled or serviced near natural areas. 3. Spillages of fuels, oils and other potentially harmful chemicals should be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil from the construction site must be removed and rehabilitated timeously and appropriately. 4. Provide solid waste disposal facilities (bins) and encourage workers not to litter or	Very low - negative

		<p>dispose of solid waste in the natural environment but to use available facilities for waste disposal.</p> <p>5. Ensure that any rubbish generated during construction as well as from employees (litter) is regularly cleared from the site, in particular from streams and wetlands.</p> <p>6. Cement batching boards should be used and cement-based products/wash not to be disposed of into the natural environment.</p> <p>7. Sanitation – portable toilets (1 toilet per 30 users is the norm) to be provided where construction is occurring. Workers need to be encouraged to use these facilities and not the natural environment. Waste from chemical toilets should be disposed of regularly and in a responsible manner by a registered waste contractor.</p> <p>8. The proper storage and handling of hazardous substances (hydrocarbons and chemicals) needs to be administered during construction.</p> <p>9. Construction materials liable to spillage need to be stored in appropriate containment structures (e.g. drip-trays or concrete bunded areas).</p> <p>10. Design and implement an appropriate drainage system to divert uncontaminated surface water around or away from the construction site and coal storage area.</p> <p>11. Appropriate methods should be employed to prevent wash of any contaminated materials.</p>	
Loss of vegetation as a result of site clearance	<b>Very low - negative</b>	<p>1. Limit the removal of vegetation to the construction footprint. Remove all invasive species on site.</p> <p>2. Ensure employees have been educated in minimizing environmental impacts.</p> <p>3. No bulldozers must be used in bush clearing.</p> <p>4. Avoid indigenous vegetation where possible.</p>	<b>Very low - negative</b>
Increased noise generation from construction activities.	<b>Very low - negative</b>	<p>1. Limit the amount of construction vehicles on site.</p> <p>2. Maintain construction vehicles and machinery in good working order to reduce the noise on site</p> <p>3. Equipment should be fitted with noise reduction devices.</p> <p>4. Ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours.</p> <p>5. Temporary noise pollution due to construction works should be minimized by ensuring the proper maintenance of equipment and vehicles, and tuning of engines and mufflers as well as employing low noise equipment where possible.</p>	<b>Very low - negative</b>
Loss of fauna as a result of clearance.	<b>Very low - negative</b>	<p>1. Where rare fauna (vertebrate and invertebrate) stands to be lost, every effort should be made to minimise the impact.</p> <p>2. Prohibit / control access to portions of the property that is to remain undeveloped; and ensure that animals are not impacted on (e.g. illegal poaching)</p> <p>3. Clear the site in a logical sequence and manner that allows mobile species to escape.</p> <p>4. Maintain any habitat corridors effectively.</p>	<b>Very low - negative</b>
Increased job opportunities	<b>Low - positive</b>	1. Meet the requirements of the government policies for procurement and employment, as are applicable to local government, to take care of and avoid potential conflict between people in the immediate surroundings seeking employment and those from elsewhere.	<b>Very Low - positive</b>
Increased air emissions from construction activities.	<b>Low - negative</b>	<p>1. Control the amount of construction vehicles on site.</p> <p>2. Exposed soil must be dampened to prevent wind action from causing dust plumes.</p> <p>3. Machinery and vehicles must be in good working conditions so as to emit minimal air pollution.</p>	<b>Very low - negative</b>
Reduced water quality from construction activities	<b>Low - negative</b>	<p>1. Monitor water quality of those tributaries the project crosses.</p> <p>2. Monitor there is no spillages in the tributaries.</p> <p>3. Make sure the banks on the tributaries are stable.</p> <p>4. Make sure the contractor has a plan in place if a spillage occurs on site.</p>	<b>Very low - negative</b>
Construction Camp Management	<b>Low - negative</b>	<p>1. Construction activities, site camps and equipment lay-down areas must be limited to disturbed areas within the development footprint and alongside the existing tarred road to the east. No construction camps, etc. to be located within intact/fair condition grassland areas identified at the site.</p> <p>2. The outer edge of the construction servitude/working area (as defined above) must be clearly demarcated for the entire construction phase using orange bonnox fencing or an alternative demarcation.</p> <p>3. All demarcation work must be signed off by the ECO before any work commences.</p> <p>4. Terrestrial areas outside of the development footprint are to be considered 'No-Go' areas. Access through and construction activities within the No-Go areas are strictly prohibited in these areas and needs to be controlled.</p> <p>5. Temporary access routes should be designed to limit potential impact on the environment.</p> <p>6. Site supervisors must ensure that impacts are confined to the development construction zone.</p>	<b>Very low - negative</b>
Stockpile Management	<b>Very low - negative</b>	<p>1. Top soil must be stripped on all areas to be hardened and stockpiled for use during rehabilitation of disturbed areas.</p> <p>2. Subsoil must be stockpiled separately from topsoil.</p> <p>3. All stockpile areas must be established on disturbed areas within the road reserve.</p> <p>4. Erosion/sediment control measures such as silt fences, concrete blocks and/or sand bags must be placed around soil/material stockpiles to limit sediment runoff from stockpiles.</p> <p>5. Stockpiles of construction materials must be clearly separated from soil stockpiles in order to limit any contamination of soils.</p> <p>6. Stockpiled soils are to be kept free of weeds and are not to be compacted.</p> <p>7. Stockpiled topsoil must be kept moist and this can be achieved through irrigation of topsoil stockpiles on a weekly basis.</p> <p>8. If soil stockpiles are to be kept for more than 3 months they must be hydro seeded.</p> <p>9. The slope and height of stockpiles must be limited to 2m to avoid soil compaction.</p> <p>10. Spoil material must be hauled to a designated spoil site. No spoil material must be dumped/discarded on site.</p>	<b>Very low - negative</b>
<b>Indirect impacts</b>			

Soil Erosion and Sedimentation of water resources as a result of construction activities	<b>Low - negative</b>	<ol style="list-style-type: none"> <li>1. Construction should ideally proceed mainly during the dry, winter months where possible in order to minimize the risk of soil erosion linked to high runoff rates</li> <li>2. Construction activities should be scheduled to minimise the duration of exposure of bare soils on site Any vegetation clearing should be done immediately before construction to avoid prolonged exposure of the soil to weather elements.</li> <li>3. Vegetation/soil clearing activities must only be undertaken during agreed working times and permitted weather conditions. If heavy rains are expected, clearing activities should be put on hold. In this regard, the contractor must be aware of weather forecasts.</li> <li>4. Dewater any excavated trenches required for the development in a manner that does not cause erosion and does not result in silt-laden water flowing downslope. Water must be pumped out into a well-vegetated area to facilitate sediment trapping.</li> <li>5. Run-off generated from cleared and disturbed areas such as access roads and slopes must be controlled using erosion control (e.g. sand bags, earthen berms, etc.) and sediment trap measures (e.g. silt fences).</li> <li>6. Sediment barriers (e.g. silt fences, sandbags, hay bales, earthen filter berms or retaining walls) must be established to counter erosion and sedimentation where necessary. Sediment barriers should be regularly maintained and cleared so as to ensure effective drainage.</li> <li>7. Berms, sandbags and/or silt fences must be maintained and monitored for the duration of the construction phase and repaired immediately when damaged. The berms, sandbags and silt fences must only be removed once vegetation cover has successfully re-colonised the disturbed areas post-rehabilitation.</li> <li>8. After every rainfall event, the contractor must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled-in with appropriate material and silt fences or fascine work must be established along the gully for additional protection until grass has re-colonised the rehabilitated area.</li> <li>9. Disturbed surfaces are to be paved or re-vegetated as soon as practically possible after construction has been completed to prevent erosion of bare/exposed soils.</li> </ol>	<b>Very low - negative</b>
Loss of vegetation as a result of site clearance	<b>Very low - negative</b>	<ol style="list-style-type: none"> <li>1. Limit the removal of vegetation to the construction/site footprint.</li> <li>2. Have a search and rescue operation on site of all the vegetation.</li> <li>3. Remove the invasive Category 1, 2 and 3 species.</li> <li>4. Limit the removal of vegetation to the construction footprint. Remove all invasive species on site.</li> <li>5. Ensure employees have been educated in minimizing environmental impacts.</li> <li>6. No bulldozers must be used in bush clearing.</li> <li>7. Avoid indigenous vegetation where possible.</li> <li>8. The specially protected plant <i>Hypoxis hemerocallidea</i> (Starflower, African Potato) and a plant rescue operation will need to be undertaken prior to site clearing/construction taking place. This will involve carefully removing the plant, its underground bulb/corm and root structure by hand (using a small shovel/trowel) and relocating/transplanting these species within adjacent natural grassland outside of the construction footprint.</li> <li>9. Plants are naturally scattered within the grassland community at the site and transplanted plants will need to be spaced in scattered locations rather than in clumps.</li> <li>10. The necessary permits will need to be acquired prior to relocating plants (refer to Section 6 of this report for further information).</li> <li>11. Vegetation removal/stripping must be limited to the development footprint and not be undertaken unnecessarily within adjacent areas to limit disturbance of intact grassland.</li> <li>12. Where possible, cut vegetation to ground-level rather than removing it completely, leaving root systems intact to ensure rapid re-colonization in areas that are not to be permanently hardened.</li> </ol>	<b>Very low - negative</b>
Siltation/Sedimentation in storm water pipelines	<b>Very low - negative</b>	<ol style="list-style-type: none"> <li>1. Reduce the disturbance generated by construction vehicles on site, reducing dust emissions.</li> <li>2. Adequate levelling and compaction during construction activities so to reduce the wind blow pollution.</li> <li>3. Adequate stockpiling of topsoil, away from prevalent winds and high gradient slopes.</li> <li>4. Sedimentation control devices, such as berms, must be temporarily installed in order to prevent sedimentation.</li> <li>5. Soil storage areas must be located further than 50 meters from any water body or water source.</li> </ol>	<b>Very low - negative</b>
Protection of heritage sites, artefacts and wildlife	<b>Low - negative</b>	<ol style="list-style-type: none"> <li>1. AMAFA should be contacted if any graves are identified during earth moving activities and all development should cease until further notice.</li> <li>2. No structures other than sixty years are allowed to be demolished, altered or destroyed without a permit from AMAFA.</li> <li>3. No wild animal may under any circumstance be hunted, snared, captured, injured, killed, harmed in any way or removed from the site. This includes animals perceived to be vermin (such as snakes, rats, mice, etc.).</li> <li>4. Any fauna that are found within the construction zone must be moved to the closest point of natural or semi-natural vegetation outside the construction zone.</li> <li>5. The handling and relocation of any animal perceived to be dangerous/venomous/poisonous must be undertaken by a suitably trained individual.</li> </ol>	<b>Very low - negative</b>
<b>Cumulative Impacts</b>			
Colonization of alien vegetation as a result of stockpiling and clearance of vegetation	<b>Low - negative</b>	<ol style="list-style-type: none"> <li>1. Control exotic weeds and invaders that might establish within the project site.</li> <li>2. Alien plants that have been cleared from the site must be removed and disposed of at a nearby landfill site.</li> </ol>	<b>Very low - negative</b>
Increased dust emissions as a result of construction activities	<b>Very low - negative</b>	<ol style="list-style-type: none"> <li>1. Reduce the turbulence produced from construction vehicles on the roads by limiting the amount of vehicles on site.</li> <li>2. Adequate levelling and compaction during construction activities so to reduce the wind blow pollution.</li> <li>3. Adequate stockpiling of topsoil, away from prevalent winds and high gradient slopes.</li> <li>4. Areas that have been stripped of vegetation and soil stockpiles must be dampened periodically to avoid excessive dust.</li> </ol>	<b>Very low - negative</b>



Reduced terrestrial functioning	<b>Very low - negative</b>	<ol style="list-style-type: none"> <li>1. Reduce the turbulence produced from construction vehicles on site by controlling the amount vehicles on site.</li> <li>2. Adequate levelling and compaction during construction activities so to reduce the wind blow pollution.</li> <li>3. Adequate stockpiling of topsoil, away from prevalent winds and high gradient slopes.</li> <li>4. Clearing of vegetation to site specific only, so not to reduce habitats.</li> </ol>	<b>Very low - negative</b>
Increased flooding and runoff due to soil compaction	<b>Very low - negative</b>	<ol style="list-style-type: none"> <li>1. Develop, implement and apply mitigation measures to effectively suppress airborne dust at site <ul style="list-style-type: none"> <li>• Minimise the surface area of exposed soil and fine materials to wind erosion</li> <li>• Damp / wet down trafficked areas with water, and where appropriate, apply suitable additives to reduce the application frequency and use of water</li> <li>• Undertake regular audits to monitor any significant dust emissions.</li> </ul> </li> <li>2. Keep surrounding vegetation to protect the site.</li> </ol>	<b>Very low - negative</b>
<b>OPERATIONAL PHASE</b>			
<b>Direct Impacts</b>			
Contamination/Pollution of groundwater	<b>Moderate - negative</b>	<ol style="list-style-type: none"> <li>1. The proper storage and handling of hazardous substances (e.g. fuel, oil, cement, bitumen, paint, etc.) needs to be administered. Construction materials liable to spillage are to be stored in appropriate containment structures (e.g. drip-trays).</li> <li>2. Storage containers must be regularly inspected to enable early detection of leaks.</li> <li>3. All employees handling fuels and other hazardous materials are to be properly trained in their safe use, environmental restrictions and methods for proper disposal. Hazardous storage and re-fuelling areas must be bunded prior to their use on site during the construction period. The bund wall should be high enough to contain at least 110% of any stored volume.</li> <li>4. Mixing and/or decanting of all chemicals and hazardous substances must take place on a tray, shutter boards or on an impermeable surface and must be protected from the ingress and egress of storm water.</li> <li>5. Cement/concrete batching is to be located in an area to be hardened and must first be approved by the ECO. No batching activities shall occur directly on the ground.</li> <li>6. Drip trays should be utilised at all fuel/chemical dispensing areas. Provide drip-trays beneath standing machinery/plant.</li> <li>7. No refuelling, servicing nor chemical storage should occur outside the established construction camp.</li> <li>8. Routinely check machinery/plant for oil or fuel leaks each day before construction activities begin.</li> <li>9. Vehicle maintenance should not take place on site unless a specific lined and bunded area is constructed within the construction camp for such a purpose.</li> <li>10. Ensure that transport, storage, handling and disposal of hazardous substances is adequately controlled and managed. Correct emergency procedures and cleaning up operations should be implemented in the event of accidental spillage.</li> <li>11. Spillages of fuels, oils and other potentially harmful chemicals should be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil from the construction site must be removed and rehabilitated timeously and appropriately.</li> <li>12. An emergency spill response procedure must be formulated and staffs are to be trained in spill response. All necessary equipment for dealing with spills of fuels/chemicals must be available at the site.</li> <li>13. Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered hazardous landfill site.</li> <li>14. Sanitation – portable toilets (1 toilet per 10 users is the norm) to be provided where construction is occurring and away from watercourses such as rivers and wetlands. Workers need to be encouraged to use these facilities and not the natural environment.</li> </ol>	<b>Very low - negative</b>
Contamination/Pollution of surface water	<b>Moderate - negative</b>	<ol style="list-style-type: none"> <li>1. Provide drip-trays / or use other methods to reduce leaking of standing machinery/plant.</li> <li>2. The machinery on site is not to be refuelled or serviced near natural areas.</li> <li>3. Spillages of fuels, oils and other potentially harmful chemicals should be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil from the construction site must be removed and rehabilitated timeously and appropriately.</li> <li>4. Provide solid waste disposal facilities (bins) and encourage workers not to litter or dispose of solid waste in the natural environment but to use available facilities for waste disposal.</li> <li>5. Ensure that any rubbish generated during construction as well as from employees (litter) is regularly cleared from the site, in particular from streams and wetlands.</li> <li>6. Cement batching boards should be used and cement-based products/wash not to be disposed of into the natural environment.</li> <li>7. Sanitation – portable toilets (1 toilet per 30 users is the norm) to be provided where construction is occurring. Workers need to be encouraged to use these facilities and not the natural environment. Waste from chemical toilets should be disposed of regularly and in a responsible manner by a registered waste contractor.</li> <li>8. The proper storage and handling of hazardous substances (hydrocarbons and chemicals) needs to be administered during construction.</li> <li>9. Construction materials liable to spillage need to be stored in appropriate containment structures (e.g. drip-trays or concrete bunded areas).</li> <li>10. Design and implement an appropriate drainage system to divert uncontaminated surface water around or away from the construction site and coal storage area.</li> <li>11. Appropriate methods should be employed to prevent wash of any contaminated materials.</li> </ol>	<b>Very low - negative</b>

Increased noise generation from everyday vehicular use	Low - negative	<ol style="list-style-type: none"> <li>1. Limit the amount of construction vehicles on site.</li> <li>2. Maintain construction vehicles and machinery in good working order to reduce the noise on site</li> <li>3. Equipment should be fitted with noise reduction devices.</li> <li>4. Ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours.</li> </ol>	Very low - negative
Impact on fauna as a result of fishing, hunting etc.	Low - negative	<ol style="list-style-type: none"> <li>1. No wild animal may under any circumstance be hunted, snared, captured, injured, killed, harmed in any way or removed from the site. This includes animals perceived to be vermin (such as snakes, rats, mice, etc.).</li> <li>2. Any fauna that are found within the construction zone must be moved to the closest point of natural or semi-natural vegetation outside the construction zone.</li> <li>3. The handling and relocation of any animal perceived to be dangerous/venomous/poisonous must be undertaken by a suitably trained individual.</li> </ol>	Very low - negative
Increased job opportunities	Very low - negative	<ol style="list-style-type: none"> <li>1. Meet the requirements of the government policies for procurement and employment, as are applicable to local government, to take care of and avoid potential conflict between people in the immediate surroundings seeking employment and those from elsewhere.</li> </ol>	Low - positive
Increased air emissions as result of dust generation and vehicle use.	Low - negative	<ol style="list-style-type: none"> <li>1. Control the amount of construction vehicles on site.</li> <li>2. Exposed soil must be dampened to prevent wind action from causing dust plumes.</li> <li>3. Machinery and vehicles must be in good working conditions so as to emit minimal air pollution.</li> </ol>	Very low - negative
Reduced water quality as a result of illegal dumping in the watercourse	Low - negative	<ol style="list-style-type: none"> <li>1. Monitor water quality of those tributaries the project crosses.</li> <li>2. Monitor there is no spillages in the tributaries.</li> <li>3. Make sure the banks on the tributaries are stable.</li> <li>4. Make sure the contractor has a plan in place if a spillage occurs on site.</li> </ol>	Very low - negative
Indirect impacts			
Soil Erosion as a result of poor rehabilitation	Moderate - negative	<ol style="list-style-type: none"> <li>1. Implementation and maintenance of a storm water management system to prevent runoff and formation of gully erosion on site.</li> <li>2. Adequate levelling and compaction during construction activities.</li> <li>3. Adequate stockpiling of topsoil, away from prevalent winds and high gradient slopes.</li> <li>4. Minimise erosion and drainage problems by avoiding tracks crossing contours at right angles, thereby avoiding steep slopes.</li> <li>5. Berms and drainage channels should be constructed at regular intervals that will divert the flow of water away from the excavation ditch into storm water systems or adjacent vegetation to minimise surface flow and hence rill and sheet erosion of the exposed soils.</li> </ol>	Very low - negative
Siltation/Sedimentation in storm water pipelines	Low - negative	<ol style="list-style-type: none"> <li>1. Reduce the disturbance generated by construction and operational vehicles on site, reducing dust emissions.</li> <li>2. Adequate levelling and compaction during construction activities so to reduce the wind blow pollution.</li> <li>3. Adequate stockpiling of topsoil, away from prevalent winds and high gradient slopes.</li> <li>4. Sedimentation control devices, such as berms, must be temporarily installed in order to prevent sedimentation.</li> <li>5. Soil storage areas must be located further than 50 meters from any water body or water source.</li> </ol>	Very low - negative
Management of all waste material on site	Moderate - negative	<ol style="list-style-type: none"> <li>1. Identify disposal sites for the various categories of waste likely to be generated on site.</li> <li>2. Make sure general cleanliness on site</li> <li>3. Reduce; recycling and reuse of waste must occur whenever possible.</li> <li>4. Recycling bins must be separate and clearly marked according to material</li> <li>5. Waste must be stored safely away from employees' and residents' exposure.</li> <li>6. Construction debris is not to be buried on site.</li> <li>7. No burning of waste will occur on site, unless to remove alien seeds from storage sites.</li> <li>8. Provide adequate rubbish bins and waste disposal facilities on-site and educate/encourage workers not to litter or dispose of solid waste in the natural environment but to use available facilities for waste disposal.</li> <li>9. Clear and completely remove from site all general waste, constructional plant, equipment, surplus rock and other foreign materials once construction has been completed.</li> <li>10. No litter, refuse, wastes, rubbish, rubble, debris and builders waste must be placed, dumped or deposited on adjacent/surrounding properties during or after the construction period.</li> <li>11. The construction site must be kept clean and tidy and free from rubbish. Recycling/re-use of waste is to be encouraged.</li> </ol>	Very low - negative
Protection of heritage sites and artefacts	Low - negative	<ol style="list-style-type: none"> <li>1. AMAFA should be contacted if any graves are identified during earth moving activities and all development should cease until further notice.</li> <li>2. No structures other than sixty years are allowed to be demolished, altered or destroyed without a permit from AMAFA.</li> <li>3. No activities are allowed within 50m of a site which contains Rock Art.</li> </ol>	Very low - negative
Cumulative Impacts			
Increase in alien vegetation as result of poor rehabilitation	Moderate - negative	<ol style="list-style-type: none"> <li>1. Control exotic weeds and invaders that might establish within the project site.</li> <li>2. Alien plants that have been cleared from the site must be removed and disposed of at a nearby landfill site.</li> </ol>	Very low - negative
Increased flooding and runoff due to soil compaction	Moderate - negative	<ol style="list-style-type: none"> <li>1. Develop, implement and apply mitigation measures to effectively suppress airborne dust at site <ul style="list-style-type: none"> <li>• Minimise the surface area of exposed soil and fine materials to wind erosion</li> <li>• Damp / wet down trafficked areas with water, and where appropriate, apply suitable additives to reduce the application frequency and use of water</li> <li>• Undertake regular audits to monitor any significant dust emissions.</li> </ul> </li> <li>2. Keep surrounding vegetation to protect the current site.</li> </ol>	Very low - negative
<b>DECOMMISSIONING PHASE</b>			
<b>Direct Impacts</b>			



Loss of Topsoil	<b>Low - negative</b>	1. Immediately hydro seed the topsoil layer once the site has been decommissioned. 2. Monitor seeded landscaped areas until the vegetation is established and stabilised. 3. Once topsoil has been filled, indigenous vegetation must be planted, in the replaced topsoil, to ensure adequate rehabilitation and reducing soil erosion.	<b>Very low - negative</b>
Increased heavy vehicle traffic during site closure and rehabilitation	<b>Very low - negative</b>	1. Limit/Restrict access on site. 2. Implement speed control measures in close proximity to the access point and on site to reduce the erosion on site.	<b>Very low - negative</b>
Increased noise generation from heavy vehicles during site closure and rehabilitation	<b>Low - negative</b>	1. Keep surrounding vegetation, especially larger trees and shrubs, to create a screen reducing visibility from public help reduce the noise on site. 2. Ensure machinery is maintained and kept in good working order. 3. Equipment should be fitted with noise reduction devices.	<b>Very low - negative</b>
Vegetation loss from establishment of a material sourcing site	<b>Very low - negative</b>	1. Limit the removal of vegetation to the site footprint only. 2. Have a search and rescue operation on site. 3. Remove the invasive Category 1, 2 and 3 species.	<b>Very low - negative</b>
Contamination of soil	<b>Low - negative</b>	1. Source of contamination will be dug up through decommissioning activities and dumped in a legal landfill site, thereby minimizing further mobilization of contaminants.	<b>Very low - negative</b>
Contamination/Pollution of surface water	<b>Low - negative</b>	1. The site must be correctly covered to prevent pollution of surface runoff and to reduce erosion on site. 2. Ensure regular surface water monitoring on the site	<b>Very low - negative</b>
Contamination/Pollution of groundwater	<b>Low - negative</b>	1. There must be no spills or leaks from vehicles/machinery/ablution facilities and all waste disposal facilities must be lined by impermeable materials to prevent seepage into ground water. 2. Installation of groundwater monitoring boreholes to monitor migration and concentration of pollution plumes, on site. 3. The site must be correctly covered and seeded to prevent pollution of surface runoff and to reduce groundwater contamination. As well as reducing soil erosion.	<b>Very low - negative</b>
Job creation	<b>Very Low - positive</b>	1. Meet the requirements of the government policies for procurement and employment, as are applicable to local government, to take care of and avoid potential conflict between people in the immediate surroundings seeking employment and those from elsewhere.	<b>Very Low - positive</b>
<b>Indirect Impacts</b>			
Soil Erosion	<b>Low - negative</b>	1. Implementation and maintenance of a storm water management system to prevent runoff and formation of gully erosion (e.g. storm water berms and channels). 2. Adequate levelling and compaction during operational and decommissioning activities. 3. Adequate stockpiling of topsoil, away from prevalent winds and high gradient slopes.	<b>Very low - negative</b>
Loss of vegetation	<b>Low - negative</b>	1. Limit the removal of vegetation to the site footprint. 2. Have a search and rescue operation on site. 3. Remove the invasive Category 1, 2 and 3 species.	<b>Very low - negative</b>
Siltation/Sedimentation in storm water pipelines	<b>Low - negative</b>	1. Reduce the turbulence produced from construction vehicles on site, limit the access on site. 2. Adequate levelling and compaction during operational and decommissioning phases so to reduce the wind blow pollution. 3. Adequate stockpiling of topsoil, away from prevalent winds and high gradient slopes.	<b>Very low - negative</b>
Contamination of groundwater	<b>Moderate - negative</b>	1. Installation of groundwater monitoring boreholes to monitor migration and concentration of pollution plumes, on site. 2. The site must be correctly covered and seeded to prevent pollution of surface runoff and to reduce groundwater contamination. As well as reducing soil erosion.	<b>Very low - negative</b>
<b>Cumulative</b>			
Increase dust emissions	<b>Low - negative</b>	1. Reduce the turbulence on site produced from the construction vehicles, by limiting the access on site. 2. Adequate levelling and compaction during the decommissioning phases so to reduce the wind blow pollution. 3. Adequate stockpiling of topsoil, away from prevalent winds and high gradient slopes. 4. Dampening of exposed soils to reduce the spread of dust on site.	<b>Very low - negative</b>
Increase in alien vegetation	<b>Very low - negative</b>	1. Control exotic weeds and invaders that might establish on the re-vegetated areas, to allow the landscape vegetation to properly establish 2. Make use of indigenous species for rehabilitation.	<b>Very low - negative</b>
Reduced terrestrial functioning	<b>Low - negative</b>	1. Reduce the dust turbulence produced on site from the heavy construction vehicles, by limiting the access and wetting the roads. 2. Adequate levelling and compaction during decommissioning faze so to reduce the wind blow pollution. 3. Adequate stockpiling of topsoil, away from prevalent winds and high gradient slopes.	<b>Very low - negative</b>
Acceleration of climate change due to loss of vegetation	<b>Low - negative</b>	1. Adequate levelling and compaction during construction activities so to reduce the wind blow pollution. 2. Once area on site is cleared a rehab plan should be in place to restore the natural environment. 3. Remove invades species from site and plant indigenous species on site. 4. Clearing of vegetation to site specific only, so not to reduce habitats.	<b>Very low - negative</b>
Increased flooding and runoff on site	<b>Very low - negative</b>	1. Develop, implement and apply mitigation measures to effectively suppress airborne dust at site • Minimise the surface area of exposed soil and fine materials to wind erosion • Damp / wet down trafficked areas with water, and where appropriate, apply suitable additives to reduce the application frequency and use of water • Undertake regular audits to monitor any significant dust emissions. 2. Keep surrounding vegetation to protect the river banks.	<b>Very low - negative</b>

---

## 6 CONCLUSIONS AND RECOMMENDATIONS

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

### 6.1 Environmental Impact Statement

It is the opinion of the EAPs that should the project proceed, impacts on the receiving natural areas can be minimised through the careful adherence to suggested mitigation measures.

Considering the location alternatives investigated early on in project inception, the only feasible and reasonable location alternative identified to be further investigated, is the Preferred Alternative discussed throughout this document. The preferred development site has been investigated thoroughly and it has been found that the proposed uMshwathi Sorting and Baling Facility will have minimum impact on the surrounding environments, including terrestrial ecological and hydrological systems, with the implementation and monitoring of identified mitigation measures. Although now formal layout alternatives have been investigated for the facility, the project design engineers took the findings of the environmental investigations into consideration during the facility design process. The final site layout of the facility also take environmental sensitivities into consideration by for example placement of facility infrastructure in such a manner so as to avoid sensitive *termitaria*.

In addition, it must be considered that the proposed project should divert around 10% of the waste stream from landfill, thus reducing the associated transport costs; extending the life of the NER landfill; harnessing private sector involvement; creating employment opportunities within the local municipality; and aligning to the DEA National Waste Management Strategy objectives.

Please refer to Table 11 below for a summary of the impact assessment findings.

Considering the “No Go” alternative, the study area will not be impacted by the proposed facility construction. If the proposed uMshwathi Sorting and Baling Facility is not approved, the present state of the environment (in terms of the biological, physical, social and economic environment) would remain. However, it must be considered that the National Waste Management Strategy (NWMS) is a legislative requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), the “Waste Act”. The purpose of the NWMS is to achieve the objects of the Waste Act. Organs of state and affected persons are obliged to give effect to the NWMS. The NWMS is structured around a framework of eight goals, together with the targets for each goal that must be met by 2016. Not developing the proposed facility will hamper the achievement of the goals set out by the NWMS for the uMshwathi Municipal area.

**Table 11: Summary of Impact Assessment**

	<b>Pre-mitigation:</b>	<b>Post-mitigation:</b>
<b>Impact</b>	<b>Significance</b>	<b>Significance</b>
	<b>-66 to +66</b>	<b>-66 to +66</b>
Disruption to soil profiles	Low - negative	Very low - negative
Contamination of soil from leaks/spillages	Low - negative	Very low - negative
Loss of topsoil due to construction vehicles and stockpiling management of soils on site	Low - negative	Very low - negative
Contamination/Pollution of groundwater from leaks/spillages of either hydrocarbons waste or waste water.	Moderate - negative	Very low - negative
Contamination/Pollution of surface water from leaks/spillages of either hydrocarbons waste or waste water.	Moderate - negative	Very low - negative
Loss of vegetation as a result of site clearance	Very low - negative	Very low - negative
Increased noise generation from construction activities.	Very low - negative	Very low - negative
Loss of fauna as a result of clearance.	Very low - negative	Very low - negative
Increased job opportunities	Low - positive	Very Low - positive
Increased air emissions from construction activities.	Low - negative	Very low - negative
Reduced water quality from construction activities	Low - negative	Very low - negative
Construction Camp Management	Low - negative	Very low - negative
Stockpile Management	Very low - negative	Very low - negative
Soil Erosion and Sedimentation of water resources as a result of construction activities	Low - negative	Very low - negative
Loss of vegetation as a result of site clearance	Very low - negative	Very low - negative
Siltation/Sedimentation in storm water pipelines	Very low - negative	Very low - negative
Protection of heritage sites, artefacts and wildlife	Low - negative	Very low - negative
Colonization of alien vegetation as a result of stockpiling and clearance of vegetation	Low - negative	Very low - negative
Increased dust emissions as a result of construction activities	Very low - negative	Very low - negative
Reduced terrestrial functioning	Very low - negative	Very low - negative
Increased flooding and runoff due to soil compaction	Very low - negative	Very low - negative
Contamination/Pollution of groundwater	Moderate - negative	Very low - negative
Contamination/Pollution of surface water	Moderate - negative	Very low - negative
Increased noise generation from everyday vehicular use	Low - negative	Very low - negative
Impact on fauna as a result of fishing, hunting etc.	Low - negative	Very low - negative
Increased job opportunities	Very low - negative	Low - positive
Increased air emissions as result of dust generation and vehicle use.	Low - negative	Very low - negative
Reduced water quality as a result of illegal dumping in the watercourse	Low - negative	Very low - negative
<b>Indirect impacts</b>		
Soil Erosion as a result of poor rehabilitation	Moderate - negative	Very low - negative
Siltation/Sedimentation in storm water pipelines	Low - negative	Very low - negative
Management of all waste material on site	Moderate - negative	Very low - negative
Protection of heritage sites and artefacts	Low - negative	Very low - negative
<b>Cumulative Impacts</b>		
Increase in alien vegetation as result of poor rehabilitation	Moderate - negative	Very low - negative
Increased flooding and runoff due to soil compaction	Moderate - negative	Very low - negative
Loss of Topsoil	Low - negative	Very low - negative
Increased heavy vehicle traffic during site closure and rehabilitation	Very low - negative	Very low - negative
Increased noise generation from heavy vehicles during site closure and rehabilitation	Low - negative	Very low - negative
Vegetation loss from establishment of a material sourcing site	Very low - negative	Very low - negative

Contamination of soil	Low - negative	Very low - negative
Contamination/Pollution of surface water	Low - negative	Very low - negative
Contamination/Pollution of groundwater	Low - negative	Very low - negative
Job creation	Very Low - positive	Very Low - positive
Soil Erosion	Low - negative	Very low - negative
Loss of vegetation	Low - negative	Very low - negative
Siltation/Sedimentation in storm water pipelines	Low - negative	Very low - negative
Contamination of groundwater	Moderate - negative	Very low - negative
Increase dust emissions	Low - negative	Very low - negative
Increase in alien vegetation	Very low - negative	Very low - negative
Reduced terrestrial functioning	Low - negative	Very low - negative
Acceleration of climate change due to loss of vegetation	Low - negative	Very low - negative
Increased flooding and runoff on site	Very low - negative	Very low - negative

## 6.2 EAP's Recommendation

It is the EAPs opinion that the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for.

The careful management of potential development impacts through the application of the recommendations made in this report should reduce impacts to the ecosystems and surrounding environment to relatively low significance levels and improve the status quo. Key mitigation and management measures include:

- Apply for Permits of Protected Plants;
  - *Hypoxis hemerocallidea* (Starflower, African Potato) was found to occur on the site which have been identified as being Specially Protected Plants which will require a permit for removal/relocation should their disturbance be unavoidable.
- Implementation of buffer zone/setback;
- Ensure skips/waste is clearly marked and separated;
- Focus on management of storm water and erosion control for construction & operation phases;
- The implementation of a range of practical on-site mitigation and management measures and guidelines to deal with site-based issues during the construction and operational phases of the project; and
- Recommendations to rehabilitate the project area to improve the status quo and to limit on residual impacts and surrounding environment during the operational phase of the development project.

For additional and more comprehensive environmental measures, please refer to the Environmental Management Plan Report in Appendix F.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process are included as Appendix D.

Other information relevant to this application and not previously included is attached in Appendix H.

---

NAME OF EAP

---

SIGNATURE OF EAP

---

DATE

---

# Appendix A: Site Plan(s)

---

# Appendix B: Photographs

---

# Appendix C: Facility Illustration(s)



---

# Appendix D: EAP & Specialist Experience

---

# Appendix E: Specialist Reports

---

## Appendix F: Environmental Management Programme (EMPr)

---

# Appendix G: Stakeholder Consultation

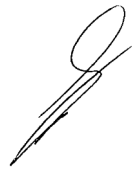
---

## Appendix H: Other Information

---

**DOCUMENT CONTROL****FORM IP180\_B**

**CLIENT** : COWI  
**PROJECT NAME** : AISWM UMDM Project **PROJECT No.** : J35158  
**TITLE OF DOCUMENT** : uMshwathi Sorting and Baling Facility Draft Basic Assessment Report  
**ELECTRONIC LOCATION** : C:\Users\ckruger\Desktop\uMshwati.docx

	Approved By	Reviewed By	Prepared By
<b>ORIGINAL</b>	NAME <b>Jackie von Maltitz</b>	NAME <b>Gerda Bothma</b>	NAME <b>Charl Kruger</b>
DATE	SIGNATURE	SIGNATURE	SIGNATURE 

	Prepared by	Prepared By	Prepared By
<b>ORIGINAL</b>	NAME	NAME	NAME
DATE	SIGNATURE	SIGNATURE	SIGNATURE

This report, and information or advice, which it contains, is provided by GIBB (or any of its related entities) solely for internal use and reliance by its Client in performance of GIBB's duties and liabilities under its contract with the Client. Any advice, opinions, or recommendations within this report should be read and relied upon only in the context of the report as a whole. The advice and opinions in this report are based upon the information made available to GIBB at the date of this report and on current South African standards, codes, technology and construction practices as at the date of this report. Following final delivery of this report to the Client, GIBB will have no further obligations or duty to advise the Client on any matters, including development affecting the information or advice provided in this report. This report has been prepared by GIBB in their professional capacity as Consulting Engineers. The contents of the report do not, in any way, purport to include any manner of legal advice or opinion. This report is prepared in accordance with the terms and conditions of the GIBB contract with the Client. Regard should be had to those terms and conditions when considering and/or placing any reliance on this report. Should the Client wish to release this report to a Third Party for that party's reliance, GIBB may, at its discretion, agree to such release provided that:

- (a) GIBB's written agreement is obtained prior to such release, and
- (b) By release of the report to the Third Party, that Third Party does not acquire any rights, contractual or otherwise, whatsoever against GIBB and GIBB, accordingly, assume no duties, liabilities or obligations to that Third Party, and
- (c) GIBB accepts no responsibility for any loss or damage incurred by the Client or for any conflict of GIBB interests arising out of the Client's release of this report to the Third Party.

**GIBB (Pty) Ltd**  
Postal Address : PO Box 1365, Westville, 3630  
Contact Person : G Bothma  
Telephone No. : 031 267 6172

Website : [www.gibb.co.za](http://www.gibb.co.za)  
Physical Address : 54 Norfolk Terrace, Westville, 3630  
Email Address : [gbothma@gibb.co.za](mailto:gbothma@gibb.co.za)  
Fax No. : 031 266 3310