Draft Basic Assessment Report in support of a Waste Management Licence for the Closure of the existing Skhemelele Landfill, uMhlabuyalingana Local Municipality, KwaZulu-Natal

Prepared By:

AECOM SA (Pty) Ltd

PO Box 3173

Pretoria, 0001

Prepared For:

uMhlabuyalingana Local Municipality

Private Bag X901

Kwa-Ngwanase, 3973

TITLE	*Draft Basic Assessment Report in support of a Waste Management License for the Closure of the existing Skhemelele Landfill.*
Applicant	*uMhlabuyalingana Municipality*
AECOM Project No	*60437185*
Status of Report	*Draft Basic Assessment Report*
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For AECOM SA (Pty) Ltd / SE Solutions (Pty) Ltd

Compiled by	:	Soleil Jones Initials & Surname	 Signature	25 November 2015 Date
Reviewed by	:	Johan Hayes Initials & Surname	 Signature	25 November 2015 Date
Approved by	:	Victoria Napier Initials & Surname	 Signature	26 November 2015 Date

Executive Summary

BACKGROUND TO THE PROJECT

The Department of Environmental Affairs (DEA) commissioned a study in 2007, completed in 2009, that aimed at identifying and determining the number of waste disposal facilities in South Africa that are not licenced. Of a total of 581 sites that were identified, 431 needed to be licensed. It was evident from the study that Local Municipalities (LMs) did not have adequate training or funding for lodging applications to licence their unlicensed waste disposal facilities or the management thereof. The Minister undertook to begin the process of licencing these sites, with a target that all would be licenced by 2013/2014. Subsequently, the DEA has identified an additional 57 municipal waste disposal facilities which must be licensed during the 2014/15 financial year. The licensing of the Skhemelele landfill falls within the scope of this process.

Sustainable Environmental Solutions (Pty) Ltd (SE Solutions), in association with AECOM SA (Pty) Ltd (AECOM), was appointed by the DEA to conduct the required environmental legislative process to apply for a Waste Management License (WML) for the closure of the existing Skhemelele Landfill (the Project), on behalf of the uMhlabuyalingana LM.

PROJECT AREA

The existing Skhemelele Landfill is located in a rural area scattered with human settlements. Discerning settlement boundaries is difficult, however the nearest designated settlement is Lulwane, the edge of which is approximately 3 km west of the Skhemelele site. Manguzi is the nearest big town and is 39km away from the site.

The landfill is located on Portion 0 of Farm Zamazama 16924, and is accessed from the P522 that intersects with the D1861 road near Lulwane to the west, and the R22 to the east.

PROJECT DESCRIPTION

The existing unlicensed Skhemelele Landfill is operated by the uMhlabuyalingana LM, the Applicant for the proposed WML. The site falls on tribal land, belonging to the Tembe Traditional Council. Although no record keeping of the influx of waste is being done, it is estimated that the site receives 12 tons of domestic waste per day. Extended Public Works Programme (EPWP) staff members employed on the site have been sorting recyclable waste into stockpiles, with a view to selling these materials on to private recyclers. The site is fenced with a gate and access control.

The closure and rehabilitation activities will comply with the Minimum Requirements for Waste Disposal by Landfill (Second Edition, 1998). Detailed design for the upgrades as laid out in the Environmental Management Programme (EMPr) must commence immediately upon receipt of the closure licence.

APPLICATION PROCESS

The Project is considered a waste management activity that may have a detrimental effect on the environment and for which authorisation in the form of a WML is required from the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA) in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA). At this stage, it is believed that the Project does not comprise activities listed in the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) 2014 Environmental Impact Assessment (EIA) Regulations.

Due to the requirement for formal closure of the Skhemelele Landfill site, a Basic Assessment (BA) application process is required in order to obtain the WML.

Basic Assessment:

This report documents the outcomes of the Basic Assessment Process. The draft version of the Basic Assessment Report is presented to registered Interested and Affected Parties (I&APs) for a 30-day review and comment period. The Draft Basic Assessment Report is distributed to the following public venues in the project area from 04 December 2015 – 25 January 2016:

Venue	Address
uMhlabuyalingana Local Municipality Offices: Manguzi	R22 Main Road, 01 Manguzi, Manguzi
Skhemelele Landfill Entrance	P522 that intersects with the D1861 road near Lulwane to the west, and the R22 to the east

Ms Bongi Shinga from AECOM can be contacted on bongi@deawaste2015.co.za or Tel. 012 421 3500 during office hours for any queries and/or to submit comment on the DBAR.

Once all comments on the DBAR have been incorporated and addressed, the Final Basic Assessment Report (FBAR) will be submitted to the KZN EDTEA for decision-making. Once a WML (positive or negative) has been issued, all registered I&APs will be notified of the decision and appeal provisions.

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List of Abbreviations

°C	Degrees Celsius
CA	Competent Authority
BID	Background Information Document
CBD	Central Business District
CRR	Comment and Response Report
DEA	Department of Environmental Affairs
DBAR	Draft Basic Assessment Report
DWS	Department of Water & Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GIS	Geographical Information System
GN R	Government Notice Regulation
Ha	Hectares
HIA	Heritage Impact Assessment
I&AP(s)	Interested and Affected Party (-ies)
IDP	Integrated Development Plan
km	kilometre
KZN EDTEA	KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs
m	metre
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PPP	Public Participation Process
RDL	Red Data Listed
SABAP	South African Bird Atlas Project
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SAWS	South African Weather Services
SIA	Social Impact Assessment
WCMR	Waste Classification Management Regulations

WML	Waste Management Licence
WUL	Water Use Licence

1. INTRODUCTION

1.1 Background

The Department of Environmental Affairs (DEA) commissioned a study in 2007, completed in 2009, that aimed at identifying and determining the number of waste disposal facilities in South Africa that are not licenced. Of a total of 581 sites that were identified, 431 needed to be licensed. It was evident from the study that Local Municipalities (LMs) did not have adequate training or funding for lodging applications to licence their unlicensed waste disposal facilities or the management thereof. The Minister undertook to begin the process of licencing these sites, with a target that all would be licenced by 2013/2014. Subsequently, the DEA has identified an additional 57 municipal waste disposal facilities which must be licensed during the 2014/15 financial year. The licensing of the Skhemelele landfill falls within the scope of this process.

1.2 The Proposed Project

Sustainable Environmental Solutions (Pty) Ltd (SE Solutions), in association with AECOM SA (Pty) Ltd (AECOM), was appointed by the DEA to conduct the required environmental legislative process to apply for a Waste Management License (WML) for the closure of the existing Skhemelele Landfill (the Project), on behalf of the uMhlabuyalingana Local Municipality (LM).

No record keeping of the influx of waste is being done at the Skhemelele site, however, it is estimated that the site receives 12 tons of domestic waste per day. The waste is being dumped into three borrow pits. The site was subject to illegal sand mining in previous years; until the municipality took over the site to use the remaining borrow pits for landfilling. There are 2 large borrow pits, one of which is very deep – approximately 30 metres in one area, with very steep sides. This presents a safety hazard for people working at the site. Extended Public Works Programme (EPWP) staff employed on the site have been sorting recyclable waste into stockpiles, with a view to selling these materials on to private recyclers. The site is fenced with gated access control.

Detailed design for the closure of the site as laid out in the Environmental Management Programme (EMPr) must commence immediately upon receipt of the closure licence. The closure and rehabilitation activities will comply with the Minimum Requirements for Waste Disposal by Landfill (Second Edition, 1998). In compliance with the requirements for a communal landfill, during closure of the existing landfill the following activities will be conducted:

- Closure:
  - It is recommended that the site be closed and rehabilitated immediately due to the sandy soil present on site;
  - Depending on the volume of waste on site, the waste must be consolidated and taken to a licensed landfill facility or the waste must be consolidated and capped on site;
  - Reshaping and recontouring of borrow pits so that they are no longer a safety hazard must take place;
  - Placement of a “no dumping” notice at the site; and,
  - Closing and locking the gate to the site so that no illegal dumping can take place.
- Stormwater:
  - Design of stormwater management infrastructure to comply with Government Notice 704 of the National Water Act, 1998 (Act No. 36 of 1998).
- Final Cover:
  - The waste body must be covered with a capping system that will limit the infiltration of water into the waste body. The final capping system includes 300mm compacted clay, a geomembrane, a ballast layer, a drainage layer and 200mm topsoil;

- The final capping system must be designed by a Professional Engineer and has to include a gas collection system if the waste is deeper than 2m;
- The site will then, immediately following capping with topsoil, be seeded with a mixture of indigenous grasses; and,
- Vegetation establishment must be monitored post decommissioning to ensure successful rehabilitation.

Upon closure, the uMhlabuyalingana LM intends to establish a Waste Transfer Station (WTS) for the temporary storage of waste, prior to disposal at the licensed Thandizwa landfill in Manguzi. The WTS will be operated according to the National Norms and Standards for the Storage of Waste, 2013 promulgated under the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA).

1.3 The Environmental Impact Assessment Process

The proposed Project is considered a waste management activity that may have a detrimental effect on the environment and for which authorisation in the form of a WML is required from the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA) in terms of NEMWA. Due to the nature of the proposed Project, a Basic Assessment (BA) application process is required.

This Environmental Impact Assessment (EIA) process assists the KZN EDTEA, to make an informed decision on whether the proposed licence to close the existing landfill should be issued or not, and under what conditions an authorisation could be granted. In the EIA process, all potentially significant negative and positive impacts (social, economic and biophysical environments) of the activity are identified and assessed. An EIA by way of a BA application process entails the following main phases:

- Draft Basic Assessment Report (DBAR) Phase;
- Final Basic Assessment Report (FBAR) Phase; and,
- Decision-Making Phase.

1.3.1 Draft Basic Assessment Report Phase

The BA application process is currently in the DBAR Phase, and its main purpose is to identify and investigate issues related to the proposed Project and assess all potentially significant impacts. Issues and impacts are identified by the project team using theoretical knowledge, experience on similar projects, and consultation with I&APs and other key stakeholders (such as national, regional and local government departments).

To date, public participation was conducted to identify potential I&APs, inviting I&APs to register as well as to notify I&APs of the BA application process to obtain a WML for the existing landfill site (refer to Section 7 for more information on the public participation process).

This DBAR is available for public comment over a period of 30 days (excluding public holidays and the period 15 December to 05 January), from 04 December 2015 to 25 January 2016. The objective of the review and comment period is for I&APs to raise concerns about the Project and to comment on the information contained within the DBAR.

1.3.2 Final Basic Assessment Report Phase

Once the comment and review period on the DBAR has concluded, the report will be updated to a FBAR and submitted to the KZN EDTEA for decision-making. All comments received on the DBAR will be captured in a Comment and Response Report (CRR) attached to the FBAR.

1.3.3 Decision-Making Phase

The FBAR will be reviewed by the KZN EDTEA and a WML will be drafted with conditions that the uMhlabuyalingana LM must adhere to. Once the WML is issued, all registered I&APs will be notified of the decision and appeal provision should they disagree with the decision or any conditions contained therein.

1.4 Structure of the Report

This Basic Assessment report contains the following, in accordance with Appendix 1 of the EIA Regulations (2014):

Chapter	Description
Chapter 1	Introduction
Chapter 2	Project team details
Chapter 3	Overview of the project
Chapter 4	Description of the project alternatives
Chapter 5	Description of the affected environment
Chapter 6	Legislation and guidelines that pertain to the project
Chapter 7	Public Participation Process
Chapter 8	Environmental Impact Assessment
Chapter 9	Conclusion and Recommendations
Chapter 10	References

1.5 Assumptions and Limitations

The following assumptions, limitations and constraints, associated with this project as described above, have been identified for this BA process:

- The BA process is multi-disciplinary, which is informed by the project team. It is thus necessary to assume that the information provided by the project team is accurate and true, at the time.
- Data shown in the maps were supplied by various sources and was used as received. The data was not verified.
- A preliminary site investigation was undertaken by the EAP's project team in consultation with representatives of the Applicant and Competent Authority on 02 September 2015 to identify activities triggered and studies required to be conducted.
- Public Participation Process: every effort was made to inform all possible stakeholders within the Project area. Information presented by the stakeholders is presumed to be accurate and has been presented timeously in the study.

2. PROJECT TEAM

2.1 The Applicant

The uMhlabuyalingana LM is applying for a WML for the closure of the existing unlicensed Skhemelele Landfill. Details of the Applicant are provided in Table 2-1.

Table 2-1: Details of the Applicant

Applicant and Landowner	**uMhlabuyalingana Municipality**
Contact Person	Mr Sbusiso Emmanuel Bukhosini
Postal Address	Private Bag X 901, Kwa-Ngwanase, 3973
Telephone	035 592 9628
Fax	035 592 0672
E-mail Address	SbusisoB@mhlabuyalingana.gov.za
	Applicant's Representatives
Mr Sbusiso Emmanuel Bukhosini	Municipal Manager (uMhlabuyalingana LM) SbusisoB@mhlabuyalingana.gov.za
Mr. MS Mnguni	HOD Community Services (uMhlabuyalingana LM) mduduzim@mhlabuyalingana.gov.za
Mrs NF Mngomezulu	Waste Management Officer (uMhlabuyalingana LM)

A copy of the WML Application Form can be found in Appendix B.

2.2 The Landowner

Although the existing Skhemelele site is operated by the uMhlabuyalingana LM, it is located on tribal-owned property in KwaZulu-Natal. The details of the landowner are provided in Table 2-2

Table 2-2: Details of the Landowner

Landowner	**Ingonyama Trust Trustees**
Contact Person	Nkosi MI Tembe Position: Inkosi Organisation: Tembe Traditional Council
Postal Address	PO Box 05 KwaNgwanase 3973
Telephone	033 846 9900/1/2/3 / 082 355 6877
Fax	033 386 2528
E-mail Address	info@ingonyamatrust.org.za / inkosi@tembe.co.za

2.3 Environmental Assessment Practitioner

Details of the Environmental Assessment Practitioner (EAP) are contained in Table 2-3.

Table 2-3: Details of the EAP

Environmental Consultant	**Sustainable Environmental Solutions (Pty) Ltd**
Environmental Assessment Practitioner	Ms Victoria Napier
Postal Address	Suite 51, Private Bag X108, Centurion, 0046
Telephone	078 278 2898

Fax	086 664 6885
E-mail Address	vici@sesolutions.co.za

Vici Napier has more than 7 years' experience as an EAP Project Manager, with over 9 years as an EAP. She is highly experienced in managing large multi-disciplinary project teams for various types of environmental assessments and authorisations, and has often been described by colleagues and clients as having specialist Project Management skills. In addition, she has experience in training and skills transfer within the Environmental Management field. Vici is a Registered Professional Natural Scientist with SACNASP (400215/09) and a member of the South African Chapter of the International Association of Impact Assessment (IAIA). The full CV of Ms Napier is presented in Appendix G1.

2.4 The EIA Project Team

Details of the Project Team assisting the EAP in conducting the BA application process in support of a WML for the closure of the Skhemelele Landfill are provided in Table 2-4 below.

Table 2-4: EIA Project Team

Name	Role on Team	Company
Mike Howard	Environmental Executive	AECOM
Johan Hayes	Project Manager	AECOM
Soleil Jones	Environmental Specialist	AECOM
Bongi Shinga	Public Participation Practitioner	AECOM
Mamokete Maimane	Public Participation Practitioner	AECOM

CVs of the EIA project team are presented in Appendix G2.

3. OVERVIEW OF THE PROJECT

3.1 Project Area

The existing Skhemelele Landfill is located in a rural area scattered with human settlements. Discerning settlement boundaries is difficult, however the nearest designated settlement is Lulwane, the edge of which is approximately 3 km west of the Skhemelele site. Manguzi is the nearest big town and is 39km away from the Skhemelele site.

The landfill is located on Portion 0 of Farm Zamazama 16924 (SG21 Digit code: N0HV00000001692400000), and is accessed from the P522 that intersects with the D1861 road near Lulwane to the west, and the R22 to the east (refer to Figure 3-1 and Figure 5-1).

3.2 Description of the Existing Skhemelele Landfill

The existing Skhemelele Landfill is currently unlicensed. The site (footprint area of approximately 55,013.91 m²) is fenced and fitted with a gate, and there is a guard to ensure access control. There is some windblown and scattered litter around the site, but it is generally contained within the fenced footprint area.

The facility is currently used for the disposal of general waste, garden waste and builders' rubble from the areas surrounding the landfill site. An estimated 12 tons of domestic waste per day is reported to be disposed of at the landfill. The waste is being dumped into 2 large borrow pits, one of which is very deep – approximately 30 metres in one area, with very steep sides, presenting a safety hazard for people working at the site. Due to a shortage of equipment within the uMhlabuyalingana LM, no compaction is undertaken at the landfill. The only cover material available on the site is sand, however, no waste covering is practised at the facility. Extended Public Works Programme (EPWP) staff members employed by the LM are separating and stockpiling various recyclable materials such as glass, plastic and cardboard with a view to selling these materials on to private recyclers.

Twenty metres outside the eastern edge of the site boundary is a dwelling on the Tembe tribal property. KwaZulu-Natal does not officially have a buffer policy regarding waste disposal sites, however, for the purposes of comparison, the Gauteng Provincial Government prescribes a minimum buffer of 200 metres, inside of which residential dwellings are not permitted to be located. Looking at Google Earth imagery, it seems this dwelling was established between 2006 and 2010. It appears that the site was fenced sometime between 2010 and 2013. Talks are underway between the Municipality and Tembe Traditional Council regarding the relationship between the landfill site and the property at large.

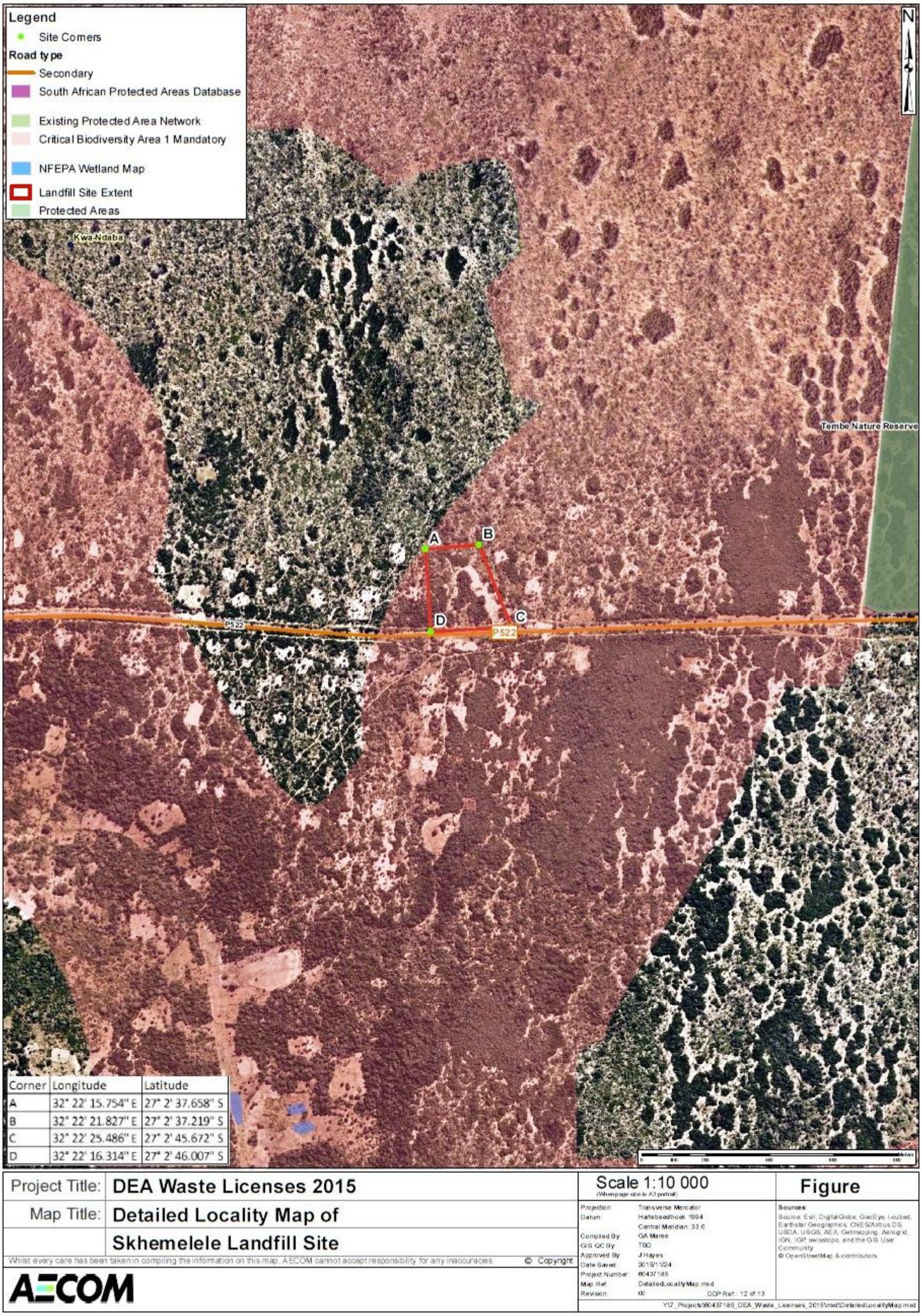

Figure 3-1: Detailed Locality of the Skhemelele landfill

3.3 Waste Classification of the Landfill Site

The landfill is assessed in terms of the current impact on the environment and the nature of the status of the landfill (Application for Closure). The impacts assessed will cover closure and decommissioning, as the site already exists.

During its operational life, the site received general waste, business waste and garden waste, which requires no classification or assessment as per the Waste Classification and Management Regulations (WCMR) promulgated on 23 August 2013 (Government Gazette No. 36784). The WCMR also state that all general domestic waste landfills need to, as a minimum, adhere to the lining requirements for a Class B landfill as described in regulation 636 of the WCMR. For closure and capping design purposes the disposal site will be assessed using the principles contained in the 1998 Department of Water & Sanitation's (then Department of Water Affairs and Forestry) Minimum Requirements for Waste Disposal by Landfill document.

3.4 Waste Management (Closure) of the Landfill

Design Solution

The closure and rehabilitation activities will comply with the Minimum Requirements for Waste Disposal by Landfill (Second Edition, 1998). In compliance with the requirements for a communal landfill, during closure of the existing landfill the following activities will be conducted:

- Closure:
  - It is recommended that the site be closed and rehabilitated immediately due to the sandy soil conditions on site;
  - Depending on the volume of waste on site, the waste must be consolidated and taken to a licensed landfill facility or the waste must be consolidated and capped on site;
  - Reshaping and recontouring of borrow pits so that they are no longer a safety hazard must be undertaken;
  - Placement of a "no dumping" notice at the site; and,
  - Closing and locking the gate to the site so that no illegal dumping can take place.
- Stormwater:
  - Design of stormwater management infrastructure to comply with Government Notice 704 of the National Water Act, 1998 (Act No. 36 of 1998).
- Final Cover:
  - The waste body must be covered with a capping system that will limit the infiltration of water into the waste body. The final capping system includes 300mm compacted clay, a geomembrane, a ballast layer, a drainage layer and 200mm topsoil;
  - The final capping system must be designed by a Professional Engineer and has to include a gas collection system if the waste is deeper than 2m;
  - The site will then, immediately following capping with topsoil, be seeded with a mixture of indigenous grasses; and,
  - Vegetation establishment must be monitored post decommissioning to ensure successful rehabilitation.

Upon closure, the uMhlabuyalingana LM intends to establish a Waste Transfer Station (WTS) for the temporary storage of waste, prior to disposal at the licensed Thandizwa landfill in Manguzi. The WTS will be operated according to the National Norms and Standards for the Storage of Waste, 2013 promulgated under NEMWA. The licensing of the WTS is beyond the scope of this process.

Costing of the Proposed Solution

The costs for the decommissioning works that need to be undertaken upon the issuing of a closure licence have been estimated as follows in Table 3-1. Two scenarios have been considered for the Skhemelele site, namely closure with-capping, or rehabilitation only. Note that these costs are approximate and have been calculated according to certain assumptions and the footprint of the site and the landfill.

Table 3-1: Cost calculation for the Skhemelele landfill Closure	
Capping	R 1 530 000.00
Tractor Loader Backhoe (TLB) (new)	R 18 000.00
Tipper (rent)	R 18 000.00
Fence	R 1 248 000.00
Contractor's Preliminary & General costs (P&G's)	R 76 500.00
Picking up litter	R 15 000.00
Labour	R 11 500.00
Conservancy tank	R 5 000.00
Stormwater and leachate collection	R 50 000.00
Rehabilitation of borrow pits	R 860 000.00
Total	**R 3 832 000.00**

Or rehabilitation only - remove waste	
TLB (rent)	R 36 000.00
Tipper (rent)	R 36 000.00
Fence	R 1 248 000.00
Picking up litter	R 30 000.00
Repair erosion, etc.	R 50 000.00
Labour	R 11 500.00
Rehabilitation of borrow pits	R 1 100 000.00
Total	**R 2 511 500.00**

3.5 Need and Desirability

Service delivery is an issue of national concern / importance. Thus, the licensing of the illegal Skhemelele landfill is considered part of this programme. This licensing process undertaken in terms of the NEMWA is in accordance with an initiative driven by the DEA to ensure the legal compliance of all municipal landfills, which in turn ensures appropriate and effective environmental management of these sites.

In addition, the licensing process is aligned with the uMhlabuyalingana LM Draft Integrated Waste Management Plan (IWMP) of April 2014.

The 2014 uMhlabuyalingana LM IWMP lists the licensing of the Skhemelele waste site and the development of waste drop-off centres (i.e. waste transfer stations) as Critical Action Items (items 8.1.1 and 8.1.13). Skhemelele is defined as an emerging urban centre and Secondary Investment Point (Node) of existing and future growth points and centres of population concentration (ULM Draft IWMP, 2014).

A significant environmental challenge relating to waste management currently faced by the uMhlabuyalingana LM is the lack of waste management services to rural and remotely located communities, resulting in litter problems and illegal dumping.

4. DESCRIPTION OF ALTERNATIVES

"Alternatives are different means of meeting the general purpose and need of a proposed activity. The identification, description, evaluation and comparison of alternatives are important for ensuring the objectivity of the assessment process. In cases where there is no objective and thorough assessment of alternatives, the EIA process usually only confirms a chosen activity and the value of the assessment as an input to decision-making may be compromised" (DEAT Guideline 4, 2006).

4.1 Alternatives Considered

The identification of alternatives is an important component of the BA process. However, as the Project entails the licensing of an existing landfill, project location / site alternatives are not currently considered as part of the BA process.

Given that the application entails the closure of an existing landfill site, only the option of not implementing closure is considered

4.1.1 Do Nothing Option

The DEA stresses that the "Do-Nothing" approach should be considered in cases where the proposed activity will have a significant negative impact that cannot be effectively or satisfactorily mitigated.

The "Do-Nothing" approach entails that the existing Skhemelele Landfill remains unlicensed. Should such licensing not take place, the unlawful landfill will continue to appear as a finding of non-compliance with national legislation within the uMhlabuyalingana LM's annual audit reports. Furthermore, negative environmental (such as ground and surface water pollution) and social impacts associated with the status quo will not be rectified and/or mitigated.

5. DESCRIPTION OF AFFECTED ENVIRONMENT

5.1 Regional Context

According to the uMhlabuyalingana Local Municipality's (ULM's) Integrated Waste Management Plan (IWMP) (2014), the ULM is located in the centre of a biodiversity hotspot. The municipality contains five key environmental assets, namely the Tembe National Elephant Park, Sileza Nature Reserve, Manguzi Forest Reserve, Ndumo Game Reserve, and iSimangaliso Wetland Park. The ULM is also home to four RAMSAR sites, and forms part of two transfrontier conservation areas (TFCAs), namely the Usuthu-Tembe-Futi TFCA (Swaziland/South Africa/Mozambique) and Ponta do Ouro - Kosi Bay TFCA (South Africa/Mozambique) (ULM IWMP, 2014).

A section of the Pongola River flows through ULM, which is an important catchment system for the region. The Pongola River is an essential source of water for human settlements in the western regions of the municipal area. The municipality also contains the largest freshwater lake in South Africa, Lake Sibayi, which supplies water to a number of urban centres, commercial and subsistence farmers, and rural households (ULM IWMP, 2014).

Fifty-eight percent of the ULM is covered by natural vegetation, particularly between the Pongola River floodplain and the R22. This is the area in which the Skhemelele site is located. These natural open spaces are important generators of ecosystem services, not only for the municipality, but also for neighbouring municipalities and countries (Mozambique and Swaziland). However, only a small proportion of this natural vegetation is formally protected within the Tembe National Elephant Park, Sileza Nature Reserve, Manguzi Forest Reserve, Ndumo Game Reserve, and iSimangaliso Wetland Park (17%). There is also the Tshanini Community Conservation Area, which informally protects approximately 3,000 ha of open space (ULM IWMP, 2014).

The remaining natural open space will likely become subject to increased development pressures in the future, particularly on the floodplains of the Pongola River, the Freshwater Wetlands near Manguzi, and in the areas of Northern Coastal Forests. There are 18 different vegetation types in the ULM, and potentially 39 Red Data Book plant and animal species occurring (ULM IWMP, 2014).

The western regions of the ULM have low rainfall. The demand placed on natural resources through harvesting and grazing is exceeding supply in the majority of traditional rural areas, particularly within the Thicket areas, Forest areas, and the floodplains of Pongola River. The large scale transformation and utilisation of these areas results in environmental degradation and a reduction in the supply of ecosystem goods and services. This demand is driven by a dependence on natural resources base to sustain rural livelihoods (ULM IWMP, 2014).

5.2 Local Context

Skhemelele is a rural settlement in the ULM, although it is noted to be emerging as an urban centre in the LM, around which planning will have to be properly undertaken. Skhemelele does not reflect as a township on Google Maps, but it is located along the P522 and is approximately an 8km drive from Kwa-Ndaba (ULM IDP, 2014 /2015 Annual Review). Refer to the Locality map in Figure 3-1 and the Site Plan in Figure 5-1.

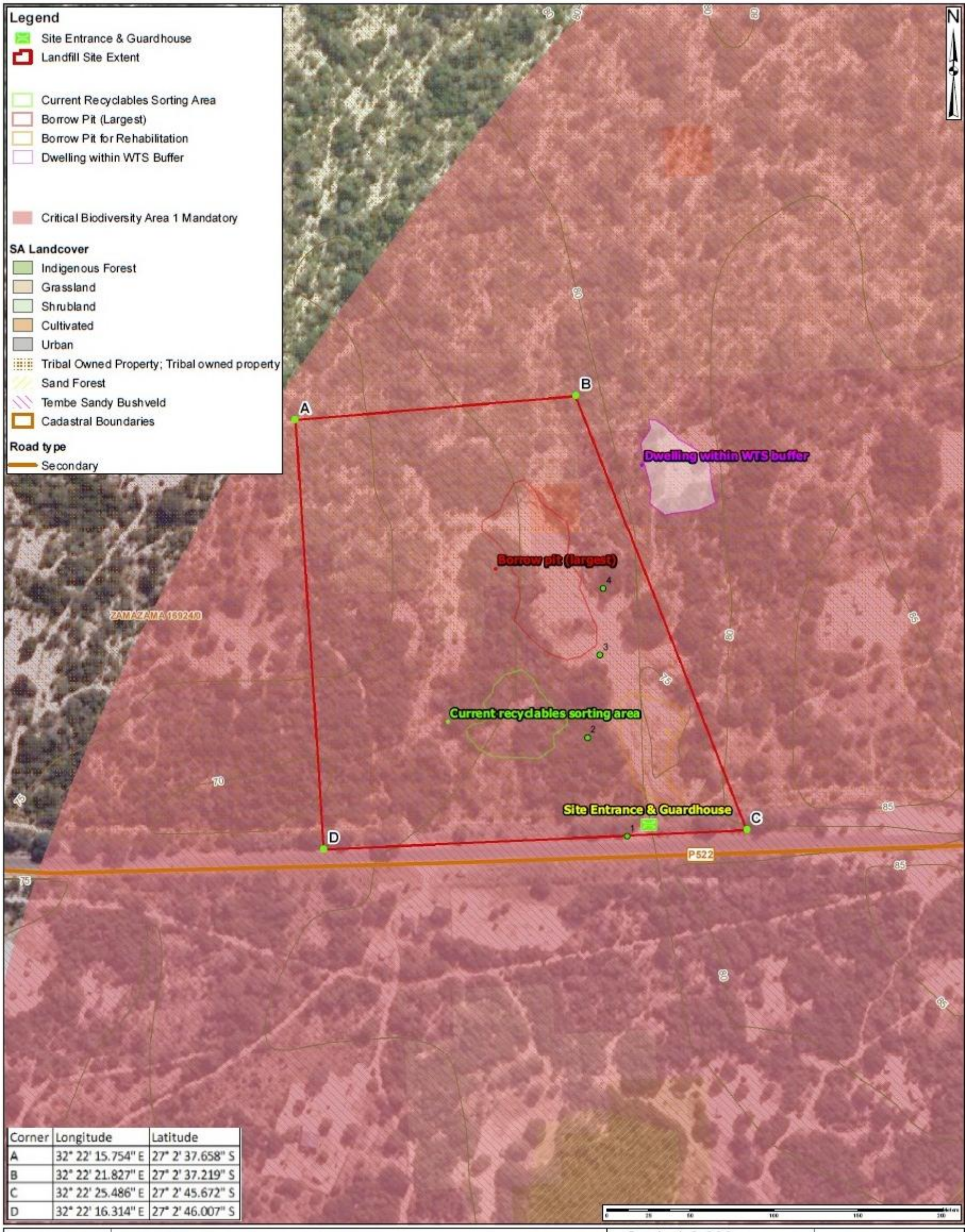

Figure 5-1: Site Plan of Skhemelele Landfill

5.3 Physical Environment

5.3.1 Climate and Atmospheric Conditions

Given the remoteness of the site, climate data for Manguzi town, 30km to the north-east, is used for the project area, the highest summer temperatures occur during January, with a maximum of 30.9°C, while July experiences the lowest temperatures with a minimum of 12.5°C. The annual average temperature is 25.8°C. Rainfall occurs predominantly during the summer months with 881 mm per annum. Peak rainfall occurs during January, at 137mm, while the winter rainfall low occurs in June, at 28mm (www.Climate-data.org, 2015).

5.3.2 Topography

The topography of the study area is relatively flat. The notable topographic features on the site are the two borrow pits. The elevation on site is approximately 75 metres above sea level (masl).

5.3.3 Geology and Soils

The underlying geology consists primarily of conglomerate, sandstone, aeolianite, sand, limestone, alluvium (refer to the Geology Map in Appendix D). The geology of the central part of uMhlabuyalingana LM comprises sandy Aeolian (wind-blown) deposits that were deposited during the Quaternary Age. This formation generally comprises poorly consolidated yellowish or greyish sands extending to depths in excess of 30 metres below existing ground level and is characterised by the presence of a shallow water table. The uppermost portion of these soils (i.e. +/- 3m below existing ground level) is usually very loose to loose in consistency and becomes progressively medium dense to dense with depth. The sandy Aeolian soils are anticipated to classify as a fair sub grade material (i.e. G9 and poorer in terms of TRH14 classifications). The most predominant geology feature is Cenozoic sediments which comprises a 1-20km wide band of Cretaceous age rocks and is further subdivided into the Mzinene formation which consists of a siltstone with shelly concretionary layers. These soils are anticipated to extend to depths in excess of approximately 25 metres below existing ground level and is characterized by the presence of a shallow water table. The geology of the area is characterized essentially by glauconitic siltstone which were deposited during the Cretaceous age respectively (ULM IDP, 2014/2015).

The most predominant soil type in the ULM is sandy soil, indeed this is the soil type that occurs at the Skhemelele site, as can be seen in the photographs of the large borrow pits (Appendix C). Sandy soils tend to be unstable and susceptible to erosion. The topmost layers of these soils are usually very loose to loose in consistency and becomes progressively medium dense to dense with depth. The sandy Aeolian soils are anticipated to classify as a fair sub grade material (i.e. G9 and poorer in terms of TRH14 classifications) (ULM Draft IDP, 2015/15)

5.3.4 Existing Land Use and Land Cover

The land cover data that was obtained indicates that much of the area along the P522 is urban, however the area is characterised by scattered rural human settlements. There is some subsistence cultivation, but generally the land cover in the area consists of natural vegetation such as indigenous shrubland. The site's eastern boundary is 1.2 km from the western boundary of the Tembe Elephant Park. Refer to the Site Plan in Figure 5-1 and the Site Photographs in Appendix C.

5.3.5 Hydrology

As can be seen in Figure 5-1, no natural water bodies occur within close proximity to the existing Skhemelele Landfill. This was confirmed by Imperata Consulting during their Watercourse Investigation that was undertaken on the site on the 26th October 2015. The specialist found the following:

No wetlands or other watercourses are present within the study area, and no wetland areas were identified within the 500 m study area buffer. Only an interdunal swale feature was recorded within the site, which is not regarded to be consistent with the definition of a watercourse, including a natural channel with regular or intermittent flow, as defined in the NWA.

No watercourse impact assessment was undertaken due to the absence of watercourses within the site and its immediate surroundings. The latter does not refer to the entire 500 m study area buffer, but to an area with an approximately 100 m wide radius around the site. First-order (headwater) drainage lines may be present elsewhere within the 500m study area buffer, but were not delineated as information from the survey indicated that these features are very cryptic and not easily demarcated. Distinct channel and flow features were not identified within the study area or its surroundings. This is mainly as a result of the flat terrain topography and deep sandy soils that seldom experience runoff.

5.3.6 Groundwater

A specialist groundwater assessment was undertaken by GeoPollution Technologies Pty Ltd for the site in October 2015. Refer to Appendix E for the full Specialist Report. The main findings are as follows:

Aquifer Sensitivity: aquifer sensitivity is classified in terms of the boundaries of the aquifer, its vulnerability, classification and finally protection classification, which helps to provide a framework in the groundwater management process. The following information was obtained during the investigation:

- The underlying aquifer(s) can be regarded as a Major Aquifer System.
- The aquifer vulnerability can be regarded as High.
- The aquifer protection classification is Strictly Non-Degradation.

Based on the data collected, the groundwater pathway is currently not complete, as municipal water is supplied to the village and no groundwater users were encountered. However, should contaminants from the landfill (source) travel through the vadose zone to the aquifer (pathway) it is likely that groundwater (receptor) may be affected, as the geology on site is highly permeable. Therefore, lining of the landfill should be considered, after implementation of a monitoring network on site, review of monitoring data and evaluation of the risk profile for the site.

5.4 Biophysical Environment

5.4.1 Flora

According to the GIS data obtained, the study area falls within the Savanna biome SVl 18 Tembe Sandy Bushveld vegetation type. This vegetation type's distribution extends to a portion of the Maputaland lowveld, east of the Pongola River. Its southern extent occurs near the confluence of the Mkuze and Msunduzi Rivers and it lies between the SVl 20 Western Maputaland Clay Bushveld to the west and CB 1 Maputaland Coastal Belt to the east. An isolated patch can be found east of the town of Hluhluwe. This vegetation type generally occurs at an altitude of 40–140 masl. The SV18 vegetation type is characterised by extensive flat plains to slightly undulating in places with open to closed woodland with a canopy of 5 – 10 m tall, and is dominated by leguminous woody and *Terminalia sericea* ('Silver cluster-leaf'), with a species rich shrub layer and grassy undergrowth (*Panicum, Perotis, Urelytrum agropyroides, Hyperthelia dissolute* and *Diheteropogon* species) (Mucina and Rutherford, 2006).

Kyllinga Consulting conducted a site visit on the 26th October 2015, and found that the site fall within the Tembe Sandy Bushveld vegetation type. The ecologist noted that the site can generally be differentiated between the natural sand forest vegetation and the disturbed area, the active landfill.

The ecological specialist's findings in terms of flora are summarised as follows (Refer to Appendix E for the full Ecological Assessment):

Sand Forest

The remaining vegetation on site and surrounding the site has a high canopy cover, but fairly low basal cover and closely resembles the threatened Sand Forest vegetation type. The vegetation is a short Sand Forest, with several shrubs and short trees, but few tall tree species. The few remnants of vegetation in the southern portion of the site have some characteristics of tall Sand Forest, but not enough is left to be classified into a different vegetation unit. No species of conservation importance were observed in this unit, but the vegetation type is considered to be of high conservation importance.

Active landfill

The vegetation in this area has mostly been removed, although a few large trees and a number of shrubs are still present, especially round the edges. A few more forb species are also present, including a few pioneer species. The invasive species *Psidium guajava* is also present in this area, but not the surrounding vegetation. In addition, only one other alien species is present in this unit. The vegetation cover in this unit is very low.

5.4.2 Fauna

As the site consists of an existing landfill, it is not anticipated that significant faunal communities exist, although there is a significant portion of the site that is not covered by the landfill. The ecologist's findings are detailed in the Ecological Assessment Report (Appendix E) and are briefly summarised here.

5.4.2.1 Mammals

Several mammal species of conservation importance have been recorded in the quarter degree catchment, several of which were recorded in the Tembe Elephant Park. A few of these species may be present in the remaining habitat on site, and include (with their Red List categorisation): Giant Sable Antelope (Vulnerable), Suni (Vulnerable), African wild dog (Endangered), Lion (Vulnerable), Four-toed Elephant Shrew (Endangered), Ground Pangolin (Vulnerable), Bushveld Gerbil (Data Deficient), Single-Striped Lemniscomys (Data Deficient).

5.4.2.2 Avifauna

A number of bird species of conservation importance may occur on the site, such as: Half-collared Kingfisher (Near threatened), Plain-backed Sunbird, Tawny Eagle (Endangered), Swamp Nightjar (Vulnerable), Neergaard's Sunbird (Vulnerable), Southern Banded Snake-eagle (Critically Endangered), African Marsh-harrier (Endangered), Saddle-billed stork (Endangered), Black-bellied Bustard (Near threatened), Yellow-billed stork (Endangered), African Pygmy-Goose (Vulnerable), Great White Pelican (Vulnerable), Pink-backed pelican (Vulnerable), Martial eagle (Endangered), African Broadbill (Vulnerable), African Crowned Eagle (Vulnerable), Caspian Tern (Vulnerable), Bateleur (Endangered).

The following bird species were observed on site during the site visit: Common Mynah, Zitting Cisticola, Pied Crow, Common House-martin, and the Barn (European) Swallow.

5.4.2.3 Herpetofauna

Several reptile and frog species have been recorded in the greater area; none of which are of conservation importance.

5.4.2.4 Invertebrates

Several butterfly species and two scorpion species have been recorded in the greater area, none of which are threatened species. Two species of conservation importance are potentially present on the site; namely a snail species, *Edouardia conulus*, and a butterfly species, *Teriomima zuluana*.

5.5 Social Environment

5.5.1 Population

The local population of the ULM in 2001 was estimated to be 142,565 and increased to 156,736 in the 2011 census (Stats SA, Census 2011). This population increase has led to the number of households increasing by 60 181 households to a total of 33,857 households in 2011 (Stats SA, Census 2011). There is no population data for Skhemelele specifically.

The majority of the population within the municipal area falls within the Black African ethnic group, at 99.3%. 95.1% of people speak isiZulu as their first language. The majority of the residents within the municipality are below the age of 20 (Stats SA, Census 2011)).

5.5.2 Employment

The number of employed people in the ULM has increased slightly over the past 10 years. However, approximately 16 250 people between the ages of 15 – 65 are not economically active, and are currently dependent on a small economically active group. A significant characteristic of the LM population is the youth unemployment rate, which stands at 56.5% (Stats SA, Census 2011). The economy of ULM is based on agriculture, community development, retail, private household and informal sectors. These five sectors alone provide jobs to 11 160 persons within the municipal area. This accounts for 65% of employment within the ULM.

5.5.3 Education

There are no tertiary education facilities found in the ULM. Educational attainment is 81%, with 236 245 youngsters aged between 5 and 24 years attending school. About 22 274 (30.5%) of aged 20 and above have had no schooling, while 4,5% have attained tertiary education. 22,2% have attained matric. More males have attended higher education, although males also make up the highest proportion who have had no schooling at all (Stats SA, Census 2011).

5.5.4 Service Delivery

5.5.4.1 *Health Services*

ULM is served by two hospitals and 17 clinics. The hospitals are located in Mseleni and KwaNgwanase, while the clinics are strategically placed in areas with greater population densities. If a minimum radius of 10km for access to clinics and 50km for a hospital is applied, it appears that 91.6% of municipal households have access to health facilities (ULM Draft IDP, 2015/16).

5.5.4.2 Electricity

Eskom is the electricity service provider in the ULM. Eskom is in the process of implementing an electrification project in the municipal area. The ULM has informed Eskom of all planned housing developments (ULM Draft IDP, 2015/16).

5.5.4.3 Waste Management and recycling

The ULM removes refuse for 1.4% of the households on a weekly basis. The licensing of the Skhemelele and Mbazwana dump sites has been listed as a Critical Action Items in the ULM's IWMP (ULM IWMP, 2014).

5.5.4.4 Water and Sanitation

5.3% of households receive piped water within their dwelling. The main sources of water are boreholes (just under 14 000 households), or natural springs (approx. 10 000 households), and water vendors (just over 4 000 households) (ULM Draft IDP, 2015). 2,8% of households within the

municipality are fitted with a flush toilet connected to sewage (Stats SA, Census 2011). The highest percentage of households make use of a pit latrine (Stats SA, Census 2011).

5.5.4.5 Housing

The ULM has at times been described as having a lot of informal settlements; however it should be noted that the ULM is rural in character and as such 99% of the area is classified as rural. This is evident throughout the municipal area, with the housing typology such as it is and the dispersed rural settlements with poor road infrastructure interlinking them. Dwellings made of traditional materials are still prevalent. The municipality does not consider these to be “informal settlements”, generally because these communities often have some form of land tenure rights to settle where they are. The culture within the municipality however is such that residents do not seek Council approval of their structures before building, in addition to which residents often do not give consideration to the optimal placement of their dwellings in terms of the surrounding environment (ULM Draft IDP, 2015).

The ULM spans an area of approximately 3621 km^2. In terms of land tenure, an estimated 60% of the municipal area falls under Ingonyama Trust ownership with four tribal councils who are the custodians of the land, with the remaining 40% consisting of commercial farms and conservation areas (Stats SA, Census 2011). The ULM was established under the Municipal Systems Act; however by that time most of the unplanned rural towns and villages had already established, and as such the system of identifying suitable land for housing purposes was not practised. The ULM is currently drafting a Spatial Development Framework (SDF), as well as scheme(s) for Manguzi and Mbazwana towns, respectively. This is a twofold exercise that will involve a high level land identification and designation wherein, feasible land for future housing expansions will be identified and other subsequent specialist investigations will have to be undertaken for each specific land parcel. Parallel to this the uMkhanyakude District municipality’s district-wide Environmental Management Framework which will also serve to better support decision-making in the future (ULM Draft IDP, 2015).

5.5.5 Economy

Agriculture is the main economic activity in the ULM. The main agricultural sectors are poultry farming (44.9%), vegetable (23.1%) and livestock (16.9%). The vast majority of agricultural activity is subsistence. Most employed people work either in the government sector while others work in the informal sector. Tourism also makes a substantial contribution to the local economy by providing job opportunities for local people (Stats SA, Census 2011).

6. LEGISLATIVE FRAMEWORK

6.1 Introduction

The overarching legal framework pertinent to the licensing of the Skhemelele landfill site is NEMA and the associated Specific Environmental Management Acts (SEMAs). This section provides an overview of the policy and legislative context including the identification of all legislation, policies, plans, guidelines, spatial tools, municipal development frameworks and instruments applicable to the activity and which are to be considered in the EIA process.

6.2 Relevant National Legislation

6.2.1 The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)

6.2.1.1 Overview

NEMWA regulates waste management in order to protect human health and the environment, by providing reasonable measures for the prevention of pollution and ecological degradation, and for securing ecologically sustainable development. It also provides for national norms and standards for regulating the management of waste by all spheres of government, providing for specific waste management measures for licensing and the control of waste management and remediation activities associated with contaminated land. This legislation provides for compliance and enforcement of the above requirements.

6.2.1.2 National Standards for Disposal of Waste to Landfill

The DEA promulgated Regulations and Standards under NEMWA to regulate various aspects of waste management, including the design and classification of landfills. In addition to the existing Minimum Requirements, the following Regulations will also be applicable:

- Government Notice R.634 – Waste Classification and Management Regulations;
- Government Notice R.635 – National norms and standards for the assessment of waste for landfill disposal; and
- Government Notice R.636 – National norms and standards for disposal of waste to landfill.

As a result of the above, the design and classification of the Skhemelele Landfill will take these new Regulations on Norms and Standards into account.

6.2.1.3 Activities applicable to NEMWA

The closure of the Skhemelele Landfill includes activities listed in Categories A of Government Notice (GN) 37083 of November 2013, published in terms of Section 19(1) of NEMWA, as waste management activities that may have a detrimental effect on the environment and for which authorisation is required in the form of a Waste Management Licence. The relevant listed activities are provided in Table 6-1 for which authorisation by means of a BA application process must be obtained.

Table 6-1: Listed Activities in Terms of Category A and B of GN 37083 of November 2013

No. and Date of the Relevant Notice	Category A or B	Activity Number	Description of the Listed Activity
GNR 37083 of 29 November 2013 in terms of Section 19(1) of NEMWA	A	14	The decommissioning of a facility for a waste management activity listed in Category A or B of this Schedule.

6.2.2 National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended

NEMA provides a framework for cooperative environmental governance between the various spheres of government, by establishing principles for decision-making on matters relating to the environment. Furthermore, NEMA promotes Integrated Environmental Management (IEM) to ensure sustainable resource utilisation and development and requires that the DEA be the lead agent in ensuring effective custodianship of the environment. It also provides that sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where subjected to significant human resource usage and development pressure. The NEMA principles, contained in Section 2, clearly emphasize the need to protect threatened ecosystems and are binding on all organs of state including the local authorities. Furthermore, the principles essentially guide the interpretation, administration and implementation of the Act and any other law concerned with the protection of the environment. An overarching emphasis is the principle that development must be environmentally, socially and economically sustainable.

Section 23 of NEMA further determines that IEM should be employed when any policies, programmes, plans or projects are drawn up to minimise the impact on the environment. The duty of officials to prevent pollution and ecological degradation, to promote conservation and secure ecologically sustainable development and use of natural resources, originates from the Constitution and NEMA.

For a range of listed activities and depending on the scope of the activity, the responsibility to ensure compliance with NEMA and its suite of SEMAs has been devolved to the nine provincial departments.

Sections 24 and 44 of NEMA make provision for the promulgation of regulations that identify activities which may not commence without an Environmental Authorisation (EA). Thus, the EA application process and activities were detailed within the 2014 Environmental Impact Assessment (EIA) Regulations listed in Government Gazette No. 10328 of 4 December 2014 (GN 982, 983, 984 and 985). All activities listed in the abovementioned regulations shall be subject to an EIA process (i.e. Basic Assessment (BA) or Scoping and Environmental Impact Reporting (S&EIR) application processes) and will require EA from the relevant Competent Authority (CA). Section 24F of the NEMA prohibits the undertaking of identified listed activities except by virtue of being undertaken under the control of an EA from the relevant CA.

The presence of the disused borrow pits on the site triggers Activity 22 of Listing Notice 1 (GN 983), “The decommissioning of any activity requiring – (i) a closure certificate in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)”. This activity falls within the competency of Department of Mineral Resources (DMR). The EDTEA recommended that, since it would not be possible to integrate the two applications within this process, a condition be included in the waste licence that the LM undertakes the necessary mining closure licence application to the DMR for the borrow pits.

At this stage, no other applicable NEMA activities have been identified as having been triggered by the application. The scope of this project is to license the closure of the existing landfill.

6.2.3 National Water Act, 2008 (Act No. 36 of 2008)

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) provides a framework to protect, develop, conserve and manage the nation’s water resources. Water use is defined broadly in terms of NWA, and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation. In general a water use must be licensed (in terms of Section 21) unless it is listed in Schedule 1, is an existing lawful use, is permissible under a general authorisation, or if a responsible authority waives the need

for a licence. Section 21 of the NWA lists the water uses for which authorisation under the Act is required.

In terms of Section 19 of the NWA "An owner of land, a person in control of land or a person who occupies or uses the land on which … any activity or process is or was performed or undertaken; or … any other situation exists, which causes, has caused or is likely to cause pollution of a water resource must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring". These measures may include, but are not limited to:

- Measures to cease, modify, or control any act or process causing the pollution.
- Compliance with any prescribed waste standard or management practice.
- Containment or prevention of the movement of pollutants.
- Remediation of the effects of the pollution.
- Remediation of the effects of any disturbance to the bed and banks of a watercourse.

The NWA also provides for pollution prevention measures, with particular emphasis on water resource pollution. In accordance, the licensee shall ensure that activities impacting upon water resources and effluent releases are monitored for compliance with the applicable regulations. Emergency incidents involving water resources are included in the Act, requiring the polluter to remediate and mitigate the impacts of such an emergency incident.

The DWS will provide a Record of Recommendation in terms of the NWA and any other associated policies, plans, programmes, guidelines and regulations to the Competent Authority as part of the WML application process.

6.3 Additional Applicable Legislation

Additional legislation applicable to the Project is listed in Table 6-2.

Table 6-2: Summary of Applicable Legislation

Relevant Legislation	Sections	Applicability to the Project
Constitution of South Africa, 1996 (Act No. 108 of 1996)	Chapter 2	Bill of Rights
	Section 24	Environmental rights
	Section 25	Rights in property
	Section 32	Administrative justice
	Section 33	Access to information
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	Sections 56 and 57	Protection of threatened or protected species
	Sections 65 -73	The control of alien species, invasive species and genetically modified organisms.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) and regulations	Section 5, 6	Implementation of control measures for alien and invasive plant species, especially in urban areas
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)	Section 32	Control of dust
	Section 34	Control of noise
	Section 35	Control of offensive odours

Relevant Legislation	Sections	Applicability to the Project
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and regulations	General Administration Regulations GN R929 of June 2003	Material Safety Data Sheets must be made available at the request of any Interested and Affected Party (I&AP)
	Section 8	General duties of employers to their employees
	Section 9	General duties of employers and self-employed persons to persons other than their employees
Hazardous Substances Act, 1973 (Act No. 15 of 1973) and regulations	As Type 2, 3 and 4 waste may be disposed of at the existing Landfill, the controls of the Hazardous Substances Act must thus be complied with	
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947) and regulations	Sections 3 to 10	Control of the use of registered pesticides, herbicides (weed killers) and fertilisers. Special precautions must be taken to prevent workers from being exposed to chemical substances during alien vegetation control programmes
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)	Chapter 4, 5	Fire prevention, management and control measures to be implemented
National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977)	Section 4	Local Authority approval of plans to erect buildings like weighbridges, admin buildings, etc.

6.4 Local Legislation and Policy Framework

The EIA process must consider the planning policies that govern the study area to ensure that the scale, density and nature of activities/developments are harmonious and in keeping with the sense of place and character of the area.

The district municipality and EDTEA are currently developing a district-wide Environmental Management Framework (ULM IWMP, 2014). The municipal-scale draft Spatial Development Framework (SDF) and a Land Use Management System (LUMS) for Mbazwana and Manguzi are still underway. Enforcement of both these land use management tools and a municipal wide scheme to be planned for, will assist to meet the pre-requisites of the KZN Planning and Development Act. The municipality is to provide the framework to guide the overall spatial distribution of current and desirable (future) land uses within the municipality (ULM IDP, 2014/2015).

6.4.1 KwaZulu-Natal Provincial Spatial Development Framework (SDF), 2011/2012

The KZN Provincial Spatial Development Strategy sets out to:

- Be the spatial expression of the Provincial Growth and Development Strategy (PGDS) and provide spatial context for proposed strategic interventions;
- Provides a set of normative principles or departure points that guide the Province's approach to dealing with socio-economic issues that are manifested spatially;
- Provide a basis for informed consensus on the province's spatial priorities by providing a map giving guidance for the future spatial development of the Province based on Broad Provincial Spatial Planning Categories (BPSPCs) and a series of other relevant features;

- Assist to prioritise and align where government directs its investment and development initiatives to ensure sustainable and maximum impact;
- Capitalise on complementarities and facilitate consistent and focused decision making,
- Guide municipal integrated development plans (IDPs), spatial development frameworks (SDFs) and provincial and municipal framework plans (i.e. sub-SDF spatial plans); with normative principles, approach and content.
- Provide clear intent to the private sector about desired development directions;
- Increase predictability in the development environment.

The KZN Provincial SDF has identified the uMhlabuyalingana LM as a local municipality with a notably high dependency ratio, thus requiring special assistance and attention.

In promoting growth and development within the uMkhanyakude District Municipality as well as supporting the proposed spatial structure and areas in need of intervention, a number of provincial catalytic projects are envisaged within the district which are applicable to the Skhemelele site:

- Nature Based Tourism
- iSimangaliso Wetland Park
- Small Town Regeneration
- Tembe Eco Tourism
- Rural Service Centres
- School Greening

6.4.2 uMhlabuyalingana Local Municipality Draft IWMP, 2014

The uMhlabuyalingana Local Municipality commissioned an Integrated Waste Management Plan (IWMP), the Draft of which was published in April 2014. The overall objective of the IWMP is to integrate waste management of the ULM where possible with the services offered in adjacent Local Municipalities. The main aims for the project are:

- Compile a local level IWMP, taking into account existing systems and practices in effect within the Local Municipalities;
- Draw attention to existing practices which impact on pollution avoidance, prevention and minimization at source within the Local Municipality;
- Make appropriate recommendations to manage the impact of pollution and waste on the receiving environment in the Local Municipality;
- Assess whether waste management takes place in a holistic, integrated and comprehensive manner throughout the wastes' life cycle;
- Identify, with the assistance of LM, areas of opportunity / need in previously un-serviced rural communities that will need to be considered for possible implementation of waste service delivery; and,
- Align the Local IWMP with the Local IDP process.

The IWMP listed the licensing of the Skhemelele and Mbazwana waste sites, as well as the development of waste drop-off centres (i.e. waste transfer stations) as Critical Action Items (items 8.1.1 and 8.1.13).

6.4.3 uMhlabuyalingana Draft Integrated Development Plan (IDP), (2015-16)

The IDP seeks to integrate and balance the economic, ecological and social pillars of sustainability to ensure effective participatory and responsible service delivery. The 3rd revision IDP mostly focuses on assessing and reporting on strategic set in the 5 year plan. The LM Integrated Development Plan (IDP) was compiled to be aligned with a range of National and Provincial policy documents. In terms of the Service Delivery Agreement (Outcome 9), the first priority of relates to ensuring that

“municipalities meet the basic service needs of communities”. This agreement specifically aims to improving access to basic services.

A lot of work needs to be done to ensure that proper waste management within ULM is carried out. The LM has opted to use a Service Provider to assist with waste service delivery and to reach the most remote areas of the LM. ULM is currently looking at projects that will enhance its revenue and promote job creation from the very waste management service it provides.one focus for the municipal area is economic development through tourism. In order to achieve this, sufficient waste management infrastructure must be in place.

7. PUBLIC PARTICIPATION PROCESS (PPP)

The Public Participation Process (PPP) is an integral part of the EIA process. The objectives of PPP in an environmental process are to provide sufficient and accessible information to stakeholders in an objective manner to assist them to:

- Raise issues of concern and suggestions for enhanced benefits;
- Verify that their issues have been recorded and considered in the environmental investigations;
- Assist in commenting on feasible alternatives;
- Contribute relevant local information and knowledge to the environmental assessment; and,
- Comment on the findings of the environmental assessment.

The approach towards any PPP is dependent on the details of the project. Each project has a particular geographic and technical nature, and hence the PPP should be structured accordingly. Where possible, and within the required statutory frameworks, it is also desirable to structure such a process to address the process needs of I&APs.

7.1 Identification and Registration of I&APs

At the time of compiling this report, the database contained stakeholders across a range of sectors and spheres of government, including:

- National Government;
- Provincial Government;
- Local Government;
- Landowners;
- Agriculture;
- Business and Industry (mining and commercial); and
- Environmental groups.

AECOM made an effort to ensure that individuals and/or organisations were identified from an institutional as well as a geographical point of view. Note that the I&AP database reflects all stakeholders for all allocated landfills to be licensed within KwaZulu-Natal province. Refer to **Appendix A** for the I&AP Database.

7.2 Announcement of the Proposed Project

Various mechanisms were used to create public awareness of the proposed WML closure application for the existing Skhemelele landfill. An opportunity to participate in the EIA process and to register as an I&AP was announced as indicated below:

7.2.1 Media

Newspaper advertisements notifying the public about the environmental application and opportunities to participate in the EIA process were placed in the following newspapers:

Table 7-1: Project Announcement Newspaper Advertisements

Newspaper	Distribution	Language	Date
Zululand Observer	Local	English	11 September 2015
The Mercury	Regional	English	11 September 2015

Copies of the Newspaper Advertisements are included in **Appendix A**.

7.2.2 On-site Notices

Two (2) A2-sized site notices (in English) were erected at various public places in the project area on the 2nd of September 2015.

Table 7-2: Site Notice Locations

Site Notice No	Location
1	Skhemelele Landfill Entrance Fence
2	uMhlabuyalingana Local Municipality Offices, Manguzi

Copies and photographs of the site notices are provided in **Appendix A**.

7.3 Dissemination of Information

Information was disseminated to identified and registered I&APs primarily by means of a Background Information Document (BID) and Notification letters.

7.3.1 Background Information Document

The BID has been useful in providing background information to the public on the proposed waste licence application for the existing Skhemelele landfill. Furthermore, it provides information on the processes that will be followed and the contact details of the PPP Consultant. The BID was distributed to all I&APs together with the notification letter described below. A copy of the BID is provided in **Appendix A**.

7.3.2 Request for Registration and Notification of the Draft Basic Assessment Report Review Period

A notification letter announcing the WML application and requesting I&APs to register and/or review and comment on the DBAR was distributed to all identified and registered I&APs on the project's database. A copy of the notification letter is provided in **Appendix A**.

The DBAR will be available for a thirty (30) calendar day review period from 04 December 2015 – 25 January 2016 (excluding public holidays and the period from 15 December to 05 January). The DBAR will be available at the following venues:

Table 7-3: Venues for draft Basic Assessment Report

Venue	Address
uMhlabuyalingana Local Municipality Offices: Manguzi	R22 Main Road, 01 Manguzi, Manguzi
Skhemelele Waste Management Facility	P522 that intersects with the D1861 road near Lulwane to the west, and the R22 to the east

Electronic copies of the DBAR are available on the project website www.deawaste2015.co.za.

Refer to **Appendix A** for a copy of the notification letter.

7.4 Comment and Response Report

All issues and concerns raised by I&APs during the BA process, will be recorded and responded to in the Comments and Responses Report (CRR) which will form part of the FBAR. No comments have been received to date.

8. ENVIRONMENTAL IMPACT ASSESSMENT

8.1 General

The purpose of this section is to provide an assessment of each of the identified potentially significant impacts and risks associated with the Project, i.e. the closure of the Skhemelele landfill site. The following environmental impacts have been identified.

8.1.1 Planning, Design and Construction Phase

As this application is for the closure/ decommissioning of an existing illegal landfill site no impacts are associated with the planning, design and construction phase of the Project.

8.1.2 Operational Phase

The landfill site is to be closed, thus the operational phase has already occurred and ended.

8.1.3 Decommissioning and Closure Phase

Impacts that may result from the decommissioning and closure phase:

- Impacts on geographical and physical aspects
  - Soil pollution
  - Water pollution
  - Fire
- Impact on biological aspects
  - Fauna and flora
- Impacts on air quality
  - Dust fallout
- Impacts on socio-economic aspects
  - Health and Safety
  - Employment (positive)
  - Illegal dumping
- Visual impacts (positive and negative)
- Noise impacts

The negative impacts will be discussed in the impact assessment below. Engineering and management requirements for closure are included in the EMPr (Appendix F).

8.2 Impact Assessment Methodology

The impact assessment methods used are in accordance with the requirements of the 2014 EIA Regulations published in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

The methodology for assessing impacts was practised by using techniques for Risk Assessment as found in the South African National Standard (SANS) 31010 of 2010. The National standards are identical to IEC/ISO 31010:2009 and are adopted with the permission of the International Electrotechnical Commission and the International Organisation for Standardization.

Risk assessment does not make use of one method alone; there are various tools available for assessing impacts. The Leopold Matrix is utilised, whereby criteria are mainly used to determine factors such as – probability, duration, extent etc. This method was practised by making use of P.J.

Aucamp (2009) (A practical guide for the discerning practitioner, page 74, based on the previous EIA regulations for risk assessment).

The Leopold Matrix is a qualitative Environmental Impact Assessment (EIA) method developed in 1971. The system consists of a matrix with columns representing the various activities of the project, and rows representing the various environmental factors to be considered. The intersections are filled in to indicate the magnitude (from -10 to +10) and the importance (from 1 to 10) of the impact of each activity on each environmental factor.

"Measurements of magnitude and importance tend to be related, but do not necessarily directly correlate. Magnitude can be measured, in terms of how much area is affected by the development and how badly, but importance is a more subjective measurement. While a proposed development may have a large impact in terms of magnitude, the effects it causes may not actually significantly affect the environment as a whole. The example given by Leopold is of a stream that significantly alters the erosion patterns in a specific area, which will have a significant magnitude, but may not be important, provided the stream in question is swift moving and transports large amounts of soil anyway. In this case, an impact of significant magnitude may not actually be important to the environment in question" (Leopold *et al*, 1971).

It should be noted that there is currently in South Africa no mention of a right or wrong way of assessing impacts. The method used is decided upon by the Environmental Assessment Practitioner (EAP). Hence the following definitions are applied to the assessment criteria used to assess the significance of potential impacts pre- and post- mitigation.

ASSESSMENT CRITERIA	CHARACTERISTICS
Extent	**The physical and spatial scale of the impact.** **Site:** the impacted area is only at the site – the actual extent of the activity; **Local:** the impacted area extends to the surrounding, the immediate and the neighbouring properties; **Regional**: the impacted area could be as wide as the municipal area or at a provincial level; and **National:** the impact can be considered to be of national importance.
Duration	**The lifetime of the impact is measured in relation to the lifetime of the proposed development.** **Short term:** the impact will be for 0 – 3 years, or only last for the period of construction; **Medium term:** three to ten years; **Long term:** longer than 10 years or the impact will continue for the entire operational lifetime of the project; and **Permanent:** this applies to the impact that will remain after the operational lifetime of the project.
Intensity	**This is the degree to which the project affects or changes the environment.** **Low:** the change is slight and often not noticeable, and the natural, cultural or social functions and processes are minimally affected; **Medium:** the environment is remarkably altered, but still functions in a modified way; and **High:** functioning of the affected environment is disturbed and can cease.
Probability	**This is the likelihood or the chances that the impact will occur.** **Low:** during the normal operation of the project, no impacts are expected; **Medium:** the impact is likely to occur if extra care is not taken to mitigate them; and **High:** the environment will be affected irrespectively; in some cases such impact can be reduced.
Nature	**Description of the impact as positive, negative or neutral.**
Confidence	**The level of information/knowledge available to the EAP for impact assessment purposes.** **Low:** the judgement is based on intuition and not on knowledge or information; **Medium:** common sense and general knowledge informs the decision; and **High:** scientific and or proven information has been used to give such a judgement.
Consequence	**A combination of extent, duration and intensity.** **Low:** low and medium intensity, short and medium term duration and site or local level extent;

ASSESSMENT CRITERIA	CHARACTERISTICS
	Medium: low and medium intensity, long term or permanent duration at a region or national level extent; OR low and medium intensity, long term or permanent duration and site or local level extent; OR high intensity, short to medium term duration at site or local level; OR high intensity, long term or permanent duration at site or local level; and **High:** high intensity, long term or permanent at a regional or national level.
Significance (before and after mitigation)	**A synthesis of the characteristics described above and assessed as low, medium or high. A distinction will be made for the significance rating without the implementation of mitigation measures and with the implementation of mitigation measures.** **Low:** low consequence and unlikely, probable or definite probability; medium consequence and unlikely probability; **Medium:** medium consequence and probable or definite probability or high consequence and unlikely probability. The impacts require attention and mitigation is required to reduce the negative impacts; and **High:** high consequence and probable or definite probability. Mitigation is crucial.
Cumulative Impacts	**The possible cumulative impacts will also be considered. Cumulative impacts have incremental impacts of the activity and other that past, present and future activities will have on a common resource.** **Low:** there is sufficient capacity of the environmental resources within the geographic area to respond to change and withstand further stress; **Medium:** the capacity of the environmental resources within the geographic area to respond to change and withstand further stress is reduced; and **High:** the capacity of the environmental resources within the geographic area to respond to change and withstand further stress has been or is close to being exceeded.

8.3 Impact Assessment

8.3.1 Planning, Design and Construction Phase

As this application is for the closure/ decommissioning of an existing illegal landfill site no impacts are associated with the planning, design and construction phase of the Project.

8.3.2 Operational Phase

The landfill site is to be closed, thus the operational phase has already occurred and ended. Engineering and management requirements for closure are included in the EMPr (Appendix F).

8.3.3 Potential impacts during the decommissioning and closure phase

Potential impacts on geographical and physical aspects:	It is not foreseen that the closure of the landfill will have any negative impacts on geographical or physical aspects as the project area has already been altered / disturbed. However, it is foreseen that the closure of the landfill will have positive impacts on the physical environment, as the landfill area will be decommissioned and rehabilitated to mitigate and minimise surface and groundwater contamination through leachate production. The borrow pit areas will also be reshaped and contoured to blend in with the surrounding environment.
Potential impact on biological aspects:	It is not foreseen that the closure of the landfill will have any negative impacts on biological aspects as the project area has already been altered / disturbed. Positive impacts are anticipated from the closure of the existing landfill, as the area will be rehabilitated to blend in with the surrounding environment.
Potential impacts on socio-economic aspects:	Closure and rehabilitation activities will lead to the positive impact of additional (albeit temporary) employment opportunities within the uMhlabuyalingana LM.
Potential impacts on cultural-	It is not foreseen that the closure of the landfill will have any impact on cultural-historical aspects as the project area has already been altered / disturbed.

historical aspects:	

Potential visual impacts:	It is anticipated that the decommissioning of the existing landfill will have a neutral to positive impact on the visual environment, as the site will be rehabilitated.

Potential noise impacts:	
Nature of impact:	Noise generated as a result of machinery used and personnel required to implement the closure/ decommissioning activities on site.
Extent and duration of impact:	Site and Short Term
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	• Servicing of all vehicles and machinery to ensure good working order; and, • Use of silencers and mufflers on potentially noisy equipment.
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential impacts due to air and dust emissions:	
Nature of impact:	Emissions from vehicles transporting waste to and from the Skhemelele waste transfer station, as well as other vehicles and equipment on site may cause a temporary decrease in air quality within the immediate surroundings. Similarly, dust generated during closure and rehabilitation activities may negatively impact on the surrounding areas ambient air quality.
Extent and duration of impact:	Local and Short-Term
Probability of occurrence:	Low
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	• All reasonable measures should be taken to minimise air emissions in the form of smoke, dust and gases from vehicles/ equipment used on site. • No fires are allowed. • The Landfill Supervisor shall implement measures to restrict the generation of dust during rehabilitation activities. • The Landfill Supervisor shall control dust from spoil dumps or stockpiles by ensuring that they are kept

	covered or must have a suitable dust palliative applied (such as water or commercial dust suppressants) to prevent windborne dust pollution.
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential impact on health and safety:	
Nature of impact:	Health and safety incidents to workers during closure and rehabilitation activities.
Extent and duration of impact:	Local
Probability of occurrence:	Medium
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	High
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	• Safety training of staff is required to minimize accidents. • All staff are required to wear the required Personal Protective Equipment (PPE) at all times. • Staff must not be permitted near the edges of the borrow pit sides, to prevent the ground collapsing underfoot.
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential impact on health and safety:	
Nature of impact:	Movement of operational vehicles and equipment or danger associated with open areas (trenches, unstable ground etc.) may lead to potential safety impacts to the public if not demarcated as no go zones.
Extent and duration of impact:	Site
Probability of occurrence:	Medium
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be mitigated:	High
Proposed mitigation:	• The site must have access control. The public will not be allowed near the landfill. • On site vehicles will be fitted with reversing horn. • Staff on site will wear PPE and reflective clothing. • Open excavations will be marked with danger tape. • Vehicles must not be permitted near the edges of the borrow pit sides, to prevent the ground collapsing.
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential impact on surface water and soils:	
Nature of impact:	Contamination of soils and surface water due to hydrocarbon spills from vehicles/ equipment or other hazardous substances used during rehabilitation.
Extent and duration of impact:	Local
Probability of occurrence:	Medium
Degree to which the impact can be reversed:	Medium
Degree to which the impact may cause irreplaceable loss of resources:	Low-Medium
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	• Precautionary measures must be taken to prevent any form of pollution. • Accidental pollution incidents shall be reported to the Municipal Manager immediately after they occur and shall be cleaned up (to the satisfaction of the ECO) by the Landfill Supervisor or a nominated clean-up organisation. • Vehicle and plant maintenance shall be confined to the areas demarcated for this purpose. Should any amount of fuel, oil, transmission or hydraulic fluids be spilled onto the soils, the Municipal Manager or ECO shall be informed immediately. Tests must be conducted to determine the extent of soil contamination as soon as a spillage occurs. The polluted soil shall be rehabilitated or remediated to the satisfaction of the ECO. • On-site stormwater management shall be to the satisfaction of the ECO. • Any spillage of waste, caused by any party during the closure activities, shall be cleaned up immediately and appropriately disposed of.
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential impact on water resources:	
Nature of impact:	Surface and groundwater water pollution may occur after closure if the engineering design/ instructions are not correctly implemented on site.
Extent and duration of impact:	Local
Probability of occurrence:	Medium
Degree to which the impact can be reversed:	Medium
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Cumulative impact prior to mitigation:	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	• A professional engineer must provide detailed closure drawings and oversee and sign off on the closure of the landfill. • Maintenance of the site is ongoing until vegetation establishment has been completed. • The installation of stormwater management measures, such as intercept drains and conservancy tanks, must be regularly checked for damage and proper functioning.

	• Water collected in the conservancy tank (if applicable) must be analyzed for potential contamination. • Shaping and capping of the site is to be done to reduce the potential for future water pollution. • A leachate collection system is to be installed and monitored for 18 months. • A monitoring borehole is required downstream of the landfill. Water Levels should be measured monthly and the readings recorded against time and date. • Water samples should be taken at least every 6 months, preferably in April and October (end of summer and winter) and the samples sent to a reputable lab for analysis. Refer to Appendix F for further detail). • Field readings should also be taken. • A monitoring report done by a geohydrologist should be compiled at the end of the 18 months, using the monitoring data collected. This report will then be evaluated to determine whether further monitoring may be needed.
Cumulative impact post mitigation:	Unknown
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential illegal dumping/ littering impacts:	
Nature of impact:	Night-time and / or weekend fly tipping (illegal dumping) may result in dumping of unacceptable hazardous waste steams increasing environmental, health and safety impacts and risks including: • Changes in the expected composition of leachate from the waste disposal facility resulting in the pollution of soil and water resources. • Changes in expected landfill gas emissions resulting in flammability, toxicity, asphyxiation and other hazards as well as objectionable odour negatively impacting on on-site personnel (and other on-site persons) health and safety. • The increase of the landfill footprint in instances of uncontrolled dumping of wastes. • Educate people on the value and need for recycling. • Do not dispose of abattoir waste at the site.
Extent and duration of impact:	Local
Probability of occurrence:	High
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be mitigated:	High
Proposed mitigation:	• All existing fencing shall be maintained to prevent access for illegal dumping. • The local community shall be informed of the site closure and made aware of alternatives through public meetings, the placement of notices in local newspapers, etc. • The Municipal Manager shall ensure placement of signage close to the road informing the public of site closure and providing details on alternative disposal sites or facilities. • Maintain security at the site for a short period after closure to prevent potential illegal dumping and / or

	vandalism. • Placement of skips near the community residential areas / notices informing community members of the waste transfer station for use to safety dispose of their waste.
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Loss of habitat and indigenous species	
Nature of impact:	The habitat on site is partially transformed by the landfill in place. Some habitat and indigenous species remain on site and adjacent to the site. This habitat falls within the Sand Forest vegetation type, which is protected under protected Black Rhino Range ecosystems (NEMBA threatened and protected ecosystems). The site will be licensed for closure. Rehabilitation and closure activities may result in impacts to the vegetation if unrestricted movement of vehicles area allowed.
Extent and duration of impact:	Local
Probability of occurrence:	High
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low - Moderate
Cumulative impact prior to mitigation:	High
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	• No additional Sand Forest vegetation or trees on site may be removed for rehabilitation and closure activities. • Confine the litter to the site. • The planting of tree species indigenous to Sand Forest would improve rehabilitation, should saplings be available. • Vehicle movement must be restricted to the fenced area and the road to the landfill and should not disturb undisturbed vegetation and habitat. • The northern boundary of the site must be fenced. •
Cumulative impact post mitigation:	Medium
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High

Loss of habitat for species of conservation importance	
Nature of impact:	Several species of conservation importance may potentially be present in the area, within the remaining Sand Forest habitat on site and surrounding the site. Activities

	conducted for closure and rehabilitation may impact on remaining habitat on site and surrounding the site..
Extent and duration of impact:	Local
Probability of occurrence:	High
Degree to which the impact can be reversed:	Low - Medium
Degree to which the impact may cause irreplaceable loss of resources:	Low - Moderate
Cumulative impact prior to mitigation:	High
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	• [illegible] • Do not clear additional areas of vegetation. It is however preferable that the vegetation on site is cleared, rather than additional Sand Forest areas at another site. • Vehicle movement must be restricted to the fenced area and the road to the landfill. • Confine the litter to the site. • Maintain the fence around the site. • No additional Sand Forest vegetation or trees on site may be removed for rehabilitation and closure activities. •
Cumulative impact post mitigation:	Medium
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High

Potential impact of alien invasive plants	
Nature of impact:	Invasive plant species tend to establish in disturbed areas. The species must however be transported to these areas in some way. The only invasive plant species recorded on site is the category 3 invasive shrub *Psidium guajava*. The species are present in low numbers and does not appear to be present in the surroundings. Activities conducted for closure and rehabilitation may result in the spread of alien invasive plants into the surrounding habitat..
Extent and duration of impact:	Local
Probability of occurrence:	High
Degree to which the impact can be reversed:	High with management
Degree to which the impact may cause irreplaceable loss of resources:	Moderate - High
Cumulative impact prior to mitigation:	Medium (increased potential in spreading of alien invasive plants in the area)
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	• Maintenance of the site is ongoing until indigenous vegetation has successful established on site. • Any alien plants identified must be removed from site and the immediate surroundings and destroyed. • Care must be taken not to control indigenous species.
Cumulative impact post mitigation:	Low

Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	No impact

Potential impact of pest species	
Nature of impact:	Landfill sites can potentially provide habitat and food to several indigenous and alien pests and scavengers, including rats (Rattus rattus & Rattus norvegius), mice (*Mus musculus*), jackals (*Canis sp*.), feral dogs (*Canis domesticus*) and feral cats (*Felis catus*). Several bird species including crows (*Corvus sp*.), as well as insect species such as flies (*Musca domestica*) may also become a problem.
Extent and duration of impact:	Local
Probability of occurrence:	Medium
Degree to which the impact can be reversed:	High with management
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	Medium (possible spreading of animal diseases)
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	• Do not dispose of abattoir waste at the site. • Cover newly dumped rubbish containing food scraps at least once a week. • If excessive numbers of flies are present the rubbish must be covered at the end of each day.
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

8.4 Environmental Management Programme

A Draft EMPr is included as part of the DBAR (refer to Appendix F) which is made available for public review; after which, it will be finalised and submitted as part of the FBAR to the KZN EDTEA. The EMPr outlines the impacts and associated mitigation measures for the closure and decommissioning phase of the project. The EMPr comprises:

- Summary of Impacts: The predicted negative environmental impacts for which mitigation is required, and positive impacts requiring enhancement.
- Description of mitigation measures: The EMPr identifies feasible and cost-effective mitigation measures to reduce significant negative environmental impacts to acceptable and legal levels. Mitigation measures are described in detail and will be accompanied by designs, equipment descriptions, and operating procedures, where appropriate, as well as descriptions of technical aspects of implementing the mitigation measures.
- Description of monitoring programme: The monitoring programme indicates the linkages between impacts, indicators to be measured, measurement methods and definition of thresholds that will signal the need for corrective actions.
- Emergency Action Plan: The identification of possible accidents during the construction and closure phase of the project, with measures on how they will be prevented and/or managed.
- Institutional arrangements depict and define the responsibilities for mitigation and monitoring actions.
- Legal enforceability: The key legal considerations with respect to the EMPr are:

  - Legal framework for environmental protection.
  - Legal basis for mitigation.
- Implementation schedule and reporting procedures that specify the timing, frequency and duration of the mitigation measures.
- Description of requirements for record keeping, reporting, review, auditing and updating the EMPr.

8.5 Final Basic Assessment Report

Following the review period, the DBAR will be updated with comments received from the public to produce a FBAR. The FBAR will be submitted to the KZN EDTEA for consideration and decision-making.

8.6 Decision-making Phase

Once the WML (positive or negative) has been issued, all registered I&APs will be notified of the decision and have the opportunity to appeal the decision should they not agree with the authorisation issued or any conditions of authorisation.

9. IMPACT STATEMENT AND CONCLUSION

Based on the findings of the Basic Assessment process, no impacts of high significance or environmental fatal flaws will result from the granting of a NEMWA WML (i.e. Closure License) for the existing landfill facility at Skhemelele. Noise and dust pollution during closure and rehabilitation will be of low significance due to the rural nature of the immediate surrounding environment and course sand which is unlikely to become airborne. There is, however, one dwelling very close to the site that might be affected temporarily by these works.

The closure and rehabilitation of the landfill will have positive environmental impacts in that the waste will be consolidated and either capped or removed from the site to minimise potential ground and surface water contamination. The re-shaping of the borrow pits would eliminate the safety risk that is currently posed by the steep and unstable sides of the one borrow pit in particular. All potential impacts during the closure phase of the Skhemelele landfill facility can be minimised through the implementation of the practical and appropriate mitigation measures contained in the EMPr, including the demarcation of undisturbed sensitive Sand Forest Habitat on site to deter rehabilitation and closure activities from entering these areas(Appendix F).

The no-go alternative would imply that the current state of the landfill site would remain as it is. In other words the landfill would continue to pose a pollution risk to the ground water and the site would not be rehabilitated. Any current leachate generation that might be occurring will continue to pollute soil and water resources and negative health and visual impacts on site would remain into the future.

Thus, based on the above, the EAP is of the opinion that the WML for the closure of the Skhemelele landfill site should be granted to the Applicant, with the following license conditions/ recommendations:

- Compliance to the mitigation measures and recommendations as indicated in the EMPr (Appendix F), specifically the demarcation of sensitive Sand Forest habitat on site which should not be disturbed during closure activities.
- An Environmental Control Officer (ECO) is to be appointed to audit compliance with the EMPr and WML. Once the closure of the site has been signed off by the Professional Engineer, the ECO is to submit a final audit report with findings and recommendations to the KZN EDTEA. The Department may decide to amend the frequency of future monitoring based on the results of the audit.
- All conditions contained within the DWS Record of Recommendation (RoR) should be captured as conditions of the WML issued.
- The presence of the disused borrow pits on the site triggers Activity 22 of Listing Notice 1 (GN 983), which falls within the competency of Department of Mineral Resources (DMR). A condition should be included in the waste licence that the LM undertakes the necessary mining closure licence application to the DMR for the closure and rehabilitation of borrow pits not rehabilitated as part of the WML activities.

The licensing of the illegal Skhemelele landfill is in accordance with an initiative driven by the DEA to ensure the legal compliance of all municipal landfills, which in turn ensures appropriate and effective environmental management of the sites. The application process is currently in the DBAR Phase, and its main purpose is to seek the input and comments from registered I&APs on the impact assessment conducted. Comments received during the public review period will be incorporated into FBAR, to be submitted to the KZN EDTEA for their approval.

10. REFERENCES

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Appendix A
Public Consultation Documentation

Appendix B
WML Application Form

Appendix C
Site Photographs

Appendix D
Site Locality

Appendix E
Specialist Studies

Appendix F
Environmental Management Programme

Appendix G
CVs of the Project Team