MYEZO ENVIRONMENTAL MANAGEMENT SERVICES

Environmental Stewardship

ZETHU – MATSULU - BASIC ASSESSMENT REPORT

MATSULU WASTE TRANSFER FACILITY FINAL BASIC ASSESSMENT REPORT

Document Name: ZMB-Report-BAR FOR MATSULU WASTE TRANSFER FACILITY

Date: 4 May 2018

Version 2 (Final)

Myezo Ref No: ZMB 2017/04/BA

DARDLEA Ref No: 17/4/WL/MP322/17/01 (Waste Licence)

DARDLEA Ref No: 1/3/1/16/1E – 118 (BAR)

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DOCUMENT CONTROL AND REVISION LIST

REVISION LIST

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
Rev 01	No amendment yet	B. Fatyi D. Kotane	B. Fatyi	
Rev 1	Amendments to update the draft BAR are outlined in the Table of Amendments in the section after the Table of Contents and before the Appendices.	B. Fatyi D. Kotane	B. Fatyi	26 February 2018
Rev 2	Amendments to include the findings from the Biodiversity Assessment Report. Sections specific to Biodiversity and associated impacts updated in Revised Final report and EMPr.	B. Fatyi D. Kotane		03 May 2018

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A. COMMENTS RECEIVED FROM COMPETENT AUTHORITY

Comments on the draft BAR were received from the Competent Authority on the 24 October 2017 and acknowledged on the 08 November 2017 (Appendix H1.2.3). The received comments are outlined below. Further communication related to the outstanding Biodiversity Study was received on the 28th March 2018 with a 40 day period timeline to allow registered IAPs an opportuntity to review the findings of the Biodiversity Assessment Report (Appendix D1).

Comment	**Response**	**Section of Report Addresses**
Proof of IAPs were provided with the perquisite 30 days	The emails and notification letters were sent to all Registered IAPs and the communication is attached as Appendix H2 and Appendix H4.2	Section 9.2.3.4, Section 9.2.3.6 Appendix H2 and Appendix H4.2
Consolidated Layout Plan of the Preferred site	Site Layout plans for the pre-impact evaluation site (Erf 312) and the post – impact evaluation site (Erf 302) are attached as Appendices. There is a post impact evaluation proposed site (Erf 302) that has been considered during the site selection process. Details on the process taken to consider Erf 302 as a post-impact evaluation is outlined in Section 3.1.3.1, Section 4.2, Section 4.12, Section 7.1.1, Section 8.1.1, Section 10.14	Section 3.1.3.1, Section 4.2, Section 4.12, Section 7.1.1, Section 8.1.1, Section 10.14 Appendix A1.1 Appendix A1.2
Confirmation of Rehabilitation plan on the existing illegal dumping site	Proposed Rehabilitation Plan: To clear the illegal dumping site by sorting into recyclables and non-recyclables. Non-recyclables will be taken to the Tekwane Waste Disposal Site. The local waste recyclable collectors will be engaged as part of the rehabilitation programme for the clean up and they be given recyclables to sell to the Recyclers. The municipality has since advertised for Waste Collection Services in November 2017 for the appointment of a Waste Contractor and a Waste Recycling Contractor to be sub-contracted to address both the lack of waste collection service and the illegal	Section 4.13.1 Appendix H2.2 Appendix H6

	dumping site. Discussions with KNP Socio Economic Development on potential engagement with the municipality and local waste recyclable collectors in relation to possible Enterprise Development Programme has been discussed on the 18 January 2018. Minutes of meeting attached as Appendix H2.2.	
Proof of Site Notices that were placed	Site Notice was placed on site and at strategic places, municipality offices, library	Section 9.2.3.1 Appendix H3.2
Issues and Response Report	The issues and comments received have been incorporated into the updating of the report and have been included as the Comments and Response Report.	Appendix H6
Finalisation of the Outstanding Biodiversity Study and comments from IAPs– 28 March 2018.	The Biodiversity Assessment Study has been commissioned and a Specialist appointed on the 13 April 2018. The Biodiversity Report has been submitted to Competent Authority (CA) for review on the 02 May 0218. A progress report on the Finalisation of the BAR has also been submitted to the CA. The report is attached as Volume 2 - Appendix D1.	Section 10.3.2 Appendix D1
Comments Received from Mr Eric Sambo		
Eric Sambo from Pollution and Waste Management division sent comments on the 02nd of November 2017. The main comments include: Diverting the road to the left of the proposed site to increase the proximity from the Crocodile River.	The issues and comments received have been incorporated into the updating of the report and have been included as the Comments and Response Report. The need for the diversion of the road no longer applies as the post-impact evaluation proposed site Erf 302 doe not need the road to be diverted and the illegal dumping site is further away from the new proposed site.	Appendix HA1.1, AppendixHA1.2.1 Appendix H 6

Document Name: ZMB -Table of Amendment – Updates to the Final BAR

Rev: 2

Date: 4 May 2018

Myezo Ref No.: ZMB 2017/04/BA
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DOCUMENT CONTROL AND REVISION LIST

REVISION LIST

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
0.1	The draft BAR Report (dBAR) has been submitted to the Competent Authority and all registered I&APs on the 27 September 2018. Hard copies of the dBAR were also placed at Matsulu Library and Mbombela Local Municipality offices.	D. Kotane B. Fatyi	B. Fatyi	Draft submitted 27 September 2017

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
1	The draft BAR Report has been updated to incorporate all the comments received from the Public participation process and additional information on additional sites considered from the post-evaluation process.	D. Kotane	B. Fatyi	15 October 2018 to 26 February 2018
Final Basic Assessment Report				
Cover Page Title and date	Cover page – Title changed to ZETHU – MATSULU BASIC ASSESSMENT – MATSULU WASTE TRANSFER FACILITY FINAL BASIC ASSESSMENT REPORT. Document Name: ZMB – Report – Final BAR for Matsulu Waste Transfer Facility Date: 26 February 2018 Rev 1	D. Kotane	B. Fatyi	26 February 2018
	Cover page – Title changed to ZETHU – MATSULU BASIC ASSESSMENT – MATSULU WASTE TRANSFER FACILITY FINAL BASIC ASSESSMENT REPORT. Document Name: ZMB – Report – Final BAR for Matsulu Waste Transfer Facility Date: 4 May 2018 Rev 2 (Final)	D. Kotane	B. Fatyi	04 May 2018
Section 1.3.1 Page 1	Section 1.3.1, Second paragraph, first sentence. This Final BAR Report has been drafted in accordance to the EIA Regulations, 2014 and adheres to the requirements contained in Appendix 1 of GNR 982, as noted in Table 1.3.1, which as such, provides the BAR structure. The supporting	D. Kotane	B. Fatyi	26 February 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
	documents are mentioned from each of the Sections follow that specific Section number and are called Annexures. The specific Appendices stipulated in the Regulations are referenced as Appendix A, B, etc.			
Section 3.1.7 Page 6	Add section on Co-ordinates of All and external corner points.	D. Kotane	B. Fatyi	26 February 2018
Section 3.1.8 Page 7	Added a Section on Post –evaluation considered selected site and alternatives. Insert Figure 3.1.8-1. Geographical coordinates of all external corners points of the site.	D. Kotane	B. Fatyi	26 February 2018
Section 4.2 Page 9	Project Description. Change the reflect the update of the post-evaluation site selection and Erf 302 as preferred site and not Erf 312 as previously stated in the draft BAR.	D. Kotane	B. Fatyi	26 February 2018
Section 4.3 Page 9	Included (Photo 4.3-1) at the end of the sentence (after waste streams).	D. Kotane	B. Fatyi	26 February 2018
Section 4.3 Page 10 Figure 4.2-1	Insert an A3 size map of the Local Setting Map.	D. Kotane	B. Fatyi	26 February 2018
Section 4.3 Page 11	Spell check box insert	D. Kotane	B. Fatyi	26 February 2018
Section 4.7.4 Page 13 Section 4.7.4 Third sentence	Water uses – added Ntsikazi River after natural water sources.	D. Kotane	B. Fatyi	26 February 2018
Section 4.9.2 Page 15	Added the Photo 4.2-1 after the paragraph. Cross referenced Photo 4.2-1 in Section.	D. Kotane	B. Fatyi	26 February 2018
Section 4.3	Changed Photo 4.2-1 to Photo 4.3-1.	D. Kotane	B. Fatyi	26 February 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
Section 4.9.2 Page 15	Closed page gap, bring Photo 4.3-1 to page 15 from page 16.	D. Kotane	B. Fatyi	26 February 2018
Section 4.9.2 Page 16	Moved Photo 4.2-1: Examples of sorted and baled recyclable material to pgae 15 and make photos a lighter shade.	D. Kotane	B. Fatyi	26 February 2018
Section 4.11 Page 19	Closed gap and moved Section 4.12 to page 19.	D. Kotane	B. Fatyi	26 February 2018
Section 4.12 Page 22	Inserted A3 size of Figure 4.12-2: Site layout with infrastructure of Erf 312 as previously considered preferred site. Inserted Erf 302 (newly considered preferred site) Inserted Erf 311 site alternative site 1 Inserted Erf 311 & Erf 97 as site alternative 2	D. Kotane	B. Fatyi	26 February 2018
Section 4.12.1 Page 23	Added sentence at end of paragraph: Due to the close proximity of the newly considered site, Erf 302, a solid wall will be considered to minimise the visual instrusion presented by the locality of the proposed site which is direclty opposite some households in Progressive Road.	D. Kotane	B. Fatyi	26 February 2018
Section 4.13 Page 24	Changed sentence to estimated quantities for each waste stream are provided in Sections 4.6.1 and 4.6.2. The actual quantities received will be determined during the waste stream analysis phase for the site.	D. Kotane	B. Fatyi	26 February 2018
Section 4.13.1 Page 25	Designs of storm water systems Added as after important.	D. Kotane	B. Fatyi	26 February 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
Section 5.2 Page 45	Table 5.2.1 Added a row with KNP Strategy on Socio-Economic development. Linkages of KNP Socio economic Development Strategy and their efforts in addressing illegal dumping and informal recyclable bottle material observed at the site.	D. Kotane	B. Fatyi	26 February 2018
Section 7.1 Page 47	Changed 7.1 Site Alternative S1 (preferred alternative) Site Erf 312 as the previously preferred site. Added Section 7.1.1 as Previously preferred site (Site alternative S1). Added a sentence: This site is no longer feasible for the proposed development due to the additional information analysed that reflects the existence of households within the proposed site (Erf 312). Added Section 7.1.2 as New Preferred Site S1 (Site Erf 302). Added paragraph as: The post –evaluation process of the proposed site that was undertaken with comments from the pubic participation process and site visits, the previously preferred site has changed from Erf 312 to Erf 302. The newly preferred site is now Erf 302.	D. Kotane	B. Fatyi	26 February 2018
Section 7.2 Section 7.2.1 Page 47	Site Alternatives Kept Section 7.2.1 as Site Alternative S2 Erf 311. Added Section 7.2.2 as Site Alternative S3 portion of Erf 311 and Erf 97..	D. Kotane	B. Fatyi	26 February 2018
Section 7.2.2 Page 48	Added Section 7.2.2 and this paragraph: The site is also on municipal property and not previously considered as an alternative site due to its close proximity to the KNP fence and Ntsikazi river. The location of the proposed Site Alternative	D. Kotane	B. Fatyi	26 February 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
	S3 presents challenges from a safety and environmental pollution perspective. The safefy of the animals within KNP, the workers at the proposed site and the community members adjacent to the proposed site.			
Section 7.2.2 Page 49	Added Location Map for the Site Alternative S3 (portion of Erf 311 and Erf 97).	D. Kotane	B. Fatyi	26 February 2018
Section 7.3 Page 50	Reduced gap and moved between Photo 7.3-1 and Alternative T2 (least preferred method).	D. Kotane	B. Fatyi	26 February 2018
Section 7.4 Page 51	Added impact to ground water quality and surface water quality due to potential pollution from soil erosion & surface run off. Safety risk to childres playing in the illegal dumping site is both a health and safety risk to the wellbeing of the children in the community. Health risk to hippos , crocodiles and fish due to plastics blown by wind into the Crocodile River.	D. Kotane	B. Fatyi	26 February 2018
Section 8 Page 52	Changed paragraph to include the changes of the previous preferred site and the new preferred site including additional site considered as an alternative. Add Section 8.1.2 as Newly Preferred site and considered alternatives post evaluation.	D. Kotane	B. Fatyi	26 February 2018
Section 9 Page 52	Public Participation Process. Added a paragraph on progress to date since the receiot of comments from the Competent Authority and the I&APs.	D. Kotane	B. Fatyi	26 February 2018
Section 9.2.3.3 Page 55	Added photographs of a local fisherman fishing on the 19 October 2018 and cross reference (Photo 9.2.3.3-1 and 9.2.3.3-2).	D. Kotane	B. Fatyi	26 February 2018 4 May 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
Section 9.2.3.4 Pagge 55	Changed 8th bullet from Legal dumping to Illegal dumping. Added to the last bullet: Potential presence of animails within the Crocodile river, crocodiles and hippos. Crocodile and hippos were observed during a site visit conducted on the 19th October 2018. Added photograph of Crocodiles and Hippos in the Crocodile river observed during the 19 October 2018.	D. Kotane	B. Fatyi	26 February 2018
Table 9.2.3.4 Page 56	Added to page 61 additional comments received from the comments and response report.	D. Kotane	B. Fatyi	26 February 2018
Section 9.2.3.5 Page 62	The sentence has been changed to: The final consultation with key stakeholders was not done due to lack of new information from specialists studies that were not commissioned. The specialist studies that were to be commissioned by the Mbombela Local Municipality (MLM) include the the Floodline Study as discussed during a Ward Councillor meeting held on the 08 May 2017 and the Tree Survey as recommended by the DARDLEA representative (Ms Sithole) and KNP representative (Ms Peterson) durng the site visit of the 19th October 2018. The minutes of the meeting of the 08 May 2017 and the site visit of the 19 October 2018 are attached as Appendix H2.2.	D. Kotane	B. Fatyi	26 February 2018
Section 9.2.3.6 Page 62	Updated Table 9.3.2.6-1 to reflect the progress to date. Update table from Activity 9 to Activity 18.	D. Kotane	B. Fatyi	26 February 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
Section 10 Page 64	Rephrased sentence to include the previously preferred site Erf 312 and the new preferred site Erf 302 at the beginning of the paragraph.	D. Kotane	B. Fatyi	26 February 2018
Section 10.3 Page 65	Moved the paragraph from page 65 to page 64.	D. Kotane	B. Fatyi	26 February 2018
Section 10.11 Page 75	Change the first sentence to include the previous preferred site and the new proposed preferred site.	D. Kotane	B. Fatyi	26 February 2018
Section 10.13.2 Table 10.13.2-1 Page 104	Add summary of impacts before the impact assessment table for impact 32 (b) Potential oil spills and leaks during offloading, loading and transportation for disposal. Added a sentence: Ensure each truck is equipped with a Mobile fire kit and fire exstinguisher that will be checked regularly as part of the Health and Safety daily checks and audits.	D. Kotane	B. Fatyi	26 February 2018
Section 10.13.2 Table 10.13.2-1 Page 108	Remove the highlight on the text: (General Operations and Maintenance) for impact 35. Trucks and vehicle maintenance.	D. Kotane	B. Fatyi	26 February 2018
Section 10.14 Section 10.14.1 Section 10.14.1.1	Rephrased the paragraphs to reflect the changes of the preferred site Erf 312 as no longer being the preferred site and Erf 302 as the new proposed preferred site. The addition of another considered site alternative as a portion of Erf 311 and Erf 97.	D. Kotane	B. Fatyi	26 February 2018
Section 10.14.3 Table 10.14.3.1 Page 119	Updated the Table with changes to parameters 6. Environmental status and 9. Current land use. To reflect the current land use status for Erf 312 as confirmed stablished houses observed on the previous proposed preferred site Erf 312. Also add	D. Kotane	B. Fatyi	26 February 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
	Site Erf 302 as a new proposed preferred site and prortion of Erf 311 and Erf 97 as site alternative S4 to the table for site selection matrix.			
Section 10.15 Page 120	Updated the concluding statement section to reflect the changes of the preferred site Erf 312 as no longer being viable as the preferred site and Erf 302 as the new proposed preferred site. The addition of another considered site alternative as a portion of Erf 311 and Erf 97.	D. Kotane	B. Fatyi	26 February 2018
Section 11.2 Page 122	Rephrased the third paragraph.	D. Kotane	B. Fatyi	26 February 2018
Section 11.2 Page 123	Cross reference the Table 10.4.3.1 in Section 10.4.3 after second bullet point.	D. Kotane	B. Fatyi	26 February 2018
Section 11.2 Page 123	Added bullets to list of comparative assessment aspects.	D. Kotane	B. Fatyi	26 February 2018
Section 13 Page 124 Table 13.1	Corrected the Application Reference numbers for BAR and Waste licence. Added section for new proposed site Erf 302 and its close proximity to the households on Progressive Road.	D. Kotane	B. Fatyi	26 February 2018
Section 13 Page 126 Table 13.2	Updated table and added accurate site distances for both the Crocodile River and Ntsikazi River.	D. Kotane	B. Fatyi	26 February 2018
Section 13 Page 127 Table 13.3	Reformatted the table to fit into page to ensure it does not overlap to page 128.	D. Kotane	B. Fatyi	26 February 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
Section 14 Section 14.1 Page 129	Added socio-economic development potential benefits and working relations between KNP and MLM and cross referenced Minutes of meeting with Ms Hilda Mthimunye attached as Appendix H2.2.	D. Kotane	B. Fatyi	26 February 2018
Section 14.1 Page 129	Updated the Site Alternatives section to reflect the changes of the preferred site Erf 312 as no longer being viable as the preferred site and Erf 302 as the new proposed preferred site. The addition of another considered site alternative as a portion of Erf 311 and Erf 97. Moved the Alternative S2 (least preferred alternative) to the next page 130.	D. Kotane	B. Fatyi	26 February 2018
Section 14.1 Page 130	Removed bold on text of first sentence. Added Portion of Erf 311 and Erf 97 as another considered site alternative and why it is considered as another least preferred alternative site.	D. Kotane	B. Fatyi	26 February 2018
Section 14,2 Page 130	Cross referenced to the Erf 312 Site Map layout superimposing the proposed activity, included cross reference to Erf 302 Site Map Layout superimposing the proposed activity.	D. Kotane	B. Fatyi	26 February 2018
Section 14.3 Table 14.3.1 Page 130	Updated the summary of potential impacts for traffic, dust pollution and noise to be high-medium (negative) before mitigation due to the close proximity of the new proposed preferred site Erf 302 and medium (negative) after mitigation. Added low (negative) after mitigation for wind blown litter.	D. Kotane	B. Fatyi	26 February 2018
Section 14.3 Table 14.3.3 Page 131	Updated the summary of potential impacts for traffic, dust pollution and noise to be high-medium (negative) before mitigation due to the close proximity of the new proposed preferred site Erf	D. Kotane	B. Fatyi	26 February 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
	302 and medium (negative) after mitigation. Added low (negative) after mitigation for wind blown litter.			
Section 15 Section 15.1 Section 15.1.1 – 15.1.2 Page 131	Updated the section on the progree to date on Specialists studies. Added to the list of studies to be commissioned a Tree Survey as per the recommendation of the Competent Authority representative and KNP representative on the site visit of 19th October 2018 cross referenced to Minutes of site visit attached as Appendix H2.2.	D. Kotane	B. Fatyi	26 February 2018
Section 15 Section 15.1.4 Page 131	Added Section 15.1.4 Tree Survey Study. Added an update of the progress with the recommended Tree Survey as per the recommendation of the Competent Authority representative and KNP representative on the site visit of 19th October 2018 cross referenced to Minutes of site visit attached as Appendix H2.2, highlighted the quotes received from Specialist (cross referenced as Appendix. I1.3 recommended by Mr Mtotywa of Department of Foresty (cross reference to verbal communication and emails received from Mr Mtotywa as Appendix I1.3.2) and that no Tree Survey Study was commissionerd by MLM to date.	D. Kotane	B. Fatyi	26 February 2018
Section 15 Section 15.2 Page 132	The updated EMPr with received comments and revised impact assessment is attached as Appendix F.	D. Kotane	B. Fatyi	26 February 2018
Section 16 Page 132	Added Tree Survey /Ecological Study as an additional bullet.	D. Kotane	B. Fatyi	26 February 2018
Section 17 Page 132	Added a paragraph in relation to the lack of information and findings from the above mentioned Specialist studies present a challenge in providing a	D. Kotane	B. Fatyi	26 February 2018

Revision	Nature of amendment	Compiled by	Approved by	Date of amendment
	complete impact assessment and impact statement of the proposed activity. The mitigation measure to the non-commissioned Specialist Studies will include that no construction or work to resume until the Specialist studies have been commissioned and their findings be reviewed and approved by the Competent Authority. Cross reference to the EMPr Table of mitigation measures.			
Section 18 Page 133	Updated section on the Recommendation from EAP with particular reference to the lack of findings to the Specialist Studies that were not commissioned.	D. Kotane	B. Fatyi	26 February 2018
Section 20 Section 20.1 Page 134	Inserted Signed Undertaking for EAP	D. Kotane	B. Fatyi	26 February 2018
Section 20 Section 20.2 Page 135	Inserted Signed Undertaking for Applicant	D. Kotane	B. Fatyi	26 February 2018
Section 22 Page 136	Inserted a paragraph on the Specialist studies that needed to be commissioned and to date there are no findings from the Specialists. All Terms of References, Communication and Quotes received relating to the engagement of Specialists as per recommendations from Competent Authority and IAPs is attached as Appendix. I1 for consideration by the Competent Authority.	D. Kotane	B. Fatyi	26 February 2018
References Page 137	Updated the List of References to include KNP Social Economic Development Division documents (Annual report, Strategy, Management Plan)	D. Kotane	B. Fatyi	26 February 2018
Appendices Page 138	Updated the List of Appendices and relevant attachments.	D. Kotane	B. Fatyi	26 February 2018

Abbreviations:

BAR - Basic Assessment Report
CBD - Central Business District
CDF - Conservation Development Framework
CPA - Catchment Protected Areas
CWDS - Tekwane West Central Waste Disposal Site
DEDET - Mpumalanga Department of Economic Development, Environment and Toursim (DEDET).
EAP - Environmental Assessment Practitioner
EMP – Environmental Management Plan
EMPr - Environmental Management Programme report
IAP – Interested and Affected Parties
IDP – Integrated Development Plan
GN - Government Notice
KNP – Kruger National Park
KNMP - Kruger National Park Management National Plan
MLM - City of Mbombela Local Municipality
MWTW - Matsulu Water Treatment Works
Myezo - Myezo Environmental Management Services
NEMA - National Environmental Management Act
NEMWA – National Environmental Management Waste Act
NEMBA - National Environmental Management Biodiversity Act
NEMPAA - National Environmental Management Protected Areas Act
NGO – Non-Governmental Organization
PNA - Priority Natural Areas
PTY – Private Company
SAHRA – South African Heritage Resources Agency
SANBI - South African National Biodiversity Institute
SDF - Spatial Development Framework
VPA - Viewshed Protected Area
ZCS - Zethu Consulting Service

1. INTRODUCTION

1.1 Background

The City of Mbombela Local Municipality (MLM) seeks to establish a Waste Transfer Station within Matsulu Township in Mandela Park within Ehlanzeni District Municipality, Nelspruit. The MLM appointed Zethu Consulting Services (ZCS) as their Professional Service Provider for the proposed project. Zethu Consulting Services has commissioned Myezo Environmental Management Services (Pty) Ltd (Myezo) as the Environmental Assessment Practitioner (EAP) for the project.

1.2 Objectives of the Study

The objective of the basic assessment process is to ensure that the environmental aspects surrounding the proposed development and activity are protected from potential negative developmental impacts presented by the establishment of a Waste Transfer Station in Matsulu. The process also seeks, through a stakeholder consultative process, to achieve aspects outlined below:

- Determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- Identify the alternatives considered, including the activity, location, and technology alternatives;
- Describe the need and desirability of the proposed alternatives;
- Undertake an impact and risk assessment process inclusive of cumulative impacts which focus on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives.

- Assess the risk of the impact to determine:
  - the nature, significance, consequence, extent, duration, and probability of the impacts occurring to;
  - the degree to which these impacts can either be reversed; may cause irreplaceable loss of resources; and can be managed, avoided or mitigated;

  The process seek to rank the site sensitivities and possible impacts the activity and technology alternatives might impose on the sites and location identified. This is done to:
  - identify and motivate a preferred site, activity and technology alternative,
  - identify suitable measures to manage, avoid or mitigate identified impacts, and
  - identify residual risks that need to be managed and monitored.
  - Compile an Environmental Management Programme (EMPr) to ensure all the potential identified impacts are mitigated, audited and monitored to protect the environment and human health.

1.3 Approach

1.3.1 Basic Assessment Report Requirements and Report Structure

The nature and all related developmental impacts for the proposed project are detailed in this final Basic Assessment Report (BAR). This report has been compiled in accordance with the requirements of the Environmental Impact Assessment EIA Regulations of December 2014. This Final Basic Assessment Report has been compiled following the information required as stated within the Regulations. Prior to the Inception meeting, a literature research and information collection process was undertaken to understand the Status Quo. The data collection and consolidation process included consultation with institutions such as the Council for Geoscience for geological data for the site.

This Final BA Report has been drafted in accordance to the EIA Regulations, 2014 and adheres to the requirements contained in Appendix 1 of GNR 982, as noted in Table 1.3.1., which as such, provides the BAR structure. The

supporting documents that are
mentioned from each of the sections follow the specific section number and are called Annexures. The specific appendices stipulated in the Regulations are referenced as Appendix A, B, etc.

Table 1.3.1: Content of a BA Report (2014 EIA Regulations)

2014 EIA Regulations	Description of EIA Regulations Requirements for BA Reports	Location in the BA Report
Appendix 1, Section 3 (a)	Details of – (i) The EAP who prepared the report; and the expertise of the EAP; and (ii) The expertise of the EAP, including a curriculum vitae.	Section 2 & Appendix G2
Appendix 1, Section 3 (b)	The location of the activity, including – (i) The 21 digit Surveyor General code of each cadastral land parcel; (ii) Where available, the physical address and farm name; (iii) Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties	Section 3
Appendix 1, Section 3 (c)	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Section 3.1.7 and Appendix A
Appendix 1, Section 3 (d)	A description of the scope of the proposed activity, including – (i) All listed and specified activities triggered; (ii) A description of the activities to be undertaken, including associated structures and infrastructure.	Section 4
Appendix 1, Section 3 (e)	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	Section 5
Appendix 1, Section 3 (f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Section 6
Appendix 1, Section 3 (h)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including- (i) Details of all alternatives considered; (ii) Details of the Public Participation Process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts- (aa) Can be reversed; (bb) May cause irreplaceable loss of resources; and (cc) Can be avoided, managed, or mitigated. (vi) The methodology used in deterring and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographic, physical, biological, social, economic, heritage and cultural aspects; (viii) The possible mitigation measures that could be applied and level of residual risk;	Section 7 & 8 Section 9 and Appendix H Section 9.2.3.4 Section 10 Section 10.11 Section 10.12 Section 10.13

	(ix) The outcome of the site selection matrix; (x) If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and; (xi) A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Section 10.13 Section 10.15 Section 10.15
Appendix 1, Section 3 (i)	A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including- (i) A description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.	Section 11 Section 11.1 Section 11.2
Appendix 1, Section 3 (j)	An assessment of each identified potentially significant impact and risk, including- (i) Cumulative impacts; (ii) The nature, significance and consequences of the impact and risk; (iii) The extent and duration of the impact and risk; (iv) The probability of the impact and risk occurring; (v) The degree to which the impact and risk can be reversed; (vi) The degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) The degree to which the impact and risk can be avoided, managed or mitigated.	Section 10 and Section 12
Appendix 1, Section 3 (k)	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report.	Section 10 and Section 13
Appendix 1, Section 3 (l)	An environmental impact statement which contains- (i) A summary of the key findings of the environmental impact assessment; (ii) A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.	Section 14 Section 14
Appendix 1, Section 3 (m)	Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr.	Section 15 and Appendix F
Appendix 1, Section 3 (n)	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.	Section 16
Appendix 1, Section 3 (o)	A description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 17
Appendix 1, Section 3 (p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.	Section 18
Appendix 1, Section 3 (q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised.	Section 19
Appendix 1, Section 3 (r)	An undertaking under oath or affirmation by the EAP in relation to- (i) The correctness of the information provided in the report; (ii) The inclusion of the comments and inputs from stakeholders and interested and affected parties; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	Section 20.1 and Section 20.2
Appendix 1, Section 3 (s)	Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts.	Section 21
Appendix 1, Section 3 (t)	Where applicable, any specific information required by the Competent Authority.	-
Appendix 1, Section 3 (u)	Any other matter required in terms of section 24(4) (a) and (b) of the Act.	-

1.3.2 Environmental Management Programme (EMPr)

An Environmental Management Programme (EMPr) has been compiled according to Appendix 4 of the GNR 982 of the EIA Regulations (2014) for the construction, operational and decommissioning phases of the project. The EMPr is attached as Appendix F.

2. FULL DETAILS OF THE EAP

2.1 Environmental Assessment Practitioner (EAP)

Myezo Environmental Management Services (Pty) Ltd (Myezo) has been commissioned by Zethu Consulting Services (ZCS) to conduct Basic Assessment Studies and compile a Basic Assessment Report (BAR) for the proposed establishment of a Waste Transfer Station at Matsulu Township. The project location for the proposed development has been reconsidered. The initial proposed project site is located on Erf 312, however post impact evaluation and analysis has rendered Erf 312 no longer viable and the post-impact evaluation project site is Erf 302 in Mandela Park, within the Mbombela Local Municipality in Mpumalanga Province.

Babalwa Fatyi, the Environmental Assessment Practitioner (EAP), who is the founder of Myezo, is a Registered Professional Natural Scientist (400123/01). She is also registered with Institute of Environmental Management and Assessment, Lincoln, UK (0025153). She has consulting experience, having worked for an engineering consulting company, after which she also worked for a mining company, responsible for overseeing the company's compliance with its environmental obligations.

She has academic qualifications to back-up her experience, having obtained Master of Science (*cum laude*) and receiving 'SA Association for Advancement of Science Award' for an outstanding MSc Degree in the Faculty of Science. Babalwa has undertaken several environmental management and public consultation projects in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998), as well as environmental authorisations, in terms of Mineral and Petroleum Resources Development Act (MPRDA) (Act No 28 of 2002).

Her work experience has allowed her an insight with respect to sector specific environmental requirements ranging from authorisations, implementation and monitoring. She is thus still active in promoting environmental stewardship, through utilisation of a series of integrated environmental management tools, for attainment of long lasting and meaningful economic prosperity.

She has compiled more than 25 Environmental Management Plans (EMPs) and programmes and more than 20 Basic Assessment Reports (BARs), within the various sectors and industries. A comprehensive illustration of her qualifications is included in the CV and profile attached as Appendix G2. A profile of Myezo is included as Appendix G3.

Table 2.1.1: EAP description and contact information

Environmental Assessment Practitioner (EAP):	Myezo Environmental Management Services (Pty) Ltd
Contact person:	Babalwa Fatyi
Profession:	Managing Director and EAP

Physical ddress:	645 Jacqueline Drive, Unit 17 Garsfontein, Pretoria, 0040	
Postal address:	Postnet Suite B165, Private Bag X18 Lynnwood Ridge	
Telephone:	012 998 7642	
Fax:	012 998 7641	
Cell:	082 772 2418	
E-mail:	babalwa@myezo.co.za	
EAP Qualifications	Master of Science (*cum laude*): Ecology	
EAP Registrations/Associations	The South African Council for Natural Scientific Professions (SACNASP)	Institute of Environmental Management and Assessment (IEMA), Lincoln, UK
Registration Number	400123/01	(0025153)

3. THE LOCATION OF THE ACTIVITY

3.1 Project Location

3.1.1 Site Identification

The sites considered for the proposed waste transfer station have the following Surveyor-general Cadastral Code 21 digit site reference numbers as provided in Table 3.1.1.1 below.

Table 3.1.1.1: Surveyor-general Cadastral Code 21 digit site (erf/farm/portion) reference numbers

Pre-impact evaluation Proposed Site (Erf 312)

T	0	J	U	0	0	7	0	0	0	0	0	0	3	1	2	0	0	0	0	0

Post-impact evaluation Proposed Site (Erf 302)

T	0	J	U	0	0	7	0	0	0	0	0	0	3	0	2	0	0	0	0	0

3.1.2 Change of Land use

3.1.2.1 Post-impact evaluation Proposed Site (Erf 312)

The post-impact evaluation proposed site, Erf 312, is currently zone as Public Open Space and the proposed alternative Erf 311 is zoned as Municipal.

Post-impact evaluation Proposed Site (Erf 302)
The current zoning of the site is Municipal and there would be a requirement to rezone the site as Industrial site.

3.1.3 Physical Address and Farm name

3.1.3.1 Pre-impact evaluation Proposed and preferred Site (Erf 312)

The previous proposed waste transfer site is located within Matsulu Farm Erf 312 which is 154 583.95 m^2 in size and will accommodate waste from the Matsulu township. Matsulu township is located within the realms of MLM, Ehlanzeni District Municipality, Mpumalanga Province. It lies next to the N4 National Road 41 km east of Nelspruit (Mbombela) Central Business District (CBD). The project locality for Erf 312 is shown in Figure 3.1.7-1 as well as Appendix A1. The detailed locality information is provided in Table 3.1.7.-2.

3.13.2 Post-impact evaluation Proposed Site (Erf 302)

The post-impact evaluation waste transfer site is located within Matsulu Farm Erf 302 which is 50441.209 m^2 in size and will accommodate waste from the Matsulu township.

3.1.4 Site Address

Table 3.1.4.1: The detailed locality information for the proposed site

Building Name or Number	Matsulu Farm Erf 302		
Street	Matsulu, Triumph Road		
City/Closest Town	Mandela Park		
Province	Mpumalanga		
Local Municipality	Mbombela Local Municipality		
District Municipality	Ehlanzeni District Municipality		
Property Description (Deeds Act or name of farm, town, city or agricultural holding	Matsulu Township		
Postal address	1 Nel Street,		
	Mbombela Local Municipality		
Postal code:	1200	Cell:	
Telephone:	013 759 2239	Fax:	013 759 2146
E-mail:	lesibam@mbombela.gov.za		

Local authority in whose jurisdiction the proposed activity will fall:	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs		
Contact person:	Ms DA Sibiya		
Postal address:	7 Government Boulevard, Building 6, Riverside Park, Mbombela, 1200		
Postal code:	Private Bag X11219, Mbombela, 1200	Cell:	084 587 9053
Telephone:	013 766 6067/8	Fax:	013 759 4085
E-mail:	dasibiya@mpg.gov.za		

Property Owner: Mbombela Local Municipality

3.1.5 Wards in Matsulu

According to the City of Mbombela's website, the Matsulu area falls under the Nelspruit B. Matsulu is divided into two different wards which are; Ward 13 and Ward 28. The area where the Matsulu Waste Transfer Station is proposed to be in is situated in Matsulu Ward 13.

3.1.6 Size of Site and Classification

Table 3.1.6.1: Size and classification of the site

Size of facility for a waste management activity	Small
Area where the waste management activity takes place	Erf 302, Matsulu Township, Mandela Park, Mbombela
Classification of facility in terms of climatic water balance	B-
Classification of Facility in terms of the type and the quantity of waste received	G

3.1.7 Geographical Co-ordinates of All External Corner Points of the Site

3.1.7.1 Pre-impacts evaluation proposed site Erf 312

The site corner co-ordinates for the post-impact evaluation proposed site (Erf 312) are provided in Table 3.1.7.1 below.

Table 3.1.7.1: The site corner co-ordinates as shown in Figure 3.1.7-1

Number of corner	Latitude			Longitude		
1	25°	31'	46"	31°	22'	6"
2	25°	31'	46"	31°	21'	45"
3	25°	31'	50"	31°	21'	46"
4	25°	31'	45"	31°	21'	47"
5	25°	31'	45"	31°	21'	47"
6	25°	31'	44"	31°	21'	52"
7	25 °	31'	44"	31°	21'	55"
8	25°	31'	47"	31°	21'	55"
9	25°	31'	43"	31°	21'	58"
10	25°	31'	42"	31°	21'	58"
11	25°	31'	40"	31°	21'	58"
12	25°	31'	44"	31°	21'	59"
13	25°	31'	40"	31°	21'	60"
14	25°	31'	46"	31°	21'	60"
15	25°	31'	41"	31°	22'	2"
16	25°	31'	43"	31°	22'	3"
17	25°	31'	43"	31°	22'	4"

Figure 3.1.7-1 Geographical co-ordinates of all external corner points of the site. (To be read in conjunction with Table 3.1.7.1

4. DETAILED DESCRIPTION OF THE SCOPE OF THE PROPOSED ACTIVITY

4.1 Project Title

Basic Assessment Report for the proposed construction of a Waste Transfer Station in Matsulu Township, Mandela Park in Mbombela Local Municipality.

4.2 Project Description

The City of Mbombela Local Municipality (MLM) is proposing to establish a Waste Transfer Station at Matsulu Mandela Park within Matsulu Township (Figure 4.2-1). The site will temporarily receive, sort and store general waste before it is hauled to the Tekwane West Central Waste Disposal Site (CWDS). The proposed waste transfer site is located within Matsulu and was previously Farm Erf 312 which is 154 583.95 m^2 in size, but now the Post-impact evaluation Proposed Site is Erf 302 (50441.209 m^2 in size) and will accommodate waste from the Matsulu Township and handle an estimated 65 tonnes of general waste on a daily basis. The total development footprint area covered by the infrastructure including roads and parking areas will be 20218.940 m^2.

4.3 Project Scope

The project activity includes the receiving, sorting, temporarily storing of general waste and transportation, for its disposal at the Tekwane Disposal Site. The waste will be collected by municipal trucks from the households on a daily basis as per the municipal waste collection schedule for each area. The various streams of mixed general waste will be brought to the proposed Matsulu Waste Transfer facility, where it will be offloaded into the General Waste Sorting Area and sorted according to the different waste streams (Photo 4.3-1). The general waste will be sorted into recyclable, non-recyclable and organic waste. Each stream will be diverted to its appropriate area as per the standard operating procedures for the site. The non-recyclable waste will be compacted into the "walk in floors" containers, which will be covered before being hauled for disposal at the licensed Tekwane Disposal Site. The recyclable materials will be sorted into different classes of waste streams. The sorted recyclable materials will be transported to the area for packaging and transported to the Local Recycling Companies. A working relationship with local recycling companies will be established for delivery and for further processing, outside of the proposed site. Organic waste will be received, sorted and chipped into components for compost making, however, compost making will not be done at the site but transported to the relevant site that caters for compost making.

Matsulu township is located within the realms of MLM, Ehlanzeni District Municipality, Mpumalanga Province. It lies next to the N4 National Road 41 km east of Nelspruit (Mbombela) Central Business District (CBD). The project locality is shown in Appendix A1 and A2.

The current project area (Erf 312) falls in a municipal land zoned as Public Open Space and has existing and established household settlement, which has rendered it not viable for consideration as the proposed preferred site. Adjacent to the Matsulu Waste Treatment Plant, there is an informal dumping site as shown in Figure 4.2-1. In order for the Mbombela Local Municipality to formalise the waste management at Matsulu Township, as part of their implementation of the overarching Mbombela Integrated Waste Management Strategy (Box 4.3.1), they have adopted the approach of providing a licensed Waste Transfer Station.

Figure 4.2-1 Local Setting Map




Photo: 4.3-1: Examples of sorted and baled recyclable material

Box 4.3.1: The Central Waste Management Strategy proposed:

- The First Generation, Integrated Waste Management Plan recommended a Central Waste Disposal Site.
- The site was to be closer to the source of waste generation, namely Nelspruit, White River, Kanyamazane and Commercial hubs.
- The site is to be supported by transfer stations that will temporarily store the waste, sort recyclables, compact the waste prior to long haulage in appropriate vehicles to the Central Waste Disposal Site.
- A number of potential sites were investigated and four sites were identified for basic assessment, namely White River, Hazyview, Matsulu and Kabokweni; to date White River Transfer Station is licensed while Hazyview is still being considered by the Mpumalanga Department of Economic Development, Environment and Toursim (DEDET).
- The land allocation for transfer stations was approved by a Council Resolution in August 2013.
- The EIA and Permit Application Reports were presented on 3 August 2005 to the Interested and Affected Parties (IAPs). The reports were finalised with comments received and submitted to DEDET and the then DWAF (now DWS) respectively for further consideration.
- Delisting of Delta E.M.D (Pty) Ltd site in Mbombela was approved as part of the EIA Report.
- Permit was issued on 27 October 2007.
- Construction of the site was completed on 15 December 2010
- Council has appointed a Site Operator: Buhle Besive Waste Management.
- Monitoring Committee was established comprising of Chairperson, Relevant Authorities, Adjacent land owners and Ward Councillor.

Source: Mbombela Local Municipality (Best Practice: Regionalisation of Waste Services, Waste Khoro 2013).

The proposed facility will also form part of MLM Integrated Waste Management Strategy (Box 4.3.1) that aims at reducing waste tonnage currently disposed of at the landfill site. The key infrastructure required for the development of the proposed project will comprise of the following:

- Waste Transportation Options,
- Public Waste Drop-Off Area,
- Waste Recovery and Recycling Area,
- Garden Waste (Composting area),
- Office administration area with ablution facilities, and
- Municipal vehicle parking area and vehicle wash bays.

4.4 Associated Infrastructure

The site layout/engineering drawings have proposed the following infrastructure for the site as shown in Appendix A1 and Appendix A2:

- Guard House;
- Office Block and Kitchen;
- Ablution Facilities with changing rooms;
- Waste Sorting area – Sorting and recycling area with concrete slab;
- Waste Compacting area;
- Public off-loading area;
- Skip pick –up area;
- Truck off-loading area;
- Truck pick-up area;
- Wash bays – The wash bays would need an application for a Water Use licence in terms of the National Water Act, 1998 (Act No. 36 of 1998);
- Parking bay areas, and
- Parking area for rear-end compactor

4.5 Operational Times

The operational times are outlined below.

Table 4.5.1: Site Operational times

Period	From	Until
Weekdays	07h30	16h00
Saturdays	08h00	14h00
Sunday	08h00	14h00
Public holidays	08h00	14h00

4.6 Waste Quantities

4.6.1 Types of waste and list the estimated quantities expected to be managed daily.

The types and estimated quantities at the site are provided in Table 4.6.1 below.

Table 4.6.1: Types of waste and list the estimated quantities expected to be managed daily

Hazardous waste	Non-hazardous waste	Total waste handled (**tonnes per day)
N/A	General Waste	65
N/A	Building Rubble	7
N/A	Green Waste	**9.5**

Hazardous waste	Non-hazardous waste	Total waste handled (**tonnes per day)
N/A	Office Waste (Paper and Newspaper)	**1.5**
N/A	Metal	**6**
N/A	Cardboards	**4**
N/A	Food Residues	**2**

4.6.2 Recovery, Reuse, Recycling, treatment and disposal quantities.

The applicable waste types and quantities expected to be disposed of and salvaged annually are provided below.

Table 4.6.2: Applicable waste types and quantities expected to be disposed of and salvaged annually

Types of Waste	**Main Source (Name of Company)**	**Quantities**		**On–Site Recovery Reuse Recycling Treatment or Disposal**	**Offsite Recovery Reuse Recycling Treatment or Disposal**	**Offsite Disposal**
		TONS/ MONTH	**M³/ MONTH**	**Method & location**	**Method location and contractor details**	
General Waste	Matsulu Township	10.5	23.1	Temporary Storage	Disposed to Tekwane Landfill	
Builders Rubble	Matsulu Township	0	0	Temporary Storage	Disposed to Tekwane Landfill	
Types of Waste	**Main Source (Name of Company)**	**Quantities**	**On–Site Recovery Reuse Recycling Treatment or Disposal**	**Offsite Recovery Reuse Recycling Treatment or Disposal**	**Offsite Disposal**	
		TONS/ MONTH	**M³/ MONTH**	**Method & location**	**Method location and contractor details**	
Green Waste	Matsulu Township	9.5	20.9	Temporary Storage	Disposed to Tekwane Landfill	**Composting site**
Office Waste	Matsulu Township	1.5	3.3	Temporary Storage	Disposed to Tekwane Landfill	Potential Local Recycling Companies

4.7 Waste, Effluent, Emissions, Energy and Noise Management

4.7.1 Solid Waste Management

Solid waste will be generated during all phase of the project. Construction rubble and litter will be generated during the construction and decommissioning phases of the project and more litter will be generated during the operational phase. Waste Management Plan and procedures will be implemented and adhered to. Solid waste management infrastructure such as litter bins and recyclable material colour coded and labelled bins will be provided within the site. Regular maintenance and cleaning will be ensured to eliminate odours that will attract ants, flies, rats, birds and other animals to the site.

4.7.2 Liquid effluent

No liquid effluent will be discharged from the site, except through the proper sewage system that will be implemented as part of the planned infrastructure development for the site. The temporal ablution facilities to be provided during site establishment and construction will be managed, maintained regularly and properly used by the site workers. Spillages or leaks will be checked daily and reported immediately to reduce the potential of soil, surface water and ground water pollution.

4.7.3 Emissions into the atmosphere

The only emissions envisaged at the site are from dust resulting from vehicular movement on the site during the offloading of construction material at stockpiling areas during construction and the offloading of waste at operational phase. No other emissions will be experienced at the proposed site.

4.7.4 Water use

Water use for all site operations will be sourced from the municipality. Water for human consumption and use will be sourced from the municipality. Should water be sourced from the nearby natural water sources (Crocodile River and Ntsikazi River), a Water Use Licence (WUL) in terms of the National Water Act (NWA) (Act No 36 of 1998), would need to be applied for. The nearby Waste Water Treatment Plant could be a water source for dust suppression, however the use of treated effluent from the Waste Water Treatment Plant will require a Water Use Licence and agreements with the operators of the operations. Rainwater harvesting options from the infrastructure roof and installation of JoJo Tanks will be considered, however, proper storm water management systems will be installed and conditions within the EMPr will be adhered to.

4.7.5 Energy efficiency

All energy requirements for the site will be provided for by the municipality. In the case where high voltage is required, appropriate electricity sources would need to be provided by the municipality. In the event that there are power outages or Eskom load shedding, the site will use a back-up generator. The use of alternative power source such as solar power will be considered.

4.8 Socio-economic value of the activity

The project is envisaged to provide temporal and permanent jobs for the local community. The job creation and employment opportunity will boost the socio-economic status of the community and lead to increase quality of life. Local economic development through engagement of local SMMEs will also be a positive impact to the community. It is estimated that the project will provide a value of R1,2 million for jobs created.

4.8.1 Capital value of proposed activity

The estimated capital value for the project is R12 million, with 10% (R1,2 million) estimated as a contribution towards the temporal and permanent jobs to be created.

4.8.2 Temporal and permanent jobs

An estimated number of between 10 and 15 jobs will be created within the site from the local community members. Envisaged personnel to be on site are:

- Security Guards;
- Site Manager;
- Administrator;
- Site Operational Line supervisors;
- Health and Safety Officer;
- Waste Operators - Receiver, Sorters, Compactors, Loaders etc and
- Cleaners;

4.9 Competence to operate site

4.9.1 Municipal Overall Site Management

The City of Mbombela Local Municipality will ensure that all personnel on the site undergo specific waste management training. Technical skills will be acquired through on-site training in general health and safety, and procedures will be prescribed for day-to-day running of the site. The site will be the sole responsibility of the Senior Manager within the Solid Waste Management Department and his details are as follows:

Mr Lesiba Maluleke	Senior Manager Solid Waste Management	Planning and manage solid waste management services. Municipal waste management officer.	B Tech Degree Environmental health (Solid Waste Management and Occupational Health and Safety).

4.9.2 Technical Competence and Site Management

The proposed waste transfer facility will be designed by a professional engineering team to adequately contain general waste for a temporary period prior to collection by Municipality and haulage to the Tekwane Landfill site. The site will be operated by a Waste Management Contractor (WMC) with the responsibility of overseeing delivery and collection of waste, monitoring and cleaning operations. City of Mbombela Local Municipality will designate an Environmental Officer (EO) to ensure compliance with set licence conditions.

4.10 Listed and specific activities triggered

Table 4.10.1: Table of specific activities triggered

Indicate the No. and Date of Relevant Notice:	**Activity Numbers (as listed in the Waste Management Activity):**	**Describe Each Listed Activity:**
NEMA EIA Regulations, 2014, Government Notice R983 of 04 December 2014 (as amended on 07 April 2017) (Listing Notice No. 1)	**Activity 27**	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for – (i) the undertaking of linear; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

Indicate the No. and Date of Relevant Notice:	**Activity Numbers (as listed in the Waste Management Activity):**	**Describe Each Listed Activity:**
NEMA EIA Regulations, 2014, Government Notice R985 of 4 December 2014 (as amended on 07 April 2017) (Listing Notice No. 3)	**Activity 12**	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (f) Mpumalanga (i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, with an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment (ii) Within critical biodiversity areas identified in bioregional plans; or (iii) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.
	Activity 14	**ACTIVITY 14** The development of— (x) buildings exceeding 10 square metres in size; or (xii) infrastructure or structures with a physical footprint of 10 square metres or more; in f. Mpumalanga (i) Outside urban areas: (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation.
NEMWA Government Notice GN 921 in Gazette No. 37083 of 29 November 2013	**Category A (2)** (The category has since been amended to be Category C and requires the Registration in terms of norms and standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste, 2017 of the proposed entity should the	The sorting, shredding, grinding, crushing, screening or bailing of general waste at a facility that has an operational area in excess of 1000 m^2.

Indicate the No. and Date of Relevant Notice:	**Activity Numbers (as listed in the Waste Management Activity):**	**Describe Each Listed Activity:**
	planned development footprint, however, the application has already been accepted by the Competent Authority**.**	
	Category A (3)	The recycling of general waste at a facility that has an operational area in excess of 500 m^2, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.
	Category A (5)	The recovery of waste including the refining, utilisation, or co- processing of waste in excess of 10 tons but less than 100 tons of general waste per day or in excess of 500 kg but less than 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.

4.11 Description of the Activities to be Undertaken Including Associated Structures and infrastructures

The proposed facility will be used for collecting, sorting, compacting and transferring of waste to more suitable containers for haulage to the Tekwane landfill Site (Photo 4.12-1 – 4.12-2). The proposed facility will also form part of MLM Integrated Waste Management Strategy that aims at reducing waste tonnage currently disposed of at the landfill site. The key infrastructure required for the development of the proposed project will comprise of the following:

- Guard House;
- Waste Transportation Options ("Walk-in Floor" containers) and Skip bins;
- Public Waste off-loading Area;
- Waste Recovery and Recycling Area (as illustrated in Figure 4.12-1);
- Office administration area with ablution facilities and changing rooms;
- Municipal vehicle parking area and vehicle wash bay. The washbays would need an application for a Water Use licence in terms of the National Water Act, 1998 (Act No. 36 of 1998);
- Parking areas;
- Parking area for rear-end compactor;
- Compacting area;
- Truck pick-up area; and
- Truck off-loading area.

4.12 Site Layout

The site layout or locality plan (Appendix A1) will comprise of the project plan and other sections of the station. The planned infrastructure at the site such as temporal ablution facilities and construction of more permanent infrastructure including offices and ablution facilities with washrooms, parking bays, compacting area and wash bays. The wash bays will require a Water Use Licence. All the proposed infrastructure is included in the site layout as shown in Appendix A1.1 for Erf 312, Appendix A1.2 for Erf 302. The Photographic illustration of examples of infrastructure is shown in Photo 4.12-1. The services, infrastructure and equipment planned for the proposed site is shown in the pictures below. As indicated, the waste will be finally transported to Tekwane Waste Disposal Site, the entrance of which is illustrated in Photo 4.12-2 and Photo 4.12-3 Due to the close proximity of the newly considered site, Erf 302, a solid wall will be constructed to minimise the visual intrusion presented by the locality of the proposed site which is directly opposite some households along Progressive Avenue.

(a) Walking Floor

(b) Waste Compactor

(c) Front view with roll-on bins into which waste is compacted.

(d) Truck tipping into the compacter.

(e) Example of containers at the Public drop-off area

Photo 4.12-1 Photographic illustration of services and infrastructure planned for the site

Photo 4.12-2. Tekwane West Site Notice before the entrance to the disposal site

Photo 4.12-3. Secure and Access Controlled entrance to the Tekwane West Disposal Site

4.12.1 Access road to site

The site can be accessed by an existing network of roads, from Oliver Tambo Street through to Urban Street that turns into Progressive Avenue. From Urban Street the site can be accessed through Triumph Road. There are current plans to upgrade the road into the site and provision has been made for 7 m for road, 2 m for the walk way (Appendix A1.1 and Appendix A1.2.). Access to the proposed Matsulu Waste Transfer Facility will be through an existing access road on the property (Triumph Road and Capital Road). The site will be fenced off and secured by a security gate. The entrance will have a boom gate with a guardhouse and security guard to control the types of vehicles and waste allowed on and to prevent salvagers accessing the site. From the entrance placement of prominent signage, private vehicles will be directed to the public drop-off facility and municipal trucks to the skip site. An example of the proposed design is similar to the Tekwane Disposal

Site (Photo 4.12-1 and Photo 4.12-2). It is proposed that the on-site roads will be built with 80 mm interlocking heavy duty paving bricks. The paving is designed in order to withstand the load of waste delivery vehicles that will utilise the site on a daily basis. The entire site will be fenced to prevent illegal salvaging of materials and ensure safety of both the community and site workers. Fencing will be approximately 1.8 m in height using palisade or similar material. Due to the close proximity of the newly considered site, Erf 302, a solid wall will be considered to minimise the visual instrusion presented by the locality of the proposed site which is direclty opposite some households on Progressive Road.

4.12.2 Current land-use where the site is situated

The land use where the site is located is agricultural land with open spaces and the project will require a land rezoning application before commencing with the operations at the proposed site. The current project area falls in a vacant land (Photo 4.12.2-1(a)), part of which has a portion currently used as an informal dumping site as shown in Photo 4.12.2-1(c), situated below the Matsulu Water Treatment Works (MWTW). The site is bordered by a residential area of Matsulu. The specific open space that is earmarked for the waste disposal site is used for subsistence farming (cultivation of maize is practiced) as illustrated in Photo 4.12.2-1(d). There is also an informal, indiscriminate dumping at the site at about 100 m from the banks of the Crocodile River as shown in Photo 4.12.2-1 (b). The project area is about +300 m from the fence of the Kruger National Park, which is one of tourist attractions in Mpumalanga.

There is a waste water treatment plant about 50 m North-West of the proposed site. There is also informal recycling activities observed in the area as shown in Photo 4.12.2-1(e).

Moreover, for other activities observed around the proposed site (Figure 4.12.2-1 (a) –(e)) are spatially represented in the locality map (Appendix B). The co-ordinates from which these pictures were taken from are indicated under each photograph.

(a) Excavated Area (S 25°31’76.1”, E 31°22’ 15.5”)

(b) Crocodile River where informal fishing is practiced (S 25°31’78.1”, E 31°22’23.1”)

(c) Waste illegal dumped on the proposed site (25°31'77.0", E 31°22'10.4")

(d) Agricultural Activities (25°31'74.1", E 31°22'07.6")

(e) Recycling Activities on the proposed area (S 25° 31'77.3", E 31°22'10.4")

Photo 4.12.2-1 Land use activities surrounding the area of the proposed site

4.13 Project Activities

The project seeks to receive various types of waste from Matsulu township and the anticipated waste streams are:

- General waste
- Builders rubble
- Green waste
- Office waste.

The estimated quantities for each waste stream are provided in Section 4.6.1 and 4.6.2. The actual quantities will be determined during the waste stream analysis phases for the proposed site..
The project activities are indicated in Section 4.2 and are outlined in Table 10.13.2.1 These activities are outlined as follows:

4.13.1 Activities at Planning and Design Phase

(a) Site selection

- Development of drawings
- Construction plans
- Consolidation of safety files and other regulatory operational manuals

(b) Mobilisation and site establishment

- Transporting equipment, materials and personnel to site
- Site clearing
- Set mobile office facility

- Install storage and ablution facilities
- Install waste disposal facilities
- Clearing of access points where necessary

(c) Auxiliary Services

- Portable water supply and storage tanks
- Diesel, petrol and HFO storage facility roads
- Office buildings, training centre, emergency services and cafeteria
- Workshops: electrical and mechanical
- Instrumentation and control
- Security offices
- Fire protection equipment

4.13.2 Activities at Construction Phase

- Portable water
  - Water tanks will be erected for storage of portable water.

- Stores
  - There will be a hydrocarbon store goods-returned storage area and a street works store. All these areas will be equipped with fire protection and emergency equipment.

- Parking areas
- Access roads and mine haul roads
- Electricity substation and network
- Boiler-making, vehicles, railway maintenance
- Washing and screening
- Conveyors
- Crushing plant installations

- Soil storage
  - All top soil will be stripped and stockpiled

- Surface water structures
  - All roads will be equipped with storm water control structures

- Designs of storm water systems
  - The management of storm water is important , since it limits erosion, therefore ensuring a sustainable solution. Storm water from external catchment will be diverted around the dirty catchment to allow uncontaminated water to flow back to the natural environment.
  - A Pollution control dam will be designed for the site.

4.13.3 Activities at Operational phase

- Receiving waste
- Offloading waste
- Sorting waste
- Compaction
- Loading and transporting

4.13.4 Activities at Decommissioning and rehabilitation Phase

- Demolition of certain structures
- Ripping and clarification of haul roads
- Dismantling of structures that will need to be removed
- De-establishment and site clean up
- Decommissioning and final rehabilitation

5. Description of the Policy and Legislative Context within which the Development is Proposed

5.1 Legislative Requirements specific to Waste Transfer Facility

Table 5.1.1: Specific activities triggered specific to the Waste Transfer Facility

Indicate the No. and Date of Relevant Notice:	**Activity Numbers (as listed in the Waste Management Activity):**	**Describe Each Listed Activity:**
NEMA EIA Regulations, 2014, Government Notice R983 of 04 December 2014 (as amended on 07 April 2017) (Listing Notice No. 1)	**Activity 27**	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for – (i) the undertaking of linear; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
NEMA EIA Regulations, 2014, Government Notice R985 of 4 December 2014 (as amended on 07 April 2017) (Listing Notice No. 3)	**Activity 12**	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (f) Mpumalanga (i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, with an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment (ii) Within critical biodiversity areas identified in bioregional plans; or (iii) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.
	Activity 14	**ACTIVITY 14** The development of—

Indicate the No. and Date of Relevant Notice:	**Activity Numbers (as listed in the Waste Management Activity):**	**Describe Each Listed Activity:**
		(x) buildings exceeding 10 square metres in size; or (xii) infrastructure or structures with a physical footprint of 10 square metres or more; f. Mpumalanga (i) Outside urban areas: (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation.
NEMWA Government Notice GN 921 in Gazette No. 37083 of 29 November 2013	**Category A (2)** (The category has since been amended to be Category C and requires the Registration in terms of norms and standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste, 2017 of the proposed entity should the planned development footprint, however, the application has already been accepted by the Competent Authority	The sorting, shredding, grinding, crushing, screening or bailing of general waste at a facility that has an operational area in excess of 1000 m^2.
	Category A (3)	The recycling of general waste at a facility that has an operational area in excess of 500 m^2, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.
	Category A (5)	The recovery of waste including the refining, utilisation, or co- processing of waste in excess of 10 tons but less than 100 tons of general waste per day or in excess of 500 kg but less than 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.

5.1.1 South African Legislation and Initiatives on Waste Management

South Africa is reported to face numerous waste management challenges with the amount of waste disposed at landfills still exceeding the amount of waste diverted fore recycling and reuse. According to the Department, only 9.8% of generated waste was recycled and 0.1% treated (DEA, 2012).

The waste sector has been identified as one of the crucial sectors with the potential to contribute substantially to the generation of jobs within the green economy.

Indalo Yethu (IY) as the National Environmental Agency for the country was established by the National Department of Environment of Environmental Affairs with the aim to oversee that all environmental programmes comply and are in line with the countries laws and the developmental goals.

Since 2011, since the Programme was terminated, Indalo Yethu has implemented an EcoTown Programme that involves street cleaning and greening projects within ten municipalities within the country. The key deliverables of the programme being street cleaning, waste collection, greening, urban open spaces rehabilitation through the development of food gardens and organic recycling in the form of composting. These projects are all interlinked and ensure the environmental protection against pollution and promote use of environmental natural resources for sustainable livelihoods for communities. The implementation of these projects has ensured that the key driver for their success is the Community in partnership and collaboration with the key stakeholders with the municipalities being the most significant ones.

The Department has established programmes to support the goals and objectives of the Waste Summit held in 2015. Once of such programmes is the Recycling Enterprise Development Programme (REDP).

5.1.2 Recycling Enterprise Development Programme (REDP)

In 2016, the Hons. Minister of Environmental Affairs BEE Molelwa together with the MECs for Environment in the nine (9) provinces, launched an the REDP with the aim to support the establishment of at least two recycling companies per province over the next two years (2017 - 2018) (DEA, 2016). The initiative was established to also address two key issues within the country: best waste management programmes; and job creation.

Leading from the outcomes of the Waste Summit held in 2015, with the main theme as “war on waste: driving the recycling economy in South Africa, and how we can play an active role in accelerating the recycling economy”, the Environment Department seeks to expand its programmes to adhere to the relevant waste legislative framework and contribute towards job creation and enterprise development programmes within the waste sector (DEA, 2016).

South Africa is reported to face numerous waste management challenges with the amount of waste disposed at landfills still exceeding the amount of waste diverted fore recycling and reuse. According to the Department, only 9.8% of generated waste was recycled and 0.1% treated (DEA, 2012).

The waste sector has been identified as one of the crucial sectors with the potential to contribute substantially to the generation of jobs within the green economy.

Box 5.1.1: International and Local Context in relation to Waste Management

Internationally leading developed countries within the Waste Management particularly Waste Recycling are Sweden and Germany. For the developing countries such as South Africa, Brazil is amongst the countries that have successfully implemented Separation at Source models within their Waste Material recovery Programmes.

The South African government js committed to support Waste Industry and has invested resources towards the empowerment of Stakeholders within the Industry. The establishment of the Recycling Enterprise Development Programme (REDP) in 2016 by the Hons. Minister of Environmental Affairs BEE Molelwa together with the MECs for Environment in the nine (9) provinces with the aim to support the establishment of at least two recycling companies per province over the next two years (2017 - 2018) (DEA, 2016). The initiative was established to also address two key issues within the country, best waste management programmes and job creation

The current Draft Status Quo Report on Separation at Source is an additional step by the Department in understanding the critical drivers and key issues to waste minimisations before the Separation at can be regulated and enforced. The copy of the Status Quo Report is available from the National Department of Environmental Affairs in Pretoria. The Department of Environmental Affairs has also commissioned the first State of the Environment Report that is currently being conducted. This will provide a broade view of the state of the Waste Industry within South Africa.

Some of the points in the presentation on the local context and role of waste pickers are included below.

Waste pickers are generally described as members of the community who sort their collected recyclable waste with a common motive to sell them as reusable. The South African waste pickers form part of an international total of about 15 million in developing countries across the world and the gender coverage is fairly 50/50. Studies also indicate that South African waste pickers save South African municipalities approximately R700 million every year. On average waste pickers make about R770 in a good week and about R290 on a bad week. Other studies indicate that during 2014, there were approximately 62 147 waste pickers in the country, 36 680 of whom are operating from landfills and 25 467operating as trolley pushers (DEA, 2018).

Sources:

1. DEA & Indalo Yethu. 2009. Eco Towns: Buyisela Sustainability Centered Town Management.
2. DEA, 2016. Recycling Enterprise Development Programme Information brochure.
3. ***Presentation from DEA – Waste Separation at Source Status Quo Report (GDARD, Waste Forum, 23 February 2018)).***

5.2 Applicable legislation and guidelines

Table 5.2.1: Applicable legislation and guidelines

Relevant Act	Number and date of relevant notice (Regulations)	Listed Activity as described in the regulations	Applicable to the project? Yes or No	Description of the project which fits this activity listing
National Environmental Management Act, 1998 (Act No. 107 of 1998)	Chapter 1 (2)(4)(ii) Section 24	Chapter 1 (2)(4)(ii)(iv) Section 24 Environmental authorisations The potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on. Reporting is to the competent authority	Yes	Storage, handling and transportation of waste requires authorisation. It is a legal offence to commence a listed activity prior to obtaining an environmental authorisation (except in response to an emergency, to protect human life, property, or the environment.
	Section 17 Section 19 Section 20 Section 43 – 57	*Deals with waste reduction, re-use, recycling and recovery* *Deals with the listing of waste management activities.* *No person may commence, undertake or conduct a waste management activity, except in accordance with: • The requirements or standards determined in terms of section 19(3) for that activity; or • a waste management license issues in respect of that activity, if a license is required.* *Deals with waste management licences and the procedures for such applications*	Yes	Waste facility will be dealing with waste reduction through compaction and recycling (composting) Waste facility will require a licence or authorisation before it commences its operations.
	NEMA EIA Regulations, 2014, published under in Gazette No. 38282 on 4 December 2014 (as amended on 07 April 2017) Listing Notice 1	**ACTIVITY 27** *The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—* i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	Yes	The establishment of a waste site will require the clearance of vegetation for construction of a construction site, the Waste facility operations area, an office, ablution facilities, kitchen, offloading zone, sorting zone, compaction zone and composting zone. The typical area required for a waste recycling and transfer station is between 2 ha and 3 ha.

				The estimated footprint of the infrastructure for the proposed site is 154 583,95 m^2 (15,4584 ha), which is much less than the 20 ha mentioned in the regulations.
	NEMA EIA Regulations, 2014, Gazette No. 38282 on 4 December 2014 (as amended on 07 April 2017) Listing Notice 2	**ACTIVITY 4** *The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.*	No	The waste to be off-loaded is general waste which is classified as non-hazardous. No hazardous or dangerous goods will enter or store at the site. The domestic general waste material will be stored in "Walking floor" containers that will have a volume of 95 m^3.
	NEMA EIA Regulations, 2014, Government Notice R985 of 4 December 2014 (as amended on 07 April 2017) Listing Notice No. 3	**ACTIVITY 12** *The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.* (f) Mpumalanga i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, with an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment ii. Within critical biodiversity areas identified in bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.	Yes	The establishment of a waste site will entail the clearance of vegetation for the construction of the proposed site infrastructure, the Waste facility operations area, an office, ablution facilities with change rooms, kitchen, offloading zone, sorting zone, compaction zone and loading zone including parking areas. The typical area required for a waste recycling and transfer station is between 2 ha and 3 ha. The estimated footprint of the infrastructure for the proposed site is 154 583,95 m^2, which is much more than the 300 square metres footprint mentioned. According to the Mpumalanga Biodiversity Sector Plan, the proposed area of development for the Matsulu Waste Transfer Station falls outside the protected of the Kruger National Park. The area of the proposed development is under the Ecological Sensitive Area (ESA) protected area's buffer which has

				the aim of "shielding" against impacts on the Protected Area (Kruger National Park). According to the Environmental Settings, the vegetation type of the proposed area of development is in the Malelane Mountain Bushveld. Since the area falls under the ESA protected area's buffer, that makes the study area a sensitive area to development and therefore as the proposed site of development is +/– 300 meters to the boundary of the Kruger National Park which thus, makes it within the 10 km from the boundary of a national park..
		ACTIVITY 14 *The development* *of—* *x) buildings exceeding 10 square metres in size; or* *(xii) infrastructure or structures with a physical footprint of 10 square metres or more;* *(ii) infrastructure or structures with a physical footprint of 10 square metres or more* f. Mpumalanga i. Outside urban areas: (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation.	Yes	The establishment of a waste site will entail construction of the proposed site infrastructure, the Waste facility operations area, an office, ablution facilities with change rooms, kitchen, offloading zone, sorting zone, compaction zone and loading zone including parking areas. The estimated footprint of the infrastructure for the proposed site is 154 583,95 m^2, which is much more than the 10 square metres footprint mentioned. The proximity of proposed site to the KNP and the Crocodile river are considered as sensitive areas. According to the SANBI map the area is regarded as sensitive. The proposed site +/– 300 m from the Kruger National Park boundary fence and the alternativr site is about +/- 50m from the KNP fence.

		ACTIVITY 14 *The development* *of—* *x) buildings exceeding 10 square metres in size; or* *(xii) infrastructure or structures with a physical footprint of 10 square metres or more;* f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies (bb) National Protected Area Expansion Strategy Focus areas- (cc) World Heritage Sites (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority. (ee) Sites or areas identified in terms of an international convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves;	No	According to the Mpumalanga Biodiversity Sector Plan, the proposed area of development for the Matsulu Waste Transfer Station falls outside the protected of the Kruger National Park, The area of the proposed development is under the Ecological Sensitive Area (ESA) protected area's buffer which has the aim of "shielding" against impacts on the Protected Area (Kruger National Park). This therefore, makes (aa) not applicable to the proposed project. According to the Environmental Settings, the vegetation type of the proposed area of development is in the Malelane Mountain Bushveld. The National Protected Areas Expansion Strategy of 2016 (Figure 10.3-1) shows vegetation types earmarked for expansion and the Malelane Mountain Bushveld is not included, therefore, (bb) is not applicable to the proposed project. (cc) is also not applicable to the proposed project as the UNESCO website shows that there are 9 World Heritage Sites in South Africa and the Kruger National Park and proposed development site (Matsulu) are not mentioned. Since the area falls under the ESA protected area's buffer, that makes our study area a sensitive area to development and therefore (dd) is applicable to this proposed development. (hh)

				is also applicable as the proposed site of development is +/– 300 meters to the boundary of the Kruger National Park which thus, makes it within the 10 km from the boundary of a national park.
		ACTIVITY 7 *The development and related operation of facility or infrastructure for the bulk transportation of dangerous goods-* (i) In gas form outside an industry complex using pipelines exceeding 1000 metres in length, with a throughput capacity of more than 700 tons per day. (ii) In liquid form, outside an industrial complex, using pipelines exceeding 1000 metres in length, with a throughput capacity of more than 50 cubic metres per day; or (iii) In solid form outside an industrial complex, using funiculars or conveyors with a throughput of more than 50 tons per day.	No	A truck off-load area with 1 'walking floor' containers (volume of 95 m^3) and/or 1 waste compactor; a public off-load area with 3 to 5 bulk containers (30 m^3 each) and a garden waste off-load area with a wood chipper. No dangerous goods will be received into the site or transported for disposal at the landfill site.

		ACTIVITY 10 *The development and related operation of facility or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.*	No	The development of a waste transfer station in which the facility will entail a public off-load area with 3 to 5 bulk containers (30 m^3 each) The facility will have a temporal storage area for "walk in floor" (95 m^3) containers. No dangerous goods will be handled at the site. Not triggered. The amount of general waste to be handled at the site has a total capacity exceeding 80 cubic metres.
		ACTIVITY 15 *The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for—* *(i) the undertaking of a linear activity; or* *(ii) maintenance purposes undertaken in accordance with a maintenance management plan.*	No	The establishment of a waste site will require the clearance of vegetation for construction of a Construction site, the Waste facility operations area, an office, ablution facilities, kitchen, offloading zone, sorting zone, compaction zone and composting zone. The typical area required for a waste recycling and transfer station is between 2 ha and 3 ha which is much less than the 20 ha mentioned. The estimated footprint of the infrastructure for the proposed site is 154 583,95 m^2 (15,4584 ha), which is much less than the 20 ha mentioned.
		ACTIVITY 27 *The development of a road—* *(ii) [a road administered by a provincial authority;] …* *(iii) [a road] with a reserve wider than 30 metres; but excluding [the development and related operation of] a road—* *- for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of*	No	The development of an access road to the waste facility. Existing road networks will be used, however plans are in place to expand the road to allow easy access to the trucks..

		2006 or activity 18 in Government Notice 545 of 2010, in which case activity 24 in Listing Notice 1 of 2014 applies; *- which is 1 kilometre or shorter; or* *- where the entire road falls within an urban area.*		
	NEMA EIA Regulations, 2014, Government Notice R985 in Gazette No. 38282 on 4 December 2014 (as amended as 07 April2017) Listing Notice No. 3	**ACTIVITY 4** *The development of a road wider than 4 metres with a reserve less than 13,5 metres.* *f. Mpumalanga* *i. Outside urban areas:* *(aa) A protected area identified in terms of NEMPAA, excluding disturbed areas;* *(bb) National Protected Area Expansion Strategy Focus areas;* *(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* *(dd) Sites or areas identified in terms of an international convention;* *(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(ff) Core areas in biosphere reserves; or* *(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas, where such areas comprise indigenous vegetation.*	No	The access road to the entrance of the waste facility will be developed. The existing road networks will be used. The proposed waste facility in in close proximity to a protected area, a National Park and the Crocodile River. The area is already disturbed and transformed through cultivation.
	NEMA EIA Regulations, 2014 Government Notice R982 in Gazette No. 38282 on 4 December 2014 Listing Notice 2	**ACTIVITY 10** *The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous goods, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.* *f. Mpumalanga* *i. Outside urban areas:* *(aa) A protected area identified in terms of NEMPAA, excluding conservancies;* *(bb) National Protected Area Expansion Strategy Focus areas;* *(cc) Sensitive areas as identified in an*	No	The waste facility will handle general waste and no dangerous goods will be received at the site. There will be proper screening for dangerous goods materials at the entrance to the facility before offloading of the waste material so as to divert the material offsite.

		environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; *(dd) Sites or areas identified in terms of an international convention;* *(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(ff) Core areas in biosphere reserves;* *(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, where such areas comprise indigenous vegetation; or (hh) Areas within a watercourse or wetland, or within 100 metres of a watercourse or wetland; or* *ii. Inside urban areas:* *(aa) Areas zoned for use as public open space; or* *(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.*		
		ACTIVITY 14 *The development of—* *x) buildings exceeding 10 square metres in size; or* *(xii) infrastructure or structures with a physical footprint of 10 square metres or more;* *(ii) infrastructure or structures with a physical footprint of 10 square metres or more* *f. Mpumalanga* *i. Outside urban areas:* *(aa) A protected area identified in terms of NEMPAA, excluding conservancies;* *(bb) National Protected Area Expansion Strategy Focus areas;* *(cc) World Heritage Sites;* *(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent*	Yes	The proposed waste facility to be constructed is far more than the 10m^2 mentioned: The typical area required for a waste recycling and transfer station is between 2 ha and 3 ha(+/-25 000 m^2) which is much more than the 300 m^2 mentioned. The proposed area is close to a protected area, about +/- 300 m from the Kruger National Park boundary and +/- 100 m from the Crocodile River.

		authority; *(ee) Sites or areas identified in terms of an international convention;* *(ff) Critical biodiversity areas or ecosystem service areas as identified in* *systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(gg) Core areas in biosphere reserves; or* *iii. Inside urban areas:* *(aa) Areas zoned for use as public open space;* *(bb) Areas designated for conservation use in Spatial Development Frameworks* *adopted by the competent authority, zoned for a conservation purpose; or* *(cc) Areas seawards of the development setback line.*		
		ACTIVITY 15 *The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, such land was zoned open space, conservation or had and equivalent zoning, on or after 02 August 2010.* *d. Mpumalanga* *i. Inside urban areas; or* *ii. A protected area identified in terms of NEMPAA, excluding conservancies*	No	The current land use will be transformed to accommodate the construction of the waste facility. The Zoning for a waste facility must be industrial area. The area is already transformed and cultivated. The proximity of the proposed site to a protected area, the Kruger National Park, will need to consider the rezoning of the proposed land from agricultural to industrial zone. The location of the proposed facility must not impact on the environment within a sensitive ecosystem of the KNP.

National Environmental Management Biodiversity Act, 2004 (Act No. 107 of 1998)	Section 52	*Ecosystems that are threatened or in need protection.* *1) (a) The minister may, by notice in the Gazette, publish a national list of ecosystems that are threatened and in need of protection* *(b) An MEC for environmental affairs in a province may, by notice in the Gazette public a provincial list of ecosystems in the province that are threatened and in need of protection* *2) The following categories of ecosystems may be listed in terms of subsection (1):* (a) Critically endangered ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subjected to an extremely high risk of irreversible transformations (b) Endangered ecosystems, being ecosystem that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems; (C) Vulnerable ecosystems, being ecosystems that have a high risk of undergoing signification degradation of ecological structure, function or composition as a result of human intervention, although they are not critical endangered ecosystems or endangered ecosystems; and (d) Protected ecosystems, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed in terms of paragraphs. 3) A list referred to in subsection (1) must describe in sufficient details the location of each ecosystem on the list. 4) The Minster and the MEC for environment affairs in a relevant province, respectively, must at least every five years reviews any national or	No	The area is represented as the Malelane Mountains Bushveld (SVI 3) in the Vegetation Map of South Africa for SANBI. The area is already transformed due to informal agricultural and cultivation by community members.

		provincial list publications by the Minister or MEC in terms of subsection (1). (5) An MEC may publish or amend a provincial list only with the concurrence of the Minister.		
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008): (NEM:WA)	Schedule 5 (Section 19) Category A	Storage and transfer of waste: *1. The temporary storage of general waste at a facility, including a waste transfer facility and container yard, that has the capacity to receive in excess of 30 tonnes of general waste per day or that has a throughput capacity in excess of 20 m^3 per day, including the construction of a facility and associated structures and infrastructure for such storage.*	Yes	Waste storage and handling must adhere to the provisions of the Act. The waste handling and transportation must also be compliant with the general requirements. The waste facility will receive waste, sort and store it in the mobile containers, compact it before transportation to the Tekwane West Central Waste Disposal Site (CWDS), The volumes to be stored and transferred will be less than 30 tonnes per day. The facility will have a Truck load off-load area (1 'walking floor') containers (volume of 95m^3) and or 1 waste Compactor. The Public off-load area with 3-5 bulk containers (30m^3 each) ~ 90m^3 to 150m^3 The construction of the waste facility, office block, ablution facilities and kitchen for the waste operations. The mobile “walk in floor” containers will be used for the temporal storage and

				transportation of waste.
		Recycling and recovery: *3. The sorting and shredding of general waste at a facility that has the capacity to receive in excess of one ton of general waste per day, including the construction of a facility and associated structures and infrastructure for such sorting or shredding*	Yes	Waste will be sorted and temporarily stored into containers and compacted before being transported. The waste to be received at the site is about more or less about 30 tons per month.
		Treatment of waste: *5. The biological, physical or physicochemical treatment of general waste or the autoclaving, drying or microwaving of general waste at a facility that has the capacity lo receive in excess of 10 tonnes of general waste per day, including the construction of a facility and associated structures and infrastructure for such treatment.*	Yes	The waste will be stored into the mobile containers and compacted before transportation

		Disposal of waste on land: *9. The disposal of general waste to land covering an area of less than 100 m ^{2} or 200 m3 air space, including the construction of a facility and associated structures and infrastructure for such disposal.*	Yes	Waste from the facility will be disposed at the licenced Tekwane West Central Waste Disposal Site (CWDS).
		Expansion or decommissioning of facilities and associated structures and infrastructure *12. The expansion or decommissioning of facilities and associated structures and infrastructure for activities listed in this Schedule.*	Yes	Decommissioning Phase of the waste facility should the municipality wish to do so.
	Section 9(3)	*In exercising its executive authority contemplated in Subsection (1), a municipality may furthermore, amongst other things, set: Local standards for the separation, compacting and storage of solid waste that is collected as part of the municipal* *• service or that is disposed of at a municipal waste disposal facility;* *• Local standards for the management of solid waste that is disposed of by the municipality or at a waste disposal facility owned by the municipality. Including requirements in respect of the avoidance and the minimization of the generation of waste and the re-use, recycling and recovery of solid waste;* *• Local standards in respect of the directing of solid waste that is collected as part of the municipal service or that is disposed of by the municipality or at a municipal waste disposal facility to specific waste treatment and disposal facilities and; • Local standards in respect of the control of litter.*	Yes	The proposed waste facility must adhere to the local municipality standards and all related municipal by-laws for the operation of the facility.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	Waste Classification Regulations, 2013 No.R634 Chapter 7 (2a) Annexure 1	*CHAPTER 7 ANNEXURES TO REGULATIONS* *Annexure 1: Wastes that do not require Classification or Assessment* *(1) The wastes specified in item 2 of this Annexure do not require classification in terms of Regulation 4(1), nor assessment in terms of Regulation 8(1)(a).* (2) (a) General waste- (i) Domestic waste; (ii) Business waste not containing hazardous waste or hazardous chemicals; (iii) Non-infectious animal carcasses; (iv) Garden waste; (v) Waste	Yes	The waste to be off-loaded at the waste site will be screened and only general waste that does not contain hazardous waste or material must be accepted at the site. This is not an activity Listing but it is just included in this Section to demonstrate that the applicant has other regulatory obligations to comply with during the site

		packaging; (vi) Waste tyres; (vii) Building and demolition waste not containing hazardous waste or hazardous chemicals; and (viii) Excavated earth material not containing hazardous waste or hazardous chemicals.		operation.
	NEMWA Government Notice GN 921 in Gazette No. 37083 of 29 November 2013 Category A	Recycling or recovery of waste *(2) The sorting, shredding, grinding, crushing, screening or bailing of general waste at a facility that has an operational area in excess of 1000 m2.* (3) The recycling of general waste at a facility that has an operational area in excess of 500 m^2, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises. (5) The recovery of waste including the refining, utilisation, or co- processing of waste in excess of 10 tons but less than 100 tons of general waste per day or in excess of 500 kg but less than 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.	Yes	The types of waste products expected at the public drop-off area will be mainly dry and largely recoverable types of wastes such as paper, glass, wood, steel and garden wastes. The waste collected at the public area that is not recoverable and directed to the sorting and recycle area will be dropped into the compactor or walking floor containers when the containers are full. The waste collected at the public area that is not recoverable and directed to the sorting and recycle area will be dropped into the compactor or walking floor containers when the containers are full. The roll-on containers have a volumetric capacity of 25 m3 (12 tons) each. Containers will also be made available for small quantities of hazardous waste such as oil, fluorescent lights, and batteries.
	NEMWA Government Notice GN 921 in Gazette No. 37083 of 29 November 2013 Category B	Storage of hazardous waste (1) The storage of hazardous waste in lagoons excluding storage of effluent, wastewater or sewage. *Reuse, recycling or recovery of waste*	No	Containers will also be made available for small quantities of hazardous waste such as oil, fluorescent lights, and batteries.

		(2) The reuse or recycling of hazardous waste in excess of 1 ton per day, excluding reuse or recycling that takes place as an integral part of an internal manufacturing process within the same premises. (3) The recovery of waste including the refining, utilisation, or co- processing of the waste at a facility that processes in excess of 100 tons of general waste per day or in excess of 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.		
	NEMWA Government Notice GN 921 in Gazette No. 37083 of 29 November 2013 Category C a) Norms and Standards for Storage of Waste, 2013.	Storage of waste: *(a) Norms and Standards for Storage of Waste, 2013.* *These norms and standards apply to any person who stores general (more than 100 m³) or hazardous waste (more than 80 m³) exceeding 90 days in a waste storage facility. These facilities are required to comply with the norms and standards without a need to conduct a basic assessment and obtain a WML.*	No	The facility caters for waste drop-off, sorting, compaction and transfer of waste to Tekwane West Central Waste Disposal Site (CWDS), not only storage as stipulated within the Norms and Standards. The waste will not be temporarily stored for more than three (3) days and does not exceed the 90 days prescribed.The typical area required to operate the facility is between 2ha and 3ha. The facility will have a Truck load and off-load area (1 'walking floor') containers (volume of 95m³) and or 1 waste compactor. The Public off-load area with 3-5 bulk containers (30m³ each) ~ 90m³ to 150m³. The municipality plans to ensure that putrescible, food and restaurant waste will not be stored on site but hauled away on a regular basis. The proposed facility will do more activities than just storage prescribed in the Norms and

				Standards for Storage, 2013.
	National Standards for disposal of waste to landfill – GN 34414, 2011-07-01	*Prescribes the requirements for the disposal of waste to landfill as contemplated in Regulation 8(1)(b) and (c) of the Regulations.*	Yes	Waste disposal from the transfer station to CDWS must be legal and compliant to the requirements. The disposal site is licensed.
	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008): (NEM:WA) Draft Norms and Standards for Sorting, Shredding, Grinding, Crushing, Screening or Bailing of General Waste, 2017 Chapter 2: Chapter 3	Section 4(1), (5) (a) - (l) Section 5 (1), (3), (4) Section 6(1) -(7) **Sections 7 -11** *All Sections and Subsections are applicable*	No	The Proposed development had already submitted an application for a Waste Transfer Station with the Competent Authority when the amendment to the Act and Norms and Standards were adopted. Category (A) (Activity 2) has been changed to Category C. *Registration:* The waste facility must be registered with the competent authority. *Location:* The location must consider the proximity to sensitive areas such as biodiversity sensitive ecosystems and protected areas *Construction & Design:* *Management of Facility/ Operations*

				Waste handling, storage, sorting, shredding, screening, compacting and transportation. General operation of a waste facility
National Water Act, 1998 (Act No. 36 of 1998)	GNR 324 Regulations Listing Notice 3 of 2014	**Section 21 (g)** Disposing of waste in a manner which may detrimentally impact on water resources.	No	Waste will be transported and disposed at Tekwane landfill site. No waste material will be directly disposed into the nearby river. The route of trucks from the site to Tekwane disposal site will be outlined to ensure no water pollution results from the truck travelling close to the water course. The trucks will be covered when transporting waste from the site to the Waste disposal site to avoid wind blown litter and waste spillage on the road. Temporally stored waste on site will be covered to avoid wind blown litter ending up into the Crocodile river.
	Section 19 Chapter 3 Protection of Water Resources Part 4: Pollution prevention	**ACTIVITY 1** *Prevention and remedying the effects of pollution* *It is the responsibility of an owner of land, a person in control of land or a person who occupies or uses that land to take all reasonable measures to*	Yes	Potential pollution (groundwater pollution) must be prevented and remedied. The proposed Transfer Station is about +/- 100 m from the Crocodile

	of Water Resources Section 20	*prevent pollution of a water resource from occurring, continuing or recurring. If these measures are not taken the authorities may do whatever is necessary to prevent the pollution or remedy its effects and may recover all reasonable costs.* Emergency incidents A responsible person must report an emergency incident and take measures to: • Contain and minimise the effects of the incident; • Clean up; • Remediate any damage that may have occurred; • Take measures to prevent the recurrence of the incident		River. The river needs to be protected in terms of section 19 of National Water Act. All mitigation measures listed within the EMPr will be adhered to.
	GN. No. R544	**ACTIVITY 11:** *The construction of:* *(i) canals;* *(ii) channels;* *(iii) bridges;* *(iv) dams;* *(v) weirs;* *(vi) bulk storm water outlet structures;* New (vii) marinas; (viii)jetties exceeding 50 square metres in size; (ix) slipways exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	No	The construction of the waste facility must observe the 32 m threshold for development of any infrastructure within a 32 m of a watercourse. The current layout was done such that the site is approximately more than 100 m from the water course (Crocodile River).
	GN. No. R545	**ACTIVITY 17** *The extraction or removal of peat or peat soils, including the disturbance of vegetation or soils in anticipation of the extraction or removal of peat or peat soils.*	No	Extraction or removal of peat soil from the river for construction of the infrastructure for the waste facility. No river material will be used.

The activity is not listed Activity but to be noted for operational compliance reasons.				
Occupational Health and Safety Act 85 of 1993	Regulations For Hazardous Chemical Substances (R. 1179 25 August 1995)	*The regulations make provision for the control of exposure of employees to substances hazardous to health and the correct labelling, packaging, transportation and storage of hazardous chemical substances. Hazardous chemical substances are defined in terms of these regulations to mean any toxic, harmful, corrosive or irritant substance, or a mixture of such substances for which: • An occupational exposure limit is prescribed, or; • An occupational exposure limit is not prescribed but which creates a hazard to health. In addition, monitoring of employees and their work environment is required.*	Yes	The Occupational Health and Safety Act (OHSA) focuses on health and safety aspects of employees in the workplace. Health ad Safety for the employees during operations of handling waste, tools, machinery and transportation
Health Act 63 of 1977		*The Act provides measures for the promotion of health of inhabitants of the Republic of South Africa. In terms of the Act, every local authority is required to take all lawful, necessary and reasonable practicable measures to maintain its district at all times in a hygienic and clean condition, and to prevent the occurrence of any nuisance or unhygienic condition.*	Yes	Handling of waste material, sorting, crushing, shredding etc.The waste facility must not pose a threat to the employees and all entering the site.
National Road Traffic Act 93 of 1996	Regulations and SANS Codes SANS 10230: Vehicle Inspection Requirements SANS 10231: Operational Requirements SANS 10232: Emergency Response Information SANS 1518-1: Design Requirements for Vehicles	*Transportation of hazardous waste.* *The regulations and associated SANS Codes set out standards for the transport of hazardous waste inlcuding but not limited to: classifications; lbelling; vehicle requirements and licensing; driver training; licensing and responsibilities; loading; route planning; operator agreements; emergency response; reporting of accidents and incidents and compatibility of load.*	No	Regulations deal with transportation of hazardous material however certain aspects of the act apply to the transportation of general waste from the proposed waste transfer facility to landfill site for disposal. Prevention of littering and compliance to all legal requirements of transportation from waste transfer station to CDWS,
The South African National Roads Agency Limited Sanra • National Roads Act 7 Of 1998 White Paper On Integrated Pollution And	Section 25:	*To make provision for a National Roads agency for the Republic to manage and control the national roads system and take charge of the development, maintenance and rehabilitation of natural roads with the framework of government policy. The*	Yes	Ensure that no vehicle linked to the operations of the facility leaves any litter or waste material on the provincial or national roads.

Waste Management For South Africa Gg 20978 / 2000- 03-17 • • White Paper On Integrated Pollution And Waste Management For South Africa Gg 20978		*National Rods Agency is responsible for the financing, management, control, planning, development, maintenance and rehabilitation of South African national roads system.* *The aim of this White Paper was to underscore the importance of preventing pollution and waste and avoids environmental degradation. This White Paper focuses on co-operative governance as envisaged in the Constitution.*		
OTHER POLICIES AND GUIDELINES				
Name of Legislation	**Regulating Authority**	**Promulgated Year**	**Applicable to the project? Yes or No**	**Description of the project which fits this activity listing**
Mpumalanga Conservation Act (Act no. 10 of 1998)	Local government (MTPA)	1998	Yes	Environmental Protection is key in ensuring the proposed project's successful implementation whilst limiting negative impacts to the environment. An EMPr has been developed for the site to ensure the conservation of the environment and biodiversity.
National Forestry Act, (Act no. 84 of 1998)	DWAF	1998	No	Clearance of forest trees must be prohibited. The current site is a vacant, transformed land with informal agricultural cultivation activities and illegal waste dumping. No forest trees will be removed without permission.
National Waste Management Strategy (2001)	DEA (National)	2001	Yes	Project 's objectives and proposed activities aligned to the National Strategy.
Mbombela Local Municipality Soild Waste Management Strategy (2013)	Local government	2013	Yes	The Strategy seek to develop four (4) waste transfer stations that will temporarily store waste and ensure haulage for disposal at the centrally located Tekwane Central Waste Disposal Site.

City of Mbombela Local Municipality Solid Waste Management By-Laws Notice 154	Local government	2016	Yes	All waste facilities must comply to the by laws set out for the storage, collection, handling and transportation of waste 9: Waste Transfer Stations 1) Any holder must (a) utilised appropriate waste transfer stations as directed by the Municipality or service provider; and (b) adhere to the operational procedures of a transfer station as set out by the Municipality
City of Mbombela Local Municipality – Noise Abatement By-Laws	Local government	1992	Yes	According to City of Mbombela Local Municipality's noise abatement by-laws of 1992, no person shall in any street or public place in or on any premises between 22:00 and 06:00 shout, sing or otherwise make any loud noise. Nor shall they operate, play or sanction the operation or performing of any radio, television set, phonograph drum, musical instrument, sound amplifier or similar device which produces or reproduces amplified sound. The by-laws also state that any person who contravenes or fails to comply with the provision of the law shall be guilty of an offence and shall upon conviction be liable to a fine not exceeding R300 or be imprisoned for a period not exceeding 12 months or receive both a fine and imprisonment. In case of a continued offence, the offender shall be fined an amount not exceeding R200 each day, on which the offence continues. Application of recommended noise/sound ambient levels including the measurement of ambient sound level and noise

				level. The By-laws also include the role of the Health Officer in relation to enforcement of the noise abatement by-laws requirements.
Kruger National Park Environmental Management Plan (KNP)	Provincial and Local Government	2011	Yes	The KNP has an Integrated Environmental Management Plan that provides best practice guidelines for the management of the environment and biodiversity inside and outside the boundary of the park. The draft Conservation Development Framework (CDF) provides guidelines for potential future development, rehabilitation and the management of land-use along the parks borders. Components of the CDF include the park interface zones (zones where surrounding land use change could affect the park) which are classed into three (3) different categories. The first category is Priority Natural Areas (PNA) which, are important for long-term persistence of biodiversity in and around the park, these areas further include areas which may be earmarked for future park expansion. The second category is Catchment Protected Areas (CPA) which are the areas that are important for the hydrological processes to the park. The third category is the Viewshed Protected Area (VPA), which are the areas were development will affect the aesthetic experience of the visitors to the park. The Kruger National Park Management Plan (2011:39) further states that within these VPAs, any development proposal should be carefully screened to ensure that they do not impact excessively on the aesthetics of the

				park. According to Figure 10.9.1-1, the proposed area for the Matsulu Waste Transfer Station falls under the VPA. The aesthetics of the proposed development needs to be assessed.
Kruger National Park/SANParks Socio Economic Development Strategy	Provincial and Local Government	2016	Yes	The Socio-economic development (SED) Strategy provide an opportunity for linkages of KNP SED Strategy and their efforts in addressing illegal dumping and informal recyclable material collected by communities adjacent the KNP park fence. The sorted recyclable waste material has been observed along Progressive Avenue on the way to the site next to the illegal general waste and construction rubble dumping site. There is a potential opportunity of a working relationship between KNP and MLM on providing assistance to the informal waste recyclable collectors within the Mandela Area, Matsulu A. More information is provided in detail I Section 10.8 of this report.

6. MOTIVATION FOR THE NEED AND DESIRABILITY FOR THE PROPOSED DEVELOPMENT

Within the municipal IDP (2016/2017), environmental protection and illegal waste dumping are listed as key problem areas. The proposed establishment of a public waste drop off facility within the area will prevent and minimize illegal dumping activities, thereby preventing pollution.

In their 2015/2016 Service Delivery and Budget Implementation Plan (SDBIP), the City of Mbombela Local Municipality listed the following as key performance indicators and targets for waste management:

Table 6.1: Mbombela Local Municipality key perfomance indicators and targets for waste management

Development Priority	Development Objectives	Key Performance Indicators	Target Project Description	2015/2016 Budget
Waste and environmental management	To strengthen the delivery of sustainable integrated human settlement and environmental management	Number of transfer stations licensed = 4	Construction of 4 Waste Transfer Stations	**R600 000**
		Number of EPWP Participants trained = 600	Training of 600 EPWP beneficiaries	**R700 000**
		Number of illegal dumping areas cleared = 40	Clearing and Management of 40 illegal dumping spots	**R1 200 000**

The proposed activity forms part of an Integrated Waste Management approach aimed at reducing the amount of waste transported to the landfill site and prevent illegal dumping. In addition, the proposed activity supports the implementation of the National Waste Management Strategy which promotes waste recovery and waste beneficiation. Any anticipated and potential negative impacts are adequately mitigated in accordance with the Environmental Management Programme (EMPr) developed for the facility and is attached as Appendix F.

The overall benefits of the proposed activity include the following:

Social:

- Waste management services improved.
- Public health improved from reduced pollution and illegal dumping sites that attract vectors such as rodents and flies.

Economic:

- Temporal and permanent jobs result in increased quality of life.
- Economic development in the area.

Environmental:

- Improved environmental well-being;
- Eradication of illegal dumping sites;
- Improved waste management system;
- Reduced pollution from illegal dumped waste and
- Improved land use management.

7. MOTIVATION FOR THE PREFERRED SITE, ACTIVITY AND TECHNOLOGY ALTERNATIVE

7.1 Post –environmental impact assessment Site Alternatives considerations

Site Alternative S1 pre-impact evaluation preferred site

7.1.1 Pre-impact evaluation proposed site (Site Erf 312)

After the impact evaluation, the impact assessment indicated that this site would not be preferred. Therefore the existence of households within the proposed site (Appendix A1.1), will trigger a need for relocation of the settlements. Even though the occupants knew that the site was already delineate for use by the municipality, when they encroached it, the impact of relocation was re-considered and alternatives means alleviating this impact were devised.

This site is no longer preferred for the proposed development due to the additional information analysed that reflects the existence of households within the proposed site (Appendix A1.1), a need for relocation of the of the settlement

This previously preferred site is no longer preferred due to the confirmation of established houses within the area earmarked to the development of the Waste Transfer Station. The area is within slightly transformed area with vegetation that potential could have indigenous trees. A Tree Survey has been recommended to evaluate the potential existence of protected species before any construction can resume. An Ecological Specialist was approached for a quote to conduct a Tree Survey, however the Tree Survey was never commissioned. Adjacent to the proposed site along Progress Avenue, towards the Crocodile River and Mandela Park, there is currently vacant utilised as an illegal waste dumping site and informal recyclable bottle material sorting as shown in Photo 7.1-1. However the close proximity of the Crocodile River to the proposed site is an area with potential for surface water pollution should the mitigation measures within the EMPr not be implemented or adhered to.

The Crocodile River is +/- 100 m from the left hand side of the site boundary and about 82 m from the right hand side of the site boundary and the river banks is high and the flood is not expected to rise above this high river bank.

IMG_1149: Existing site – Illegal dumping site

IMG_1152: Existing site – illegal dumping site

Photo 7.1-1 Current status of the proposed site for the construction of the Matsulu Waste Transfer Station

7.1.2 Post-impact evaluation preferred Site S2 (Site Erf 302).

Subsequent to additional information and further impact assessment, the preferred site Erf 312 has proved not to be the most suitable site. This has constituted to the establishment of new site alternatives. These additional site alternatives have been identified, with the supporting advantages and limitations respectively. Each site has been

assessed by investigating the potential impacts; direct, indirect, cumulative and induced. The details of all the considered sites and site alternatives and their comparison are outlined in the Table 7.1-2.

The post–evaluation of impacts and analysis process of the proposed site was undertaken with comments from the pubic participation process and site visits, the previously preferred site has changed from Erf 312 to Erf 302. The newly preferred site is now Erf 302 with the T0JU00700000030200000 Surveyor-general Cadastral Code 21 digit site (erf/farm/portion) reference number. The Erf 302 is also on municipal land and the land is fairly vacant. The site however has not been approved by Council for the proposed activity. More details are provided in the Table 7.1-2 below.

Table 7.1.2 Site Selection and Alternatives comparison

Site Alternative	Advantages	Disadvantages	Issues
1 Erf 311 (See Table 1-2 below)	• Municipal land. • Considered as an approved alternative site with site layout plans.	• Close proximity to the Kruger National Park (KNP) fence (80m), which creates a variety of impacts. The fence requires a buffer of 100m therefore the layout of the site needs to be moved to incorporate the prescribed buffer. • Close proximity to the Ntsikazi River (141m), this possess a threat on water pollution which is one of the key rivers in KNP. • Impact of presence of site with waste - the smell has a potential of attracting animals from KNP especially baboons. • An additional impact includes noise pollution; noise from the equipment, trucks and the site workers. • Proximity to Ntsikazi River – impact from storm water from the site, leachate from stored waste, oil and chemical spills from trucks, machinery and from the wash bay.	• Proximity to KNP fence. • Proximity to Ntsikazi river. • Proximity of proposed site and baboons and mice attracted by the smell from waste especially food waste. • Potential pollution to Ntsikazi river due to storm water, leachate from waste offloading and sorting areas, oil, chemicals from maintenance and wash bay area.
2 Erf 312 (See Table 1- 3 below)	• Municipal land. • Area size adequate to accommodate proposed site layout with extra room for trucks to manouver.	• Established houses on the proposed site, with a potential of the development being formalised. • Close proximity to Crocodile River (100 m). • Close proximity to community arable land (50m). • Close proximity to houses on Triumph and Progressive Road. • Site layout plan infringing on existing Matsulu Waste Water Treatment Works.	• Human settlement and established dwellings on the proposed site. • Potential relocation of residents – costly both economically and socially, with political implications. • Proximity to proposed site present challenges in smell, noise, dust, visual intrusion to residents on Erf 312, Progressive Road and on Triumph road.
3 Erf 302 (See Table 1-4 below)	• Municipal land. • Currently vacant.	• Not approved by Council as potential proposed project site. • Close to the residents on Progressive Road and Triumph Road. • Adjacent to Matsulu Water Pump Station.	• Land not approved by Council as potential proposed project site. • Close proximity to residents on Progressive Road and Triumph Road, impacts include smell, dust, noise, visual intrusion, increased traffic on Progressive Road from trucks, animal and pest invasion.
4 Erf 311 + Waste	**1.** Erf 311 municipal land. **2.** Matsulu Waste Treatment Plant belongs to municipality. **3.** No residents or houses too close	**4.** Only Erf 311 portion approved for proposed project. **5.** Waste Treatment Plant boundary unknown **6.** No approval from Council for the new proposed alternative.	• Council approval for use of the proposed land (from boundary of Waste Treatment Plant and combine with portions of Erf 311). • Proximity to KNP fence.

treatment plant (See Table 1-5 below)	to the proposed site.	**7.** Access road through Progressive Road would be closed and diverted to the far left of Erf 312. **8.** Access to Mandela Park affected, use of diversion road. **9.** Access to Crocodile River for fishing closed and diverted.	• Proximity to Ntsikazi river. • Proximity of proposed site mean that baboons and mice might potentially be attracted by the smell from waste especially food waste. • Potential pollution to Ntsikazi river due to storm water, leachate from waste offloading and sorting areas, oil and chemicals from maintenance as well as wash bay area. • No access/limited restriction to Mandela Park through Progressive Road. • No access to Crocodile River for fishing through Progressive Road. • New road establishment on far left of Erf 312, for access to Mandela Park and Crocodile River. • Cost implications for new road diversion. • Cost of loss of arable land for new access to Mandela Park and the Crocodile river for fishing.
5 Err 311 and Erf 97 (See Table 1-6 below)	• Both municipal land. • Access road through existing road, Progressive road.	• Only Erf 311 portion approved for proposed project. • No approval from Council for the new proposed alternative to include Erf 97. • Erf 97 – close proximity to houses. Impact from the site include smell, dust, noise, visual intrusion, animal and pest invasion as well as increased traffic on Progressive Road from trucks. • Erf 97 – close proximity to KNP fence and Ntsikazi River. Proximity to Ntsikazi River – impact from storm water from the site, leachate from stored waste, oil and chemical spills from trucks, machinery and from wash bay.	• Council approval for use of the proposed land only Erf 311). • Proximity to KNP fence • Proximity to Ntsikazi river • Proximity of proposed site and baboons and mice attracted by the smell from waste especially food waste. • Potential pollution to Ntsikazi river due to storm water, leachate from waste offloading and sorting areas and oil and chemicals from maintenance and wash bay area.
6 Erf 97	• Municipal land • Access road through existing road, Progressive road.	• No approval from Council for the new proposed alternative to include Erf 97. • Erf 97 – close proximity to houses. Impact from the site include smell, dust, noise, visual intrusion, animal and pest invasion, increased traffic on Progressive Road from trucks. • Erf 97 – close proximity to KNP fence and Ntsikazi River. Proximity to Ntsikazi River – impact from storm water from the site, leachate from stored waste, oil and chemical spills from trucks, machinery and from wash bay.	• No approval from Council. • Proximity to KNP fence. • Proximity to Ntsikazi river • Proximity of proposed site and baboons and mice attracted by the smell from waste especially food waste. • Potential pollution to Ntsikazi river due to storm water, leachate from waste offloading and sorting areas, oil and chemicals from maintenance as well as wash bay area. • Close proximity to houses. Impact from the site include smell, dust, noise, visual intrusion, animal and pest invasion, increased traffic on Progressive Road from trucks.

7 No Go Alternative	10. Residents not affected by all potential negative impacts presented by the proposed development. For example, smell, noise, dust, visual intrusion etc.	• Current illegal dumping continues, • Lack of formalised waste collection service continues.	• Illegal waste dumping • Informal waste recycling initiative • No waste collection service provided by Municipality.

7.2 Alternative Site

7.2.1 Site Alternative S3 (least preferred site alternative)

The other identified site alternative for the development of the proposed Matsulu Waste Transfer Station is located at Erf 311 Matsulu farm in Mandela Park with the T0JU00700000031100000 Surveyor-general Cadastral Code 21 digit site (erf/farm/portion) reference number. The proposed alternative site description and size is provided in Table 7.2.1-1 and is shown as Photo 7.2.1 and Figure 7.2-1.

Table 7.2.1-1: Description and total size of the site alternative S3.

Description	Total Size (in m^2)
Total size of farm portion 311	61 011.94
Total development footprint area covered by infrastructure including roads and parking areas.	18 140

Photo 7.2.1-1 Current status of the considered alternative site on Erf 311 (least preferred site).

This option is least preferred for the following reasons:

Site Erf 311

Although the site is also a municipal property, its close proximity to the KNP fence presents a challenge both on a legal basis and the safety of both the animals within the park and the workers at the proposed facility (see Appendix A). The noise levels from the site might have an impact to the wellbeing of the animals etc, specialists studies would have to be conducted on the sensitivity levels and threshold levels of noise the animals can tolerate. The equipment, machinery and processes within the proposed site would then need to be specialised not to exceed the provided threshold.

7.2.2 Site Alternative S4 (Portion of Erf 311 and Erf 97)

Post –impact evaluation, this site is another considered site alternative and is also on municipal property and not previously considered as an alternative site due to its close proximity to the KNP fence and Ntsikazi River. However, because it is still within the municipal property, post-impacts evaluations suggested that this be included in the alternative considerations. The location of the proposed Site Alternative S4 presents challenges from a safety and environmental pollution perspective. The safety of the animals within KNP, the workers at the proposed site and the community members adjacent to the proposed site. The site layout for the site alternative is shown in Figure 7.2.2.1

Table 7.2.2-1: Description and total size of the site alternative S4.

Description	Total Size (in m^2)
Total size of farm portion 311	125 057.258
Total development footprint area covered by infrastructure including roads and parking areas.	38 323.252

Figure 7.2.2-1 Alternative site, Erf 311 location map

7.3 Technology Alternative

Technology Alternatives

Technology Alternative T1 (preferred technology method)

Walk in floor containers technology

The "walk in floor " method of temporal storage and haulage to the Tekwane Waste Disposal Site is the proposed and preferred method for the Matsulu Waste Transfer station. The alternative to the "walk in" approach is the normal approach and process of using skip bins for the collection and temporal storage of waste.

Advantages:

- Uses less energy
- Produces less noise due to compaction.

Disadvantages:

- Newly introduced technology used mostly internationally.
- Readily available training manuals are unavailable and facilitators in the country.

(a) Walking Floor

(b) Front view with roll-on bins into which waste is compacted.

Photo 7.3-1 Proposed technology alternatives

Alternative T2 (least preferred method)

Conventional normal compaction technology

Advantages:

- Normal and standard method of compaction.
- Readily available trained and skilled work force for operating the machinery.
- Readily available training available in the country.

Disadvantages:

- Uses more energy and produced more noise for compaction.
- Required much more intensive work labour before material is hauled to the landfill site.

7.4 No-Go Alternative

The no-go alternative entails not constructing the proposed waste transfer facility and leaving the current status as is (Photo 7.4-1). This includes the continuation of the prominent illegal dumping practices currently prevalent in the area. The health risks associated with these practices and challenges with waste collection and management systems within the municipality promote an increase with disease spreading vectors such as rodents, flies and cockroaches. This is a health risk to the current informal housing development encroaching on Site Erf 312. Impact to ground water quality and surface water quality due to potential pollution from soil erosion and increased surface run off. Safety risk to children playing in the illegal dumping site is both a health and safety risk to the wellbeing of the children in the community. Other benefits that the proposed waste treatment plant presents is the cleaning up and rehabilitation of this current status quo. Should the project not proceed,

1. The illegal dumping will continue.
2. The dump will not be cleared up or rehabilitated site.

Health risk to hippopotami, crocodiles and fish due to plastics blown by wind into the Crocodile River.

Due the destructive nature of the proposed development to any natural habitat and biodiversity occurring in the directly affected (footprint) area on a local and regional scale, the no-go alternative will see the area stay in the current condition and probably further decreasing in condition over time if the current land management strategies (or lack thereof) are continued. The current negative impact exerted on the area by the increasing populations of alien invasive weeds will remain and the remnants of natural vegetation in the area will be further transformed with the associated loss of habitat for biodiversity over time. Current and possible future developments on areas surrounding the study area will further isolate the habitat in the study area as a fragment, which will also have a detrimental effect on the ecological functioning of this area in the long run.

Due to the fact that this area is situated within or on the edge of an urban area where the pressure on the environment is mounting in terms of land for formal or informal housing, this area is not exempt from the formation of an illegal settlement, which will also have a major negative impact on the natural environment.

Therefore, if for whatever reason the no-go alternative is enforced, it will see the present ecological status of the biodiversity and the habitats in the study area stay the same or probably decline over time, taking natural fluctuations and external anthropogenic impacts in to consideration.

IMG_1149: Existing site – Illegal dumping site

IMG_1152: Existing site – illegal dumping site

Photo 7.4-1 Current Status of the proposed existing site

8. A full description of the process followed to reach the proposed preferred alternative within the site

8.1 Details of all the alternative considered

8.1.1 Site Alternatives Erf 312 and Erf 311

During the site identification phase, there are two (2) sites which belong to the municipality that were considered, Erf 312 and Erf 311. Both sites belong to the municipality, however the location of Erf 311 presented "high risk" areas of concern for consideration. Erf 311 has two natural water sources on the eastern side (Ntsikazi River) and on the southern side (Crocodile river). Furthermore, Erf 311 is located about 300 m from the Kruger National Park fence. The Crocodile River is located south of the proposed location for Erf 312 about 100 m from the proposed site boundary.

The location of both Erf 311 and Erf 312 and their proximity to environmentally sensitive areas provided a criteria for considering Erf 312 as the preferred Site Alternative S1. As part of further assessments during the Public Participation review process, Erf 312 was rendered no longer a viable option as a preferred site for the proposed development. The newly preferred site is Erf 302 and the details of its consideration are provided in Table 7.1.2 detail in Section 8.1.2 below.

8.1.2 Site Alternatives Erf 302 (Newly preferred site) and portion of Erf 311 and 97 (additional post evaluation considered alternative site)

The challenges encountered with Erf 312 as a preferred site presented a need to consider other adjacent municipal sites. Erf 302 is now the new preferred site. The advantages and disadvantage of each Site alternative is outlined in detail in Table 7.1.2

Another site considered as a site alternative consists of a portion of Erf 311 and Erf 97 and is also on municipal property and not previously considered as an alternative site due to its close proximity to the KNP fence and Ntsikazi River. The location of the proposed Site Alternative S4 presents challenges from a safety and environmental pollution perspective.

The details of each Site Alternative considered are provided in Section 7 above and the and motivation for the preferred alternative is provided in detail in Section 10.14 and the site selection matrix Table 10.4.3-1 in Section 10.14.3.

9. PUBLIC PARTICIPATION PROCESS

Public participation is a process that is designed to enable all Interested and Affected Parties (IAPs) to voice their opinions and concerns that enable the practitioner to evaluate all aspects of the proposed development, with the objective of improving the project by maximising its benefits while minimising the adverse effects. IAPs include all interested stakeholders, technical specialists, and the various relevant government departments to work together to produce better decisions. The projected milestones for the PPP are provided in Table 9.3.2.6 below.

The objective of the public participation process was to:

- Confirm the key stakeholders to include in the process, municipal departments, businesses, NGOs and the communities within the MLM;
- Compilation and maintenance of the stakeholder database for the duration of the project as well as the background information document;
- Introduce the project to the stakeholders to obtain their inputs in the proposed mitigation measures;
- Communicate with the stakeholders at all key applicable project stages;
- Take into consideration all inputs and comments made during engagement sessions for input into the reports to be generated;
- Hold public meetings in the vicinity of the affected areas (Matsulu), as necessary.

9.1 Identification of Interested and Affected Parties (IAPs)

The first step in identifying IAPs was to first locate the proposed area of study through a Windeed Map Search. After the site were located on the map, the ERF number of the proposed study site and ownership was found using the map derived from the Windeed Search.
Furthermore, the Deeds Office was used to obtain details of the adjacent property owners. Once the property owners were identified, a IAP register was created. The parties that were included in the IAP register included: property owners, relevant authorities (competent authorities) and industry, or civil society, Non-Governmental Organisation and Community Based Organisations situated around the proposed site.

9.2 Consultation of stakeholders and Regulatory Authority

9.2.1 Regulatory Authority Consultation

A Pre-application meeting was held with the Department of Agriculture and Rural Development and Land Administration (DARDLA) on 8 May 2017 with Ms Dudu Sibiya and Ms Pamela Ntuli, the outcomes of the meeting are outlined within the comments and response Section 9.2.3.4 and Table 9.2.3.4-1 of the report and also attached as Appendix H1.1.

The Application Forms were submitted on the 11 September 2017 to the Regulatory Authority and the signed letters of acknowledgement of receipt were received on the 14 September 2017. The copy of the letter is attached as Appendix H1.2. The Final BAR will be submitted on the 11 December 2017, which is the regulated 90 days from the 11 September 2017. SAHRA was consulted and awaited the formal lodgement of the site application in their database before they could submit, which has since been lodged.

9.2.2 Consultation with stakeholders and local authorities

A meeting was held with the Department of Agriculture and Rural Development and Land Administration on 8 May 2017 and outcomes of such meeting are included as Appendix H1.1. The outcomes of the meeting were shared with the client Zethu on 25 May 2017 and a request was extended for these to be shared with the Mbombela Local Municipality. The outcomes of the same meeting with DARDL were shared with Ms Dudu via email on 25 May 2017, the correspondence is attached as Appendix H1.3

A meeting was held with the Ward Councillors on 8 May 2017, where preliminary data was shared, minutes are included as Appendix H2.1. The Ward Councillor was provided with progress on the project on 27 July 2017. The minutes of the meeting of 8 May 2017 were shared with the Ward Councillor on 27 July 2017 (communication attached as Appendix H2.2). An acceptance of the proceedings were submitted on the 29 July 2017, as attached in Appendix H2.3.

9.2.3 Notification of Key Stakeholders and Interested and Affected parties

9. 2.3.1 Site notification and adverts

Site notices of the Draft BAR were erected at the proposed site (Erf 312) and other relevant identified areas on the 29 September 2017 as shown in Appendix H3.1. With the assistance of the Local municipality officials and Ward Councillors the Public notices were distributed in strategic areas (Appendix 3.2) within the 100 m radius of the site on the 29 September 2017 as follows:

- Matsulu Local Municipality offices
- Matsulu Library (Appendix H3.2)
- Matsulu Primary School
- Matsulu Clinics
- Local garage
- Spar
- Youth Development Centre (outside the 100m radius to the proposed site)

The neighbouring property owners were notified in writing (Appendix H2.1.2) and copies of the DBAR were circulated to the relevant state departments and commenting authorities. Copies of the Site notice placed at the various strategic areas will be available in the final BAR.

9.2.3.2 Newspaper Advert

The availability of the original Draft Basic Assessment Report (DBAR) was advertised in the local newspaper on the 29th September 2017, Lowvelder, affording the public 30 days to submit comments on the proposed development. The commenting period on the DBAR closed on the 29th October 2017. Copies of the newspaper adverts are attached as Appendix H5.

9.2.3.3 Comments and Response Report

All comments received from the preliminary consultation with the stakeholders have been captured and are presented in Table 9.2.3.3-1 and also attached as into the Comments and Response Report Appendix H6, further comments on the draft BAR will be incorporated during the later phases of the report updating process. All received comments from the Public Participation Process will be consolidated into a Comments and Response Report and attached as an Appendix H6 in the Final BAR.

A preliminary consultation meeting was also held with Ward Councillor on the 08th of May 2017 at the municipal offices. The objective of this meeting was to introduce the Ward Councillor to the project. The key aspects that were discussed include:

- Animal concerns in relation to the safety of the community– the escaping of animals from the KNP where the animals are shot as a control measure that is followed by the Rangers of the Kruger National Park;
- Land invasion – the cultivated land is currently used by informal farmers, however the farmers know that the land belongs to the Municipality therefore there will be no problem when the Proposed projects starts;
- Public participation – It was highlighted that only Ward 13 was affected by this Project and a close working relationship will need to take place with Ward 13 Councillor, Mr Andrew Thabethe . There is a possibility for there to be an engagement with the Traditional Councillor and this will be facilitated by Ward Councillor Donald Nkosi. Ward Councillor Andrew Thabethe will call a meeting for the affected parties within Ward 13. It was then stated that the local newspapers including - Lowveld Newspaper and Mpumalanga News will be used to communicate and notify the stakeholders about the project. The underlying issues that were raised in the meeting include:
  - Odour (smelling)
  - Legal dumping
  - Kruger National Park will be affected
  - Waste moving towards the houses
  - Demarcation implication
  - Flooding
  - Noise for the animals
  - The site is used for fishing (Photo 9.2.3.3-1 to 9.2.3.3-2)
- Additional issues captured include:
- Clarity on process for authorisation to be followed for the Matsulu Waste Transfer Station
- Matsulu Waste Transfer Station licencing process
- Application for an integrated licence approach
- Proximity to the National Park boundary
- For now, the proximity to the national park boundary can also trigger the Listing Notice 3 of NEMA
- The proximity to the water course (Crocodile River)
- The proximity of the site to the watercourse (Crocodile River) must also be looked into because the boundary fence will be a determining aspect.
- The boundary fence of the transfer station and the boundary fence of the park must be looked at and assess the radius and NEMA regulations listing notices in that regard.
- Specialist Studies for the Site Sensitivity Determination
- The Specialist studies will also be determined by the sensitivity of the site.
- Socio-economic impacts – informal housing development eradication
- There are also aspects of the informal housing developments that have encroached into the waste transfer site area.
- Listed activities triggered
- Identification of trigger activities and indicate the appropriate process to be followed.
- Community safety - Animal concerns in relation to the safety of the community – the escaping of animals from the KNP where the animals are shot as a control measure that is followed by the Rangers of the Kruger National Park.
- Existing houses near site -
- There are houses near to the site of the Waste Transfer Station.

- Public participation -
- (a) Are all wards affected by the project?
- (b) Which procedure to be followed regarding the Traditional Councillor.
- (c) Which local newspaper the community uses.
- A question was asked about the public meeting.
- Reported that there was an elephant that was reportedly shot on the 20th of April 2017, during their site visit.
- Community engagement in escaped animal sightings –
- Flooding
- It confirmed that the proposed site is near the Crocodile River. Ward Councillor AT stated that during flooding, water can move up to the disposal site which will pose a threat. Babalwa Fatyi (BF) suggested that flood lines must be implemented.
- It was noted that the proposed site is near the Kruger National Park boundary fence and a fishing park for the community. An alternative site was also identified. The project team further observed some animals such as hippos and crocodiles in the Crocodile River during a site visit conducted on the 19th October 2018 (Photo 9.2.3.3-3)

Photo 9.2.3.3-1. Local Community member fishing.

Photo 9.2.3.3-2. Local community member with fish he caught from the Crocodile River.

Photo 9.2.3.3-3. Hippos in the Crocodile River

Table 9.2.3.3-1: Summary of key issues identified and concerns raised

ISSUE/COMMENT	RAISED BY	RESPONSE	SECTION WITHIN BAR ADDRESSSING ISSUE
Meeting with Department of Agriculture, Rural Development and Land Administration (DARDLA) – 08 May 2017			
Clarity on process for authorisation to be followed for the Matsulu Waste Transfer Station	Ms Babalwa Fatyi (BF)- Myezo Project Manager indicated that when the consultants were initially engaged, the thinking was that a basic assessment process would be undertaken for the waste transfer stations. However, the project proponent has since indicated that there is a possibility that these transfer stations have to be undertaken under the Norms and Standards regulations, which calls for registration of the site.	Department of Agriculture, Rural Development and Land Administration (DARDLA): Dudu Sibiya (DS) indicated that there was an enquiry from Mbombela Local Municipality about the storage of waste and she had responded to say that with those small household volumes, the site could just be handled under the Norms and Standards process. This was not referring to the transfer stations. It is as such assumed that the belief that this process for the Matsulu waste transfer station should follow the registration process of regulation under the Norms and Standards, might have come from the misunderstanding of that guidance. It was emphasized at the meeting that guidance was pertaining only to storage of low volumes of waste, which are covered under Category (C) of the Waste Licencing Regulations (R901) promulgated under the Waste Act.	Section 4 and Section 5
Matsulu Waste Transfer licencing process		Ms DS advised that from preliminary understanding of the project, it seems that it triggers Category (A) activities and as such requires a basic assessment process. The obvious activities are: **Recycling or recovery of waste** (*2) The sorting, shredding, grinding, crushing, screening or bailing of general waste at a facility that has an operational area in excess of 1000m2.* *(3) The recycling of general waste at a facility that has an operational area in excess of 500m2, excluding recycling*	Section 4 and Section 5

		that takes place as an integral part of an internal manufacturing process within the same premises. Ms Pamela Ntuli (PN) added that some site has trenching and conveyor belts and also materials recovery processes. When a detailed layout of the site and actual activities has been provided, then the department can make a conclusive advice on the licencing approach. However, it is definitely not Norms and Standards process but a basic assessment process for now. The sensitivity of the site can even deem it as a full EIA based on the other triggered activities.	
Application for an integrated licence approach	Ms Pamela Ntuli (PN): DARDLA	Ms Pamela Ntuli (PN) cautioned that it might also be possible to follow an integrated licence approach should there be other triggered listed activities such as the road construction..	Section 4 and Section 5
Proximity to the National Park boundary For now, the proximity to the national park boundary can also trigger the Listing Notice 3 of NEMA		Noted.	Section 10.9
The proximity to the water course (Crocodile River) The proximity of the site to the watercourse (Crocodile River) must also be looked into because the boundary fence will be a determining aspect. The boundary fence of the transfer station and the boundary fence of the park must be looked at and assess the radius and NEMA regulations listing notices in that regard.		Noted.	Section 10

Specialist Studies for the Site Sensitivity Determination The Specialist studies will also be determined by the sensitivity of the site.		BF indicated that the project proposal did not include full description of the site, that the will be a requirement of Specialist studies and this is based on theory experience for the licencing of similar transfer stations. The biodiversity study might be required but the site has been cleared and is heavily cultivated. Ground water studies would be required if the project activities would have trenching and other processes associated with materials recovery.	Section 21
Socio-economic impacts – informal housing development eradication There are also aspects of the informal housing developments that have encroached into the waste transfer site area.	Ms Babalwa Fatyi (BF): Myezo Project Manager	BF responded that the Municipality would have to address this aspect and the environmental study indicate how it will be covered and the impact of the transfer station on the human livelihoods and health.	Section 10.13 Table 10.13.2.1
Listed activities triggered Identification of trigger activities and indicate appropriate process to follow.	Ms Babalwa Fatyi (BF): Myezo Project Manager	Once the listed activities are submitted to the department, they will be verified and the project team will be advised on which process to follow regarding the application process. The option would be to send only the waste licence application if there are no waste licences that are triggered to fill the NEMA regulations application form and stipulate all activities including waste licence regulations and as such following the integrated Environmental Authorisation (EA) application process.	Section 4.10 and Table 4.10.1 Section 5.1 and Table 5.1.1
Meeting with Ward Councillors – 08 May 2017			
Community safety - Animal concerns in relation to the safety of the community – the escaping of animals from the KNP where the animals are shot as a control measure that is followed by the Rangers of the Kruger National Park.			Section 10.9 and Table Section 10.13.1 Table 10.13.2.1
Land invasion – The cultivated land is currently used by		SM responded by stating that the invasion of the proposed project site was addressed to the people involved. The	Section 10.13 Table 10.13.1 and

informal farmers, however the farmers know that the land belongs to the Municipality therefore there will be no problem when the Proposed projects starts		Ward Councillor addressed the issue to the community. He also stated that the cultivated lands are used by informal farmers. The informal farmers know that the land is owned by the Municipality, so there will be no problem when the projects starts.	10.13.2.1
Existing houses near site - There are houses near to the site of the Waste Transfer Station.	Myezo Project Assistant: Nelisiwe Mokoena	BF elaborated by stating that there are structure of houses and the project team also saw a cultivated area in the project site.	Section 10.13 and Table 10.13.2.1
Public participation - (a) Are all wards affected by the project? (b) Which procedure to be followed regarding the Traditional Councillor. (c) Which local newspaper the community uses.	Myezo Project Assistant: Nelisiwe Mokoena Myezo Project Manager: Babalwa Fatyi	(a) SM stated that the ward 13 is the only ward affected and we are going to work closely with Ward Councillor Andrew Thabethe, he is the Ward Councillor for Ward 13. (b) SM stated that the team must work with the Ward Councillors, but if we need to contact the Traditional Councillor we can contact him through Ward Councillor Donald Nkosi (DN). (c) SM stated that the Councillor Chamber publication office can be used to distribute pamphlets and for newspapers the Lowvelder newspaper and Mpumalanga News will be used.	Section 9
A question was asked about the public meeting.	Myezo Business Development Manager: Sicelo Jebe	SM stated that the Ward Councillor will call the affected area for the public meeting, so that the meeting can be in order. It was highlighted that only Ward 13 was affected by this Project and a close working relationship will need to take place with Ward 13 Councillor, Mr Andrew Thabethe. There is a possibility for there to be an engagement with the Traditional Councillor and this will be facilitated by Ward Councillor Donald Nkosi. Ward Councillor Andrew Thabethe will call a meeting for the affected parties within Ward 13.	Section 9, Section 9.2.3

		It was then stated that the local newspapers including - Lowveld Newspaper and Mpumalanga News will be used to communicate and notify the stakeholders about the project	
Odour (smelling)	All Ward Councillors present at meeting: Cnllr Gladys Mabuza (GM Cnllr Sabelo Masuku (SM) Cnllr Andrew Thabethe (AT) – Ward 13 Cnllr Donald Nkosi (DN	Noted	Section 10.3.1 and Table 10.13.1, Table 10.13.2.1 – Air Quality
Illegal dumping		Noted	Section 4.12.2 and Figure 4.12.2-1(c) Section 10.3.1 and Table 10.13.1, Table 10.13.2.1 – Waste Management
Kruger National Park involved		Noted	Section 10.9
Waste moving towards the houses		Noted	Section 10.3.1 and Table 10.13.1, Table 10.13.2.1 – Air Quality Section 10.3.1 and Table 10.13.1, Table 10.13.2.1 – Waste Management Mitigation measures.
Demarcation implication		Noted	Section 10,.9 and Section 10.13 Table 10.13.2.1
Flooding		Noted	Section 10.13 Table 10.13.2.1 – Storm water management & flooding management plan
Noise for the animals		Noted	Table 10.13.2.1 – Noise mitigation measures
The site is used for fishing		Noted	Section 4.12.2 and Figure 4.12.2-1 (b)

			Section 10.11 Section 10.13 and Table 10.13.1 Table 10.13.2.1 – Socio economic and land use management mitigation measures.
Animal shootings - Reported that there was an elephant that was reportedly shot on the 20th of April 2017, during their site visit. Ward Councillor.	Myezo Project Manager: Babalwa Fatyi	SM stated that animals do get shot when it tries to escape from the park. This is done because it becomes dangers to the other animals in the park. The animals are shot by rangers from the Kruger National Park	Section 10.9 Section 10.11 Section 10.13 and Table 10.13.1 Table 10.13.2.1 – Safety mitigation measures
Community engagement in escaped animal sightings – Question asked on how the community informs the park if there is an animal that has escaped from the park and whether the community has a formal structure for such matters.	Myezo Project Manager: Babalwa Fatyi	SM stated that they do have a structure and there is no representative from the community, however they do have emergency number to call the park if they see any animal in the community.	Section 10.9 Section 10.9.1 Section 10.9.2 Section 10.11 Section 10.13 and Table 10.13.1 Table 10.13.2.1 – Safety mitigation measures
Road developments – The project team was informed that there is a proposed road to Malelane which will pass by the Waste Transfer Station.	Cnllr Sabelo Masuku	Noted. To check with Department of Roads and Transport on their proposed road network development that may affected the proposed site for the construction of the Matsulu Waste Transfer Station.	Section 6
Flooding - It confirmed that the proposed site is near the Crocodile River. Ward Councillor AT stated during flooding the water can move up to the disposal site. BF suggested that flood lines must be done. It was noted that the proposed site is also near	Cnllr Andrew Thabethe	Noted.	Section 10.13 and Table 10.13.1 Table 10.13.2.1 – Storm water management mitigation measures and flood management plan.

the Kruger National Park boundary fence. It was also realised that there is a fishing park for the community. An alternative site was also identified. The project team also observed some animals that seemed like hippos in the Crocodile River.			Flood line study to be conducted to ensure proper measures are in place to mitigate against flooding to the site. Section 15
Email received from Tracy Peterson and Eddie Riddell on 02 October 2017 in response to IAPs Notification about the proposed project and invitation to register as an IAP on the 29th September 2017.			
Dear Caspa On behalf of the Kruger National Park, I would like to register as an I&AP for the attached proposed development. Please include me all correspondence with the park and I will avail myself to meet with you along with other officials from the park to discuss the project and potential impacts.	Tracy Peterson	Noted. Added to the IAP Registered. Meeting with Kruger National Park was scheduled for 04 October 2017.	Appendix H4.1
I can be available for an hour or so, if you can confirm time on Wednesday afternoon. I will have particular interest to water management issues on site and its relevance to the Crocodile River, thanks.	DR E Riddell	Noted. Water management issues addressed in the Final Report.	Section and Table 10.13.1.
Meeting with Kruger National Park – 04 October 2017			
A meeting with the Kruger National Park was held on the 04th of October 2017, the alternative site Erf 311, is their biggest concern and impacts relating to animals . This was followed by a Public Meeting on the 05th of October 2017. The main points raised include; environmental concerns, health concerns and job concerns.	DR E Riddell Tracy Peterson W. Masundu	Noted.	Section 10.13 and Table 10.13.1 Appendix H6
Meeting with Matsulu Community – Public Meeting – 05 October 2017			
A public meeting was held on the 05 October 2017 with Matsulu community and concerns relating to jobs and the animals from the KNP	Matsulu community and Ward Councillors, MLM	Noted.	Section 9 and Table 10.13.1

were raised.	Officials		Appendix H6
Meeting with Kruger National Parks/ SANParks – Socio economic development aspects and informal recyclers	Ms H. Mthimunye Myezo Team	Noted.	**Section 10.8** Tabe 10.13.1 Appendix H6

9.2.3.4 Public Revision of the Draft BAR

The draft BAR was provided to the public for 30 days for review to their comments and inputs for review and inclusion into the final BAR. The BAR copies has been distribute at the local municipality office, the library and the local schools. Proof of submission are included Appendix H3.2.

- The Draft BAR was made available in hard copy at the local municipality offices, the Matsulu library and also electronically distributed to stakeholders on the IAP register as of 29 September 2017. Site notices notifying people about the availability of the BAR were displayed at Matsuslu Primary School; Matsulu clinics; Matsulu Local Municipality offices; Matsulu Library; Local garage; Spar and Youth Development Centre which falls outside the 100 m radius to the proposed site.

Copies of the Draft Basic Assessment Report were submitted to the following Authorities for comment:

- Mbombela Local Municipality– Pollution and Chemical Management Directorate
- Mbombela Local Municipality– Waste Management
- Mbombela Local Municipality – Municipal Manager's office
- Ehlanzeni District Municipality
- Traditional Authorities
- Kruger National Parks (SANPARKs)
- Lubambiswano Community Forum
- Department of Water and Sanitation
- Department of Health
- Heritage Mpumalanga
- Nkomati Catchment Management Agency
- Department of Transport and Public Works

Emails and notification letters sent to the key stakeholders are attached as Appendix H2.1.1.

9.2.3.5 Final Consultation BAR

The final consultation with the key stakeholders will be ensured through letter and email and their comments will be forwarded directly to the Competent Authority.

A request for extension was requested to ensure the IAPs were able to review both the draft BAR and EMPr and also to engage specialists for studies to be commissioned. The extension was granted. The IAPs were provided with the opportunity to review the final BAR and EMPr and their comments are to be sent directly to the Competent Authority.

9.2.3.6 PPP summary (Process and Appendices)

The key activities undertaken are summarised in Table 9.3.2.6-1 below.

Table 9.3.2.6-1: PPP Summary of activities undertaken

Activity	Description	Date	Appendices	Attached Yes or No
1. Authority Consultation	Consultation with the Competent Authority – MDALEA (Pre – application	08 May 2017	Appendix H1	Yes

Activity	Description	Date	Appendices	Attached Yes or No
	meeting).			
2. Site Visit with Competent Authority and KNP/SANParks	After the submission of the draft BAR (29 September 2017), a site visit requested by DARDLEA with KNP, MLM and Myezo team was conducted on the 19th October 2017. Minutes of site visit attached as Appendix H1.1 including the agenda and the attendance register with the Site Visit Report attached as Appendix H1.4 with the Photographic Record. During site visit a Tree Survey for the proposed site was recommended.	19 October 2017	Appendix H1.1 Appendix H1.4	Yes Yes
3. Consultation with other stakeholders	Consultation with key stakeholders including:	08 May 2017 25 May 2017	Appendix H2	Yes
	Ward Councillors – (Project introduction and identification of issues and concerns)	08 May 2017	Appendix H2	Yes
4. Identification of Interested and Affected Parties (IAPs) and Compiled IAP Register	Identify all key IAP to be consulted and involved in the process with the assistance of Ward Councillors. A list and database of all key IAPs has been compiled and will be regularly maintained.	07 April 2017	Appendix H4 Appendix H4.1	Yes
5. Compile IAP Comments Report	IAP Comments report	18 September 2017	Appendix H4 Appendix H.4.1 Appendix H6	Yes
6. Submission of Application forms and receipt of Acknowledgement letter	Application forms submitted to Competent Authority on the 11th September 2017 and Letter of Acknowledgement received from Competent Authority on the 14 September 2017. Draft BAR submitted on 29	11 September 2017 14 September 2017	Appendix H1.2 Appendix H1.2.1 Appendix H1.2.2	Yes Yes Yes

Activity	Description	Date	Appendices	Attached Yes or No
	September 2017 and letter of Acknowledgement of receipt received.			
7. Site notification	Erect public site notices in strategic positions as agreed with Ward Councillors and municipal department.	29 September 2017	Appendix H6	Yes
8. Newspaper Advert	Notifications in the form of letter and emails were sent to IAPs to inform them about the draft BAR and darf EMPr. Adverts posted in local newspaper, the Lowvelder.	29 September 2017	Appendix H2.1 Appendix H2.1.1 Appendix H7	Yes
9. Comments and Response Report	All received comments from the Public Participation Process have been consolidated into a Comments and Response Report. The final report is attached as Appendix H8. Comments received from the Competent Authority on the Draft BAR from Ms T. Sithole of DARDLEA – Environmental Authorisation. Comments received from the Competent Authority on the Draft BAR from Mr Eric Sambo of DARDLEA – Waste Licensing Section. An email with letter of Acknowledgement of Receipt sent to the Competent Authority (DARDLEA). Letter to Mrs T. Sithole. An email with letter of Acknowledgement of	18 September 2017	Appendix H8 Appendix H1.2.3 Appendix H1.2.3 Appendix H1.3.1 Appendix H1.3.1	Yes Yes Yes Yes Yes

Activity	Description	Date	Appendices	Attached Yes or No
	Receipt sent to the Competent Authority (DARDLEA). Letter to Mr Erik Sambo.			
10. Public Review of the Draft BAR	The public was provided with 30 days to review the Draft BAR and forward their comments and inputs for review and inclusion into the final BAR.	29 September 2017	Appendix H9	Yes.
11.Public Meeting	A public meeting was held to discuss the draft BAR and also to capture additional concerns,	04 October 2017	Appendix H2.1.1.4	Yes
12. Public Review of the Draft EMPr	Draft EMP was sent to IAP's and stakeholders on the 13th of October 2017, where all IAP's were notified of the extension of the commenting period from Monday, 30 October 2017 to Monday, 13 November 2017. Additionally, the hardcopies of the draft EMP were distributed to Mbombela Local Municipality, Matsulu Library and DARDLEA officials (Thokozile Sithole) on the 19th of October 2017. Mbombela Local Municipality and DARDLEA also received compact discs (CDs) containing the same content as the hardcopy draft.	13 October 2017 30 October 2017 19 October 2017		
13. Post draft BAR consultation with other stakeholders: Meeting with KNP/SANParks	Meeting with SANParks to present the draft BAR. A meeting was held with representatives of SANParks, to capture their input and their recommendations.	05 October 2017	Appendix H2.1.1.3	Yes
14. Site Visit with DARDLEA, KNP, MLM and Myezo	After the submission of the draft BAR, a site visit with KNP, MLM and Myezo team was conducted on the 19th October 2017. Minutes of	19 October 2017	Appendix H1.1	Yes

Activity	Description	Date	Appendices	Attached Yes or No
	site visit attached as Appendix H1.1 including the agenda and the attendance register with the Site Visit Report attached as Appendix H1.4 with the Photographic Record.		Appendix H1.4	Yes
15. Meeting with KNP/SANParks Socio Economic development Section	A meeting was held with Ms Hilda Mthimunye of the Socio-Economic Division of the KNP/SANParks in Groenkloof to engage her on the programmes and projets her department is involved in especially within Matsulu area and also future programmes that might include the participation of Mbombela Local municipality and Matsulu community. Details prvided in Section 10.8. Minutes of the meeting with supporting documents and attendance register are attached as Appendix H2.2.	18 January 2018	Appendix H2.2	Yes
16. Ecological Study for the recommended Tree Survey	Mr Mtotywa of the Department of Forestry and Fishries, provided the Myezo team with Consultants to approach for quotations to conduct the Ecological Survey. The recommended Specialist was approached for a Quotation and the communication and documents are attached as Appendix I.	30 November 2017	Appendix H Appendix HI.3.2	Yes
17. Specialist Studies	The recommended Specialist Studies include: Hydrological Studies, Flood line studies. Heritage Studies	None commissioned. Process to engage started in May 2017.	Appendix HI	Yes

Activity	Description	Date	Appendices	Attached Yes or No
	No Hydrological Specialist studies were commisioned to date. Appendices relating to the Specialist studies is attached as Appendix HI.			
	Ecological Studies – Tree Survey. On the 28th March 2018, a request was received through an email from Competent Authority represented by Ms thokozile Sithole on the finalisation od the Biodiversity Study with a requirement to resubmit final report reviewed by IAPs in 40 days from the 28th March 2018. The Specialist to conduct Biodiversity Study was commissioned, engaged and appointed on the 13 April 2018. Biodiversity Assessment Study undertaken from the Tuesday, 17th April to Tuesday, 24th April 2018. The Biodiversity Assessment Report was received from the Specialist on Wednesday, 25th April 2018. Final BAR and EMPr were updated with Findings from the Biodiversity Report. The updated Final BAR and EMPr were submitted to IAPs for review on the 4th May 2018 (30 day review period from 4 May 2018 to 04 June 2018). The Revised Final BAR and EMPr with comments from the IAPs will be submitted on the 5th June 2018.	28 March 2018 13 April 2018 17 April – 24 April 2018 25 April 2018 3 May 2018- 4 May 2018 5 June 2018	Appendix H1 Appendix I1.1 – I1.3 Appendix D1	Yes Yes Yes
17. Final Consultation	IAPs were notified on the	28 February 2018	Appendix 8	Yes. Done

Activity	**Description**	**Date**	**Appendices**	**Attached Yes or No**
BAR	28th February – 02 March 2018 and all comments have to be submitted to DARDLEA.	– 02 March 2018		
18. Submission of BAR to DARDLEA	The Final BAR and EMPr together with CDs were submitted to the new address for the Competent Authority: Block 4, Cycad Building, Riverside Park (opposite Audi entrance), Nelspruit.	27 February 2018	Hand Delivery to DARDELA offices: Block 4, Cycad Building, Riverside Park (opposite Audi entrance), Nelspruit. Appendix H1. (Proof of submission)	Yes.
	Submission of Updated Final BAR and EMPr with findings from the Biodiversity Report on the 4th May 2018.	04 May 2018	Emailed to DARDLEA and registered IAPs. A CD placed at Matsulu Library and Mbombela Local municipalities.	Planned
19. Receipt of Environmental Authorisation from DARDLEA	After 107 days (27 February 2018 – 12 June 2018)	12 June 2018	12 June 2018	

10. ENVIRONMENTAL SETTINGS

10.1 Hydrology

The site is situated close to Crocodile River, Crocodile River runs in a west-east direction leaving the site on the north Fishing activities takes place on Crocodile River; this was noted during the site visit on the 8 of May 2017 (Figure 4.12.2-1(b)).

10.2 Geohydrology

Matsulu area is underlain by a granite aquifer which is estimated to store approximately 5000 m³ of water per km^2 and receives ±25 000 m^3 per annum of recharge from rainfall. Large exploitation of groundwater is limited due to the physical hydraulic nature of granite aquifers. Groundwater quality is good although there are high threats of contamination due to informal settlements development around the area. Groundwater drainage is in an easterly direction.

10.3 Flora Assessment /Vegetation type

The floral diversity of the study area including all erwen or portions thereof that are relevant to this assessment is severly diminishedfrom its original state due to long-term anthropogenic land uses, specifically informal cultivation. The Matsulu township area is occupied mainly by the Malelane Mountain Bushveld (Figure 10.3-1) and the area falls with minimal habitat remaining (Figure 10.3-2). The general vegetation type surrounding the outskirts of the township is open savannah on mountains and higher-lying slope, with open to dense, short mountain Bushveld on rocky rocky outcrops and lover vegetation types are Waterberg Mountain Bushveld (SVCB 17) and Roodeberg Bushveld (SVCB 18). According to South African Biodiversity Institute (SANBI) the project area falls under protected buffer zone area.
The vegetation of this landscape is very heterogeneous, but *Combretum apiculatum* is omnipresent on the shallow soils regardless of the parent material of the soil. The structure of the woody component varies from dense to moderate, 3 metre high shrubs with single trees and can be described as a bush savanna. Other woody plants which are there are Acacia *nigrescens, Combretum zeyheri, C. collinum, Terminalia sericea, T. prunioides, Dischrostachys cinerea subsp. Africana, and Acacia tortilis*. The vegetation is very similar to that found on the koppies in the Lowveld Sour Bushveld of Pretoriuskop and elements of this landscape are also sporadically found amongst the mountains.

The dominant grasses in this area are *Heteropogon contortus, Pogonarthria squarrosa, Panicum maximum, Digitaria eriantha subsp. Pentzii, Cymbopogon plurinodis, Aristida congesta subsp. Barbicollis, Tricholaena monachne, Trichoneura grandiglumis, Enneapogon cenchroides and Themeda triandra*. A common garden flower Gerbera *jamesonii* occurs extensively in this mountain veld.

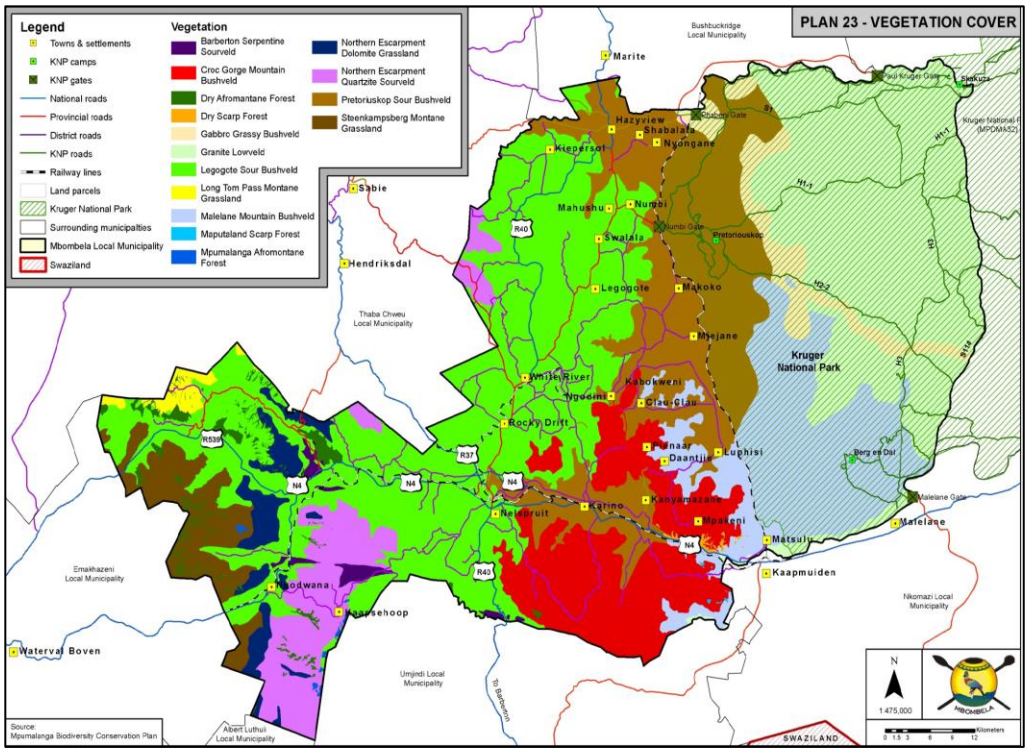

Figure 10.3-1 Mbombela Vegetation cover

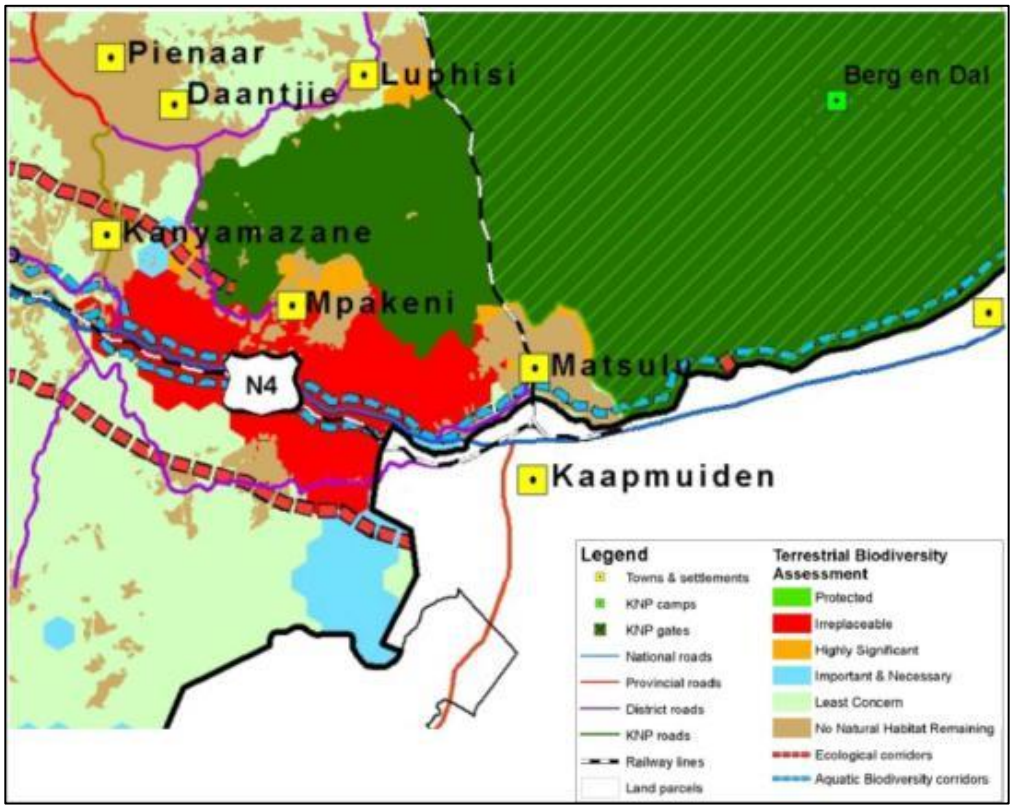

Figure 10.3-2 Terrestrial Biodiversity plan

10.3.1 Conservation Status of Local Ecosystems

Threatened and protected ecosystems

No ecosystems that are listed in The National List of Ecosystems That Are Threatened and in Need of Protection (Government Gazette no. 34809 of 09 December 2011) under the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) occur in or in close vicinity to the study area.

10.3.2 Conservation of different land-use areas

The guidelines set by the Mpumalanga Biodiversity Sector Plan (2014) for the conservation of different land-use areas in the Mpumalanga Province was consulted. According to both terrestrial and fresh-water guidelines and mapping units, the study area falls in Heavily Modified Areas, but at the same time the whole study area and the areas surrounding it falls in a terrestrial Protected Area Buffer ESA, supporting the biodiversity and ecological conservation of the KNP directly adjacent to the study area on its eastern side. For this purpose, Protected Areas (PA's), Critical Biodiversity Areas (CBA's) and Ecological Support Areas (ESA's) were identified and mapped. Also defined are Other Natural Areas (ONA's) and Heavily or Moderately Modified Areas (HMMA's).

According to the mapping units of both categories, the study area falls in Heavily Modified Areas (Figures 10.3.2-1 and 10.3.2-2), but at the same time the whole study area falls in a terrestrial Protected Area Buffer ESA, supporting the biodiversity and ecological conservation of the Kruger National Park (KNP) directly adjacent to the study area on its eastern side.

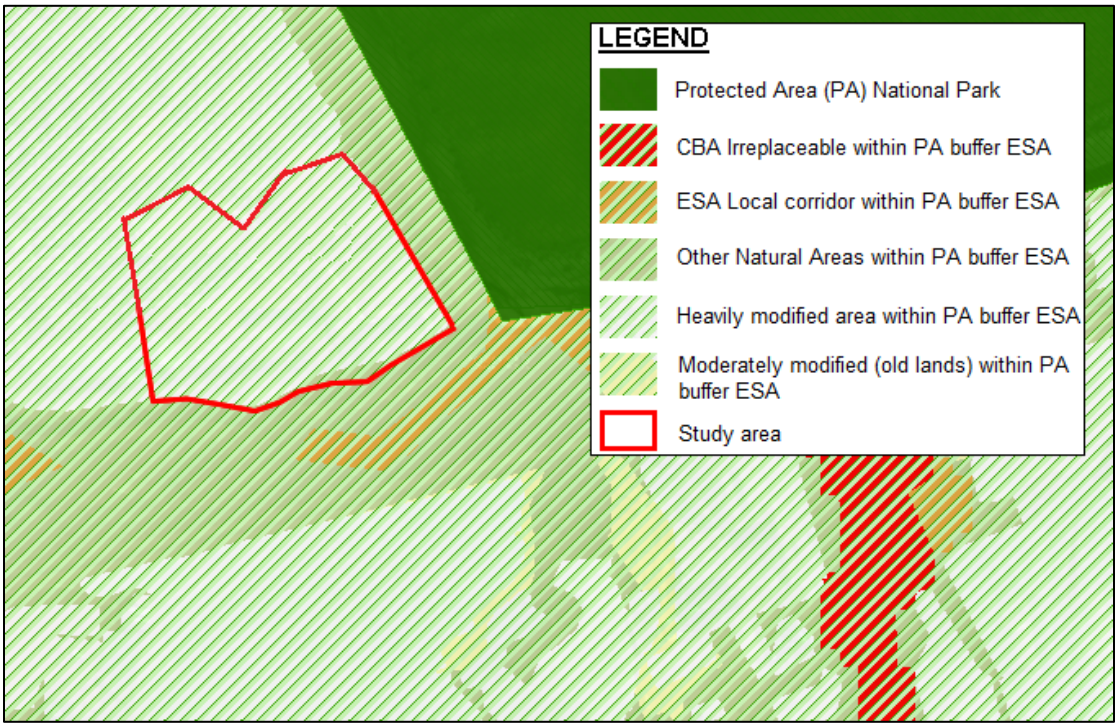

Figure10.3.2-1: Image showing the terrestrial CBAs, ESAs in and around the study area.

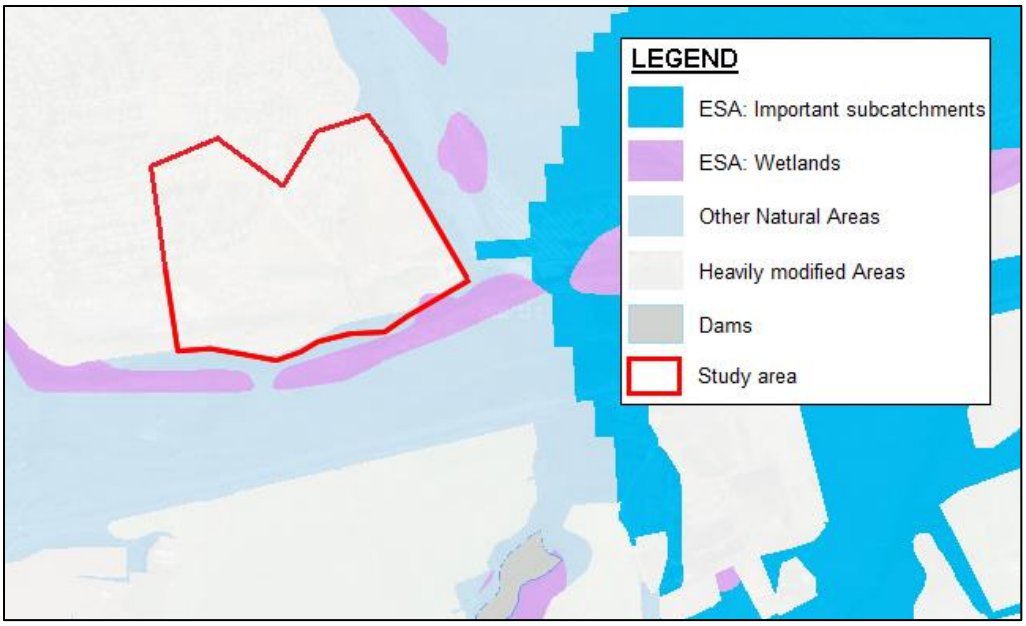

Figure 10.3.2-2: Image showing the fresh water CBAs, ESAs in and around the study area.

10.3.3 Habitat Sensitivity

The objective of a sensitivity mapping exercise is to determine the location and extent of all sensitive areas that must be protected from transforming land uses as far as possible.

The whole study area itself has been rated as having low sensitivity from a biodiversity point of view. This is mainly due to the high levels of habitat transformation and degradation observed. The Crocodile River and its riparian zone on the southern edge of the study area, as well as the Nsikazi River and its associated riparian habitat and the PA (KNP) just outside to the east of the study area, however, are rated as high in habitat sensitivity due to the ecological importance and/or conservation significance of these habitats. Figure 10.3.3-1 presents the distribution of the ecological sensitivity of habitats in the study area.

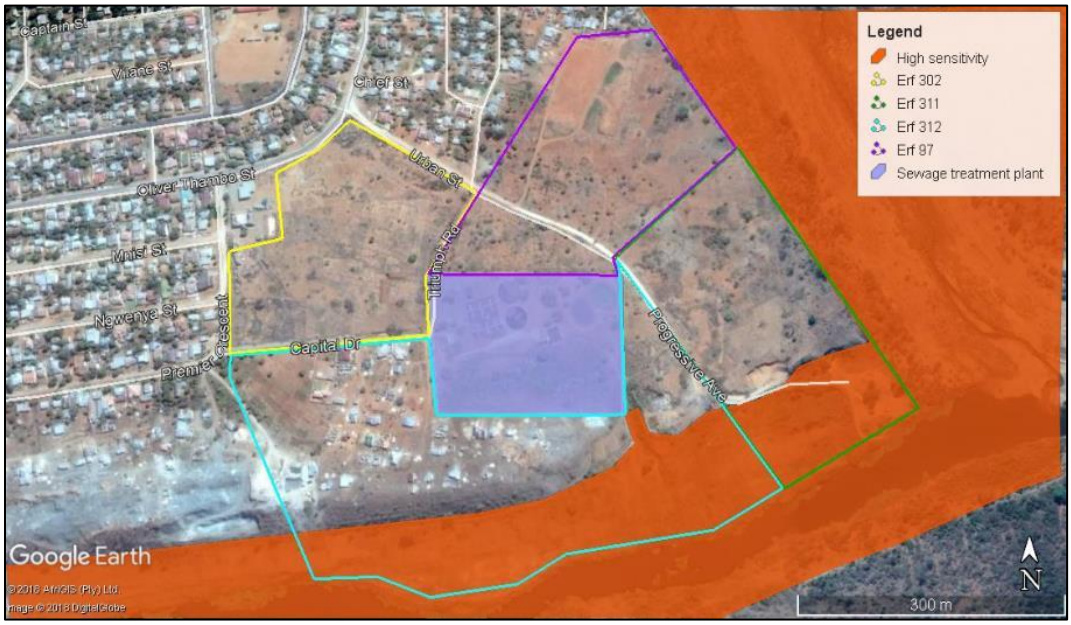

Figure 10.3.3-1: Sensitive habitats in and around the study area.

10.3.4 Receiving Ecological Environment

According to Mucina and Rutherford (2006) the study area falls in the Granite Lowveld (SVl3) vegetation type (Figure 4). Other vegetation types occurring nearby are the Malelane Mountain Bushveld (SVl11) to the north, and southwards areas of Kaalrug Mountain Bushveld (SVl12) and Baberton Serpentine Sourveld (SVl13).

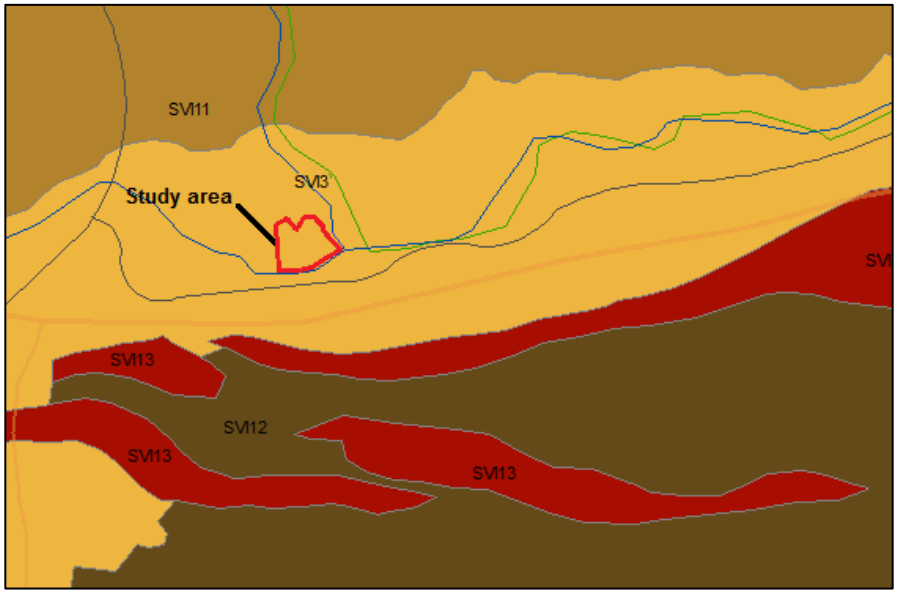

Figure 10.3.4-1: Distribution of vegetation types in and around the study according to Mucina and Rutherford (2006).

The description of SVl3 below was summarized from Mucina & Rutherford (2006).

10.3.4.1 Granite Lowveld (SVl3)

SVl3 occurs in Limpopo and Mpumalanga provinces, Swaziland and also marginally in KwaZulu-Natal. It spans in a north-south belt on the plains east of the escarpment from Thohoyandou in the north, interrupted in the Bolobedu area, continued in the Bavati area extending eastwards on the plains of the Murchison Mountain Range and southwards to Abel Erasmus Pass, Mica and Hoedspruit areas to the areas east of Bushbuckridge. Large areas of SVI3 occur in the Kruger National Park from just east of Orpen Camp southwards through Skukuza and the area west thereof, further to Mkuhlu and to the basin of the Mbyamiti River. It continues further southwards to the Hectorspruit area with a narrow westward extension up to the Crocodile River Valley past Malelane, Kaapmuiden and the Kaap River Valley, entering Swaziland between Jeppe' Reef in the west and the Komati River in the east and eventually entering KwaZulu-Natal near Pongola.

The area varies between 250 to 700 m in altitude and receives summer rainfall (MAP 450 mm in the east and 900 mm near the escarpment in the west). Summers are hot and winters mild and generally frost free. The geology changes from north to south including the Swazian Goudplaats Gneiss, Makhutswi Gneiss and Nelspruit Suite (granite gneiss and migmatite), and further southstill, the younger Mpuluzi Granite. Archaean granite and gneiss weather into sandy soils in the bottomlands and clayey soils with high sodium content in the lowlands.

The vegetation of SVI3 is dominated by tall shrubland with few trees to moderately low woodland on deep sandy uplands with *Terminalia sericea, Sclerocarya birrea* subsp*. caffra, Combretum zeyheri* and *C. apiculatum* and the herbaceous layer including Pogonarthria squarrosa, *Tricholaena monachne* and *Eragrostis rigidior*. Dense thicket to open savanna in the bottomlands with *Acacia nigrescens, Dichrostachys cineria, Combretum*

imberbe and *Grewia bicolor* in the woody layer and a dense herbaceous layer containing the dominant *Digitaria eriantha, Panicum maximum* and *Aristida congesta* on fine-textured soils, while brackish bottomlands support *Sporobolus nitens, Urochloa mosambicensis* and *Chloris virgata*. At seep lines, where convex topography changes to concave, a dense fringe of *Terminalia sericea* occurs, with *Eragrostis gummiflua* in the undergrowth.

From a conservation point of view SVI3 is escribed as vulnerable. 17% of the surface are of this vegetation type is statutorily conserved in the Kruger National Park and about the same amount in different private reserves (Selati, Klaserie, Timbavati, Mala Mala, Sabi Sand and Manyaeleti Reserves). More than 20% is transformed due to mainly cultivation and settlement development. SVI3 is described by Acocks (1953) as Lowveld (VT 10) and Arid Lowveld (VT 11), and by Low & Rebelo (1996) as Mixed Lowveld Bushveld (LR 19).

10.3.5 Faunal diversity of the study area

The information provided in this section of the report is sourced from the Biodiversity Assessment Report, prepared by Environmental Research Consulting, 2018, (M29801) an attached as Appendix D1. In this section a summary of the diversity of fauna theoretically expected to occur in or in close proximity to the study area (Table 10.3.5-1) is provided.

Table 10.3.5-1: Animal groups considered in this study along with the number of species per group possibly occurring in or near the study area.

Animal group	Number of species
Mammals	41
Reptiles	32
Birds	73
Frogs	19
Total:	**165**

10.3.6 Fauna species of conservation significance

Table 10.3.6-1 presents the number of protected species per animal group that may occur in the study area. The distribution and habitat preferences of these 3 animals overlap with the study area. These species are clearly highlighted in the relevant species lists in Appendix A of the Biodiversity Assessment Report.

Table 10.3.6-1: Animal groups considered in this study along with the number of species with formal protected statuses.

Animal group	Number of protected species
Mammals	2
Reptiles	0
Birds	1
Frogs	0
Total:	**3**

10.3.7 Floral diversity of the study area

The floral diversity of the study area is severely diminished from its original state due to long-term anthropogenic land uses. The whole area that was assessed (including all preferred and alternative sites) are totally transformed due to urbanization, cultivation and overgrazing. Very small, severeliy degraded fragments of natural vegetation were observed but contribute very little to the overall biodiversity that was recorded. Compared to the natural vegetation of the KNP directly east of the study area, no similarities were observed other than the presence of some large indigenous Marula and Apple-leaf trees. The floristic composition of the study area is described in more detail in the next section (10.3.8).

Only 149 plant species (from 46 plant families and 117 genera) as listed in Table 10.3.7-1 below and also in Appendix B and Table 19 of the Biodiversity Assessment Report were recorded in the studied area during the period of this study, which in my view indicates low plant diversity in the studied area. Of this number, 43 are trees or woody shrubs (17 exotic), 30 are graminoids (6 exotic) and 76 are herbs or herbaceous climbers, creepers or shrubs (36 exotic). Only 90 (60 %) of the plant species that were recorded are indigenous to South Africa.

From available literature (Pujol 1988; Pooley, 1998; Schmidt *et* al 2002; Shearing and Van Heerden 1994; Van Wyk *et al* 1997; Van Wyk and Gericke 2003) it was established that at least 66 of the recorded plant species in the studied area is to some extent used for some or other social activities (medicinal, food/nourishment and/or cultural).

Table 10.3.7-1: Summary of the number of plant families, genera and species recorded in the whole study area.

	Families	Genera	Species
PTERIDOPHYTA (ferns):	0	0	0
ANGIOSPERMAE (seed plants): ***Monocotyledonae:***	7	31	36
Dicotyledonae:	39	86	113
Total:	**46**	**117**	**149**

During the survey, which was done on foot, taxa that were identifiable during the time of the study were noted and included in the species lists in Appendix B (Tables 20 to 24) of the Biodiversity Assessment Report. The distinct possibility exists that some plant species that emerge and bloom during summer or another time of the year or under very specific circumstances, or species that are locally rare could have been missed during the latest survey.

The mentioned species lists contain the plant family name and scientific and common names of all plant species that were observed in the study area during the time of the study. Also included is, where applicable, the status of a species, which provides information on conservation status. Information on whether a species is utilized for medicinal, cultural or nutritional uses is also provided in the mentioned species lists.

Appendix B, Table 19 of the Biodiversity Assessment Report, presents the diversity of plant families, genera and species recorded in the study area. A check list of plant species recorded during this study is included in Tables 20 to 24 of Appendix B.

The SANBI POSA data for the 2531CB QDS provided records for 703 plant species that are associated with the QDS that the study area falls in. This presents high species diversity for the larger area surrounding the study site, and comparatively the study site has significantly lower species diversity and many more exotics than listed in the POSA data. This list of species is also included in Appendix B, Table 25 of the Biodiversity Assessment Report.

10.3.8 Description of Broad Vegetation Units

A list of dominant and other important plant species that were recorded are presented in Table 10.3.8-1. A number of crop plants that are cultivated in the area are also listed in Table 10.3.8-1.

Note: In Table 10.3.8-1, exotic (alien / naturalized) plant species are preceded by an asterisk in the species name column (*).

Table 10.3.8-1: Summary of dominant and other commonly occurring plant species.

	Species Name	Common Name
Trees & woody shrubs:	*Dichrostachys cinerea*	Sickle-bush
	Ehretia amoena	Sandpaper-bush
	**Lantana camara*	Lantana / Christmas Berry
	**Leucaena leucocephala*	Leucaena
	**Melia azedarach*	Seringa
	Philenoptera violacea	Apple-leaf / Rain Tree
	Sclerocarya birrea subsp. *caffra*	Marula
	**Senna occidentalis*	Stinking Weed / Wild Coffee
Graminoids:	*Aristida congesta* subsp. *congesta*	Spreading Three-awn
	Cenchrus ciliaris	Foxtail Buffalo Grass
	Chloris pycnothrix	Spiderweb Grass
	Cynodon dactylon	Couch Grass
	Enneapogon cenchroides	Nine-awned Grass
	Heteropogon contortus	Spear Grass
	Melinis repens subsp. *repens*	Natal Red Top
	Panicum maximum	Guinea Grass
	Urochloa mosambicensis	Bushveld Signal Grass
Herbaceous shrubs, climbers, forbs, etc.:	*Acalypha indica* L.	
	**Acanthospermum hispidum*	Upright Starbur
	**Alternanthera pungens*	Paper Thorns
	**Amaranthus hybridus*	Pigweed
	Amaranthus thunberghii	Red Pigweed
	**Bidens pilosa*	Blackjack
	**Boerhavia* c.f. *erecta*	Erect Spiderling
	Cleome monophylla	Spindlepod
	**Cocculus hirsutus*	

	Species Name	Common Name
	**Corchorus olitorius*	
	Ipomoea sinensis	
	Momordica balsamina	Laloentjie
	**Portulaca oleracea*	Purslane / Pigweed
	Sida cordifolia	Flannel Weed
	Tribulus terrestris	Devil's Thorn
	Vernonia poskeana	
Cultivated crops & fruit trees:	**Abelmoschus esculentus*	Ocra
	**Arachis hypogaea*	Peanut
	**Carica papaya*	Papaya
	**Cucurbita* species	Pumpkin
	**Ipomoea batatas*	Sweet potato
	**Mangifera indica*	Mango
	**Manihot esculenta*	Cassava
	**Moringa oleifera*	Moringa
	**Phaseolus* c.f. *coccineus*	Runner Bean
	**Saccharum officinarum*	Sugarcane
	**Zea mays*	Mielie / Corn
	**Musa* species	Banana

10.3.9 Flora species of conservation significance

Only three plant species of conservation significance were recorded in the study area during the assessment. All are tree species that are nationally protected by the National Forest Act (NFA, 1998) (Table 10.3.9-1). Collectively, 70 specimens of these species were recorded in total (Table 10.3.9-1).

Table 10.3.9-1: List of protected tree species recorded in the study area

FAMILY	SPECIES NAME	COMMON NAME	NO OF SPECIMENS RECORDED
ANACARDIACEAE	*Sclerocarya birrea* subsp. *caffra*	Marula	53
COMBRETACEAE	*Combretum imberbe*	Leadwood	1
FABACEAE	*Philenoptera violacea*	Apple-leaf / Rain Tree	16
		Total specimens recorded:	70

A list of these specimens with their GPS coordinates are included in Table 10.3.9-2 and their geographical positions visually presented in Figure 10.3.9-1.

Table 10.3.9-2: List of GPS coordinates, number of specimens recorded and other information relating to protected tree species.

Label no.	Species	Coordinates		Erf no.	No. of specimens
		longitude (S)	Latitude (E)		
1	*Philenoptera violacea*	25° 31' 37.4"	31° 22' 01.1"	97	2
2	*Sclerocarya birrea* subsp. *caffra*	25° 31' 37.4"	31° 22' 03.3"	97	1
3	*Sclerocarya birrea* subsp. *caffra*	25° 31' 36.8"	31° 22' 04.1"	97	1
4	*Sclerocarya birrea* subsp. *caffra*	25° 31' 36.3"	31° 22' 05.3"	97	2
5	*Philenoptera violacea*	25° 31' 36.0"	31° 22' 06.9"	97	2
6	*Philenoptera violacea*	25° 31' 37.5"	31° 22' 07.6"	311	3
	Sclerocarya birrea subsp. *caffra*				2
7	*Sclerocarya birrea* subsp. *caffra*	25° 31' 38.9"	31° 22' 08.8"	311	1
8	*Sclerocarya birrea* subsp. *caffra*	25° 31' 40.1"	31° 22' 07.0"	311	1
9	*Sclerocarya birrea* subsp. *caffra*	25° 31' 39.0"	31° 22' 06.3"	311	1
10	*Sclerocarya birrea* subsp. *caffra*	25° 31' 40.1"	31° 22' 02.9"	97	2
11	*Sclerocarya birrea* subsp. *caffra*	25° 31' 40.3"	31° 22' 01.3"	97	1
12	*Sclerocarya birrea* subsp. *caffra*	25° 31' 41.4"	31° 22' 01.7"	97	2
13	*Sclerocarya birrea* subsp. *caffra*	25° 31' 41.4"	31° 22' 00.6"	97	4
14	*Sclerocarya birrea* subsp. *caffra*	25° 31' 40.6"	31° 21' 59.4"	97	1
15	*Sclerocarya birrea* subsp. *caffra*	25° 31' 39.5"	31° 21' 59.6"	97	1
16	*Sclerocarya birrea* subsp. *caffra*	25° 31' 37.9"	31° 21' 59.5"	97	3
17	*Combretum imberbe*	25° 31' 45.9"	31° 22' 03.4"	312	1
18	*Philenoptera violacea*	25° 31' 45.2"	31° 22' 10.5"	311	1
19	*Philenoptera violacea*	25° 31' 44.9"	31° 22' 07.6"	311	1
20	*Sclerocarya birrea* subsp. *caffra*	25° 31' 46.1"	31° 22' 07.5"	311	1
21	*Sclerocarya birrea* subsp. *caffra*	25° 31' 45.8"	31° 22' 06.4"	311	1
22	*Philenoptera violacea*	25° 31' 47.4"	31° 22' 05.7"	312	1
	Sclerocarya birrea subsp. *caffra*				1
23	*Philenoptera violacea*	25° 31' 44.5"	31° 22' 05.3"	311	1
24	*Sclerocarya birrea* subsp. *caffra*	25° 31' 43.5"	31° 22' 08.3"	311	1
25	*Philenoptera violacea*	25° 31' 44.4"	31° 22' 09.4"	311	1
26	*Sclerocarya birrea* subsp. *caffra*	25° 31' 40.6"	31° 22' 09.4"	311	2
27	*Sclerocarya birrea* subsp. *caffra*	25° 31' 42.0"	31° 21' 08.8"	311	2
28	*Sclerocarya birrea* subsp. *caffra*	25° 31' 45.5"	31° 22' 03.4"	312	1
29	*Sclerocarya birrea* subsp. *caffra*	25° 31' 37.5"	31° 21' 57.9"	97	1
30	*Sclerocarya birrea* subsp. *caffra*	25° 31' 35.1"	31° 22' 06.3"	97	1
31	*Philenoptera violacea*	25° 31' 33.8"	31° 22' 04.0"	97	1
32	*Sclerocarya birrea* subsp. *caffra*	25° 31' 32.2"	31° 22' 04.5"	97	2
33	*Sclerocarya birrea* subsp. *caffra*	25° 31' 39.8"	31° 21' 56.5"	97	2
34	*Sclerocarya birrea* subsp. *caffra*	25° 31' 38.6"	31° 21' 54.6"	302	1
35	*Sclerocarya birrea* subsp. *caffra*	25° 31' 41.5"	31° 21' 48.9"	302	2

Label no.	Species	Coordinates		Erf no.	No. of specimens
		longitude (S)	Latitude (E)		
36	*Sclerocarya birrea* subsp. *caffra*	25° 31' 42.7"	31° 21' 50.3"	302	2
37	*Sclerocarya birrea* subsp. *caffra*	25° 31' 42.7"	31° 21' 52.8"	302	1
38	*Philenoptera violacea*	25° 31' 40.3"	31° 21' 51.4"	302	1
39	*Sclerocarya birrea* subsp. *caffra*	25° 31' 43.8"	31° 21' 52.4"	302	1
40	*Sclerocarya birrea* subsp. *caffra*	25° 31' 44.2"	31° 21' 48.7"	302	1
41	*Sclerocarya birrea* subsp. *caffra*	25° 31' 44.7"	31° 21' 49.8"	312	1
42	*Sclerocarya birrea* subsp. *caffra*	25° 31' 45.6"	31° 21' 54.2"	312	1
43	*Sclerocarya birrea* subsp. *caffra*	25° 31' 45.8"	31° 21' 53.3"	312	1
44	*Sclerocarya birrea* subsp. *caffra*	25° 31' 46.5"	31° 21' 52.8"	312	1
45	*Sclerocarya birrea* subsp. *caffra*	25° 31' 49.8"	31° 21' 53.3"	312	1
46	*Sclerocarya birrea* subsp. *caffra*	25° 31' 48.3"	31° 21' 58.1"	312	1
47	*Sclerocarya birrea* subsp. *caffra*	25° 31' 47.7"	31° 22' 02.2"	312	1
48	*Philenoptera violacea*	25° 31' 48.8"	31° 22' 01.9"	312	2
Total specimens of *Philenoptera violacea* (Apple-leaf):					**16**
Total specimens of *Combretum imberbe* (Lead wood):					**1**
Total specimens of *Sclerocarya birrea* subsp. *caffra* (Marula):					**53**
Total specimens recorded:					**70**

Figure 10.3.9-1: Geographical positions of specimens of protected tree species relevant to Erf numbers in the study area (label numbers coincide with the label numbers presented in Table 26, Appendix C).

No plant species listed as threatened or protected by the National Environmental Management: Biodiversity Act's (Act No. 10 of 2004) list of Threatened or Protected Species (TOPS) as published in Government Gazette no. 36375 of 16 April 2013 (TOPS, 2013), Red Listed plants (Raimondo *et al*, 2009) or provincially protected plants as listed by the Mpumalanga Nature Conservation Act – Act no. 10 of 1998 (MNCA, 1998), were recorded during the time of the study.

The list of plant species that was downloaded from POSA (http://posa.sanbi.org) for the 2531CB QDS, was also consulted for plant species of conservation significance that may occur in the study area. Table 10.3.9-3 presents a list of those species. During the fieldwork phase of the study, these species and their habitat requirements were also considered, none of them were, however, recorded. Due to the transformed nature of the study area, the probability of these or any other species of conservation significance occurring in the studied area is highly unlikely.

Table 10.3.9-3: List of Red Listed plant species recorded for the 2531CB QDS (http://posa.sanbi.org)

Species name	Red List Status (Raimondo *et al* 2009)
Adenia gummifera var. *gummifera*	Declining
Alepidea peduncularis	Data deficient
Aloe cooperi subsp. *cooperi*	Declining
Clivia miniata var. *miniata*	Vulnerable
Crinum stuhlmannii	Declining
Crotalaria pearsonii	Rare
Cyrtanthus eucallus	Vulnerable
Elaeodendron transvaalense	Near Threatened
Eulophia speciosa	Declining
Euryops hypnoides	Vulnerable
Plectranthus esculentus	Data deficient
Schizochilus cecilii subsp. *culveri*	Rare
Siphonochilus aethiopicus	Critically Endangered

10.3.10 Exotic Flora

A high number of exotic (alien) plants were recorded during the time of this study. 59 such species (17 trees/woody shrubs, 6 graminoids and 36 herbs or herbaceous/succulent shrubs) were recoded, which comprises 40% of the recorded floristic species diversity. According to the Conservation of Agricultural Resources Act (Act No. 43 of 1983) in Henderson (2001) and the National Environmental Management Biodiversity Act's 2014 list of proposed weeds and invaders (NEMBA, 2014), 20 of these species (10 trees/shrubs, 2 grasses and 8 herbs) are classified as alien weed and invader species (Table 10.3.10-1) and the remaining 39 are common ruderal and agrestal weeds.

All exotic plant species in the species lists (Appendix B: Tables 19 – 24 of the Biodiversity Assessment Report) are preceded by an asterisk (*) and/or indicated by the letter "E" in the Species Status column in the case of uncategorized exotic species. In the case of declared or proposed weeds or invaders the invasive status of the

species, according to CARA (1983) (Table 8) and NEMBA (2014) (Table 9) of the Biodiversity Assessment Report are indicated in the Conservation Status column of the species lists in Appendix B as follows:

- C1 – declared weed category 1 (CARA, 1983).
- C2 – declared invader category 2 (CARA, 1983).
- C3 – declared invader category 3 (CARA, 1983).
- N1b – NEMBA (2014) category 1b.
- N2 – NEMBA (2014) category 2.

Table 10.3.10-1: List of declared alien weeds and invaders recorded in the studied area.

SPECIES NAME	COMMON NAME	GROWTH FORM	INVASIVE STATUS
Anredera cordifolia	Madeira Vine	Herb	C1 / N1b
Arundo donax	Spanish Reed	Reed	C1 / N1b
Cereus jamacaru	Queen of the Night Cactus	Cactus / Tree	C1 / N1b
Datura ferox	Large Thorn Apple	Herb	C1 / N1b
Eichornia crassipes	Water Hyacinth	Hydrophyte	C1 / N1b
Flaveria bidentis	Smelter's Bush	Herb	N1b
Ipomoea alba	Moonflower / Wooden Rose Creeper	Herb, climber	C1 / N1b
Ipomoea purpurea	Common Morning Glory	Herb, climber	C1 / N1b
Lantana camara	Lantana / Christmas Berry	Shrub / tree	C1 / N1b
Leucaena leucocephala	Leucaena	Tree	C2 / N2
Melia azedarach	Seringa	Tree	C3 / N1b
Morus alba	Common / White Mulberry	Tree	C3 / N2
Parthenium hysterophorus	Feverfew / Famine Weed	Herb	C1 / N1b
Ricinus communis	Castor-oil Plant	Tree	C2 / N1b
Senna didymobotrya	Peanut butter Cassia	Tree	C3 / N1b
Senna occidentalis	Stinking Weed / Wild Coffee	Shrub	N1b
Sorghum halepense	Johnson Grass	Grass	C2 / N2
Tecoma stans	Yellow Bells	Tree	C1 / N1b
Thevetia peruviana	Yellow Oleander	Shrub / tree	C1 / N1b
Xanthium strumarium	Large Cocklebur	Herb	C1 / N1b

10.4 Soils

Harmse & Van Wyk (1972) regards the soils of this landscape as shallow rocky soils and classify them in the Lithosol category. The most common soil forms that occur are Mispah and Glenrosa. Clay accumulation took place to a limited degree in the bottomlands and Valsriver and Oakleaf soils developed. The soils of the mountainous plateaus are well drained; more deeply leached and generally classified as Hutton soils. Land capability is rated low (Figure 10.4-1). The dominated soils are Ab42 Hu 16/17; 600 -1200 mm; SaCI-CI 53 %, and Ba67 Rock & shallow soils 31 %. The soils of the two land types are similar, with Ba67 containing a higher percentage of shallow soils, but both land types are dominated by red, moderately deep to deep, medium- to

heavy-textured soils of the Hutton form, which are generally very favourable for cultivation, despite the high clay content (35-55) in places within Ab42. The land type Ba64 occurs in the foot slopes and river plain area of the Crocodile River.

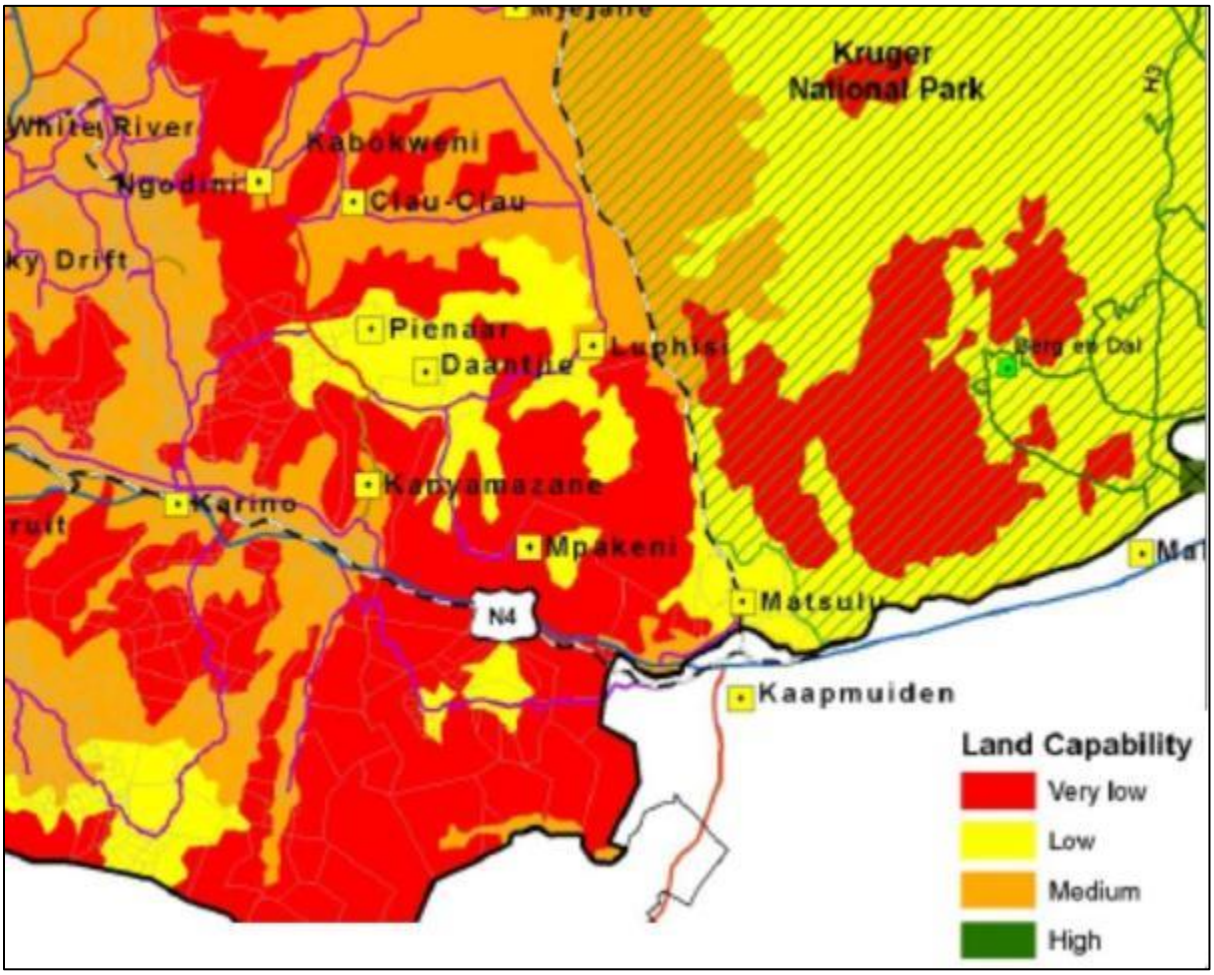

Figure 10.4-1 Land Capability Plan.

10.5 Elevation

The altitude varies from around 400 m above sea level at the river to over 800 m above sea at the highest points.

10.6 Climate

Matsulu area lies within the sub-tropical lowveld climatic region, which is typically characterised by hot rainy summers and warm dry winters; The wet season is between October and March and dry seasons are between April- October as well as having an average annual rainfall is in the order of 600 - 700 mm (Figure 10.6-1). The average daily minimum and maximum temperatures are between 16 °C and 31°C respectively, as measured in the area. Matsulu has an annual average temperature in the order of 20°C (Mbombela spatial development framework – 2011/2012*)*

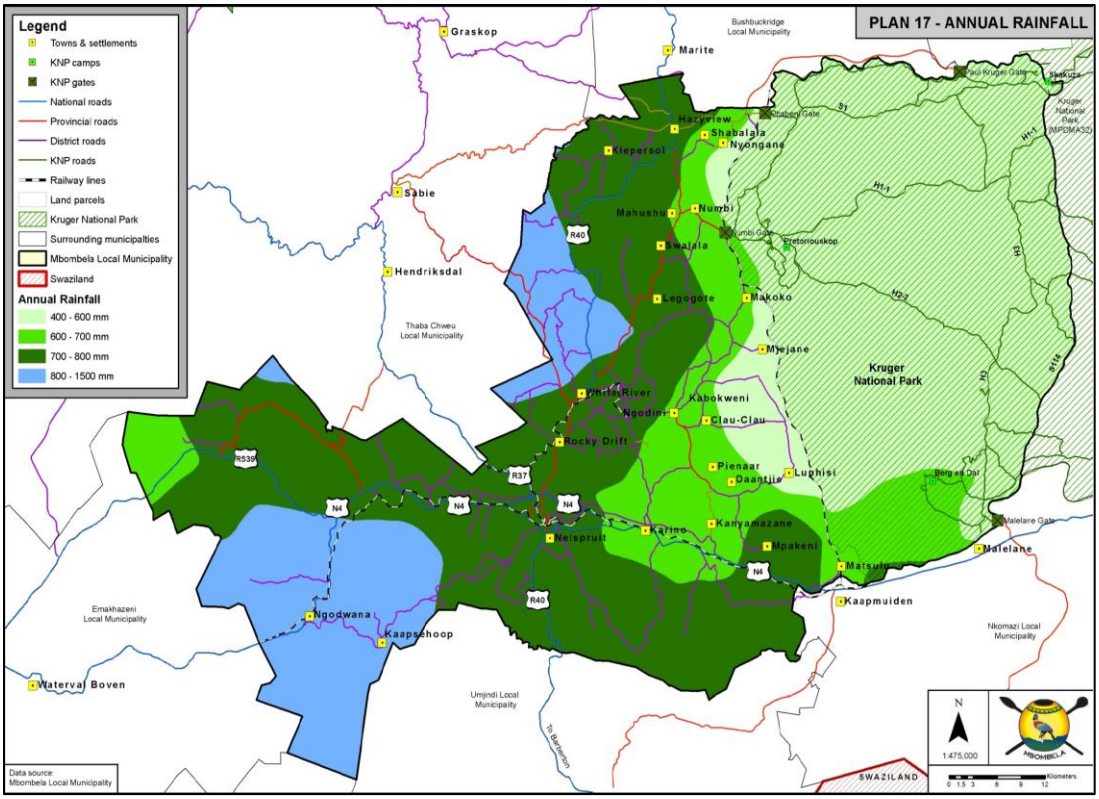

Figure 10.6-1 Average temperature and precipitation.

Seasonal variation in winds for Matsulu is shown in Figure 10.6-2. During the spring and summer seasons, a predominant easterly wind is observed whereas during the autumn and winter seasons, predominant westerly and north-north-westerly winds are observed. Generally fast wind speeds are observed throughout the year. To note this there is no weather station at Matsulu; hence the data was generated from the average of two closest Weather Stations namely Nelspruit and Kruger National.

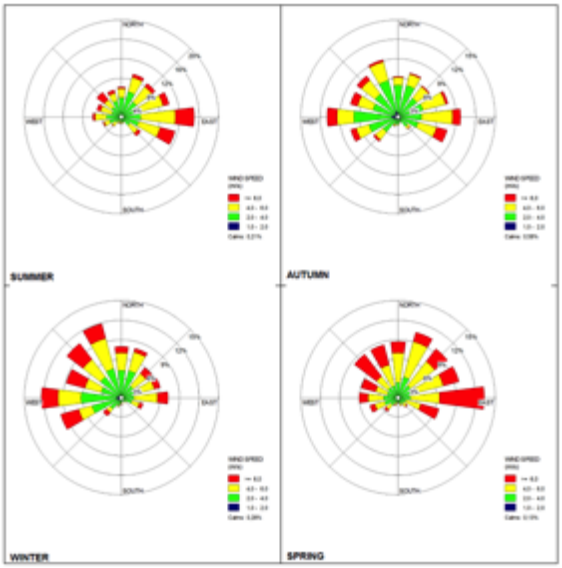

Figure 10.6-2 Wind Roses.

10.7 Geology

According to Geological Survey (1986), Matsulu area is underlain mainly by Biotite Trondhjemite Gneiss and Migmatite of the Nelspruit granite suite (Figure 10.7-1).

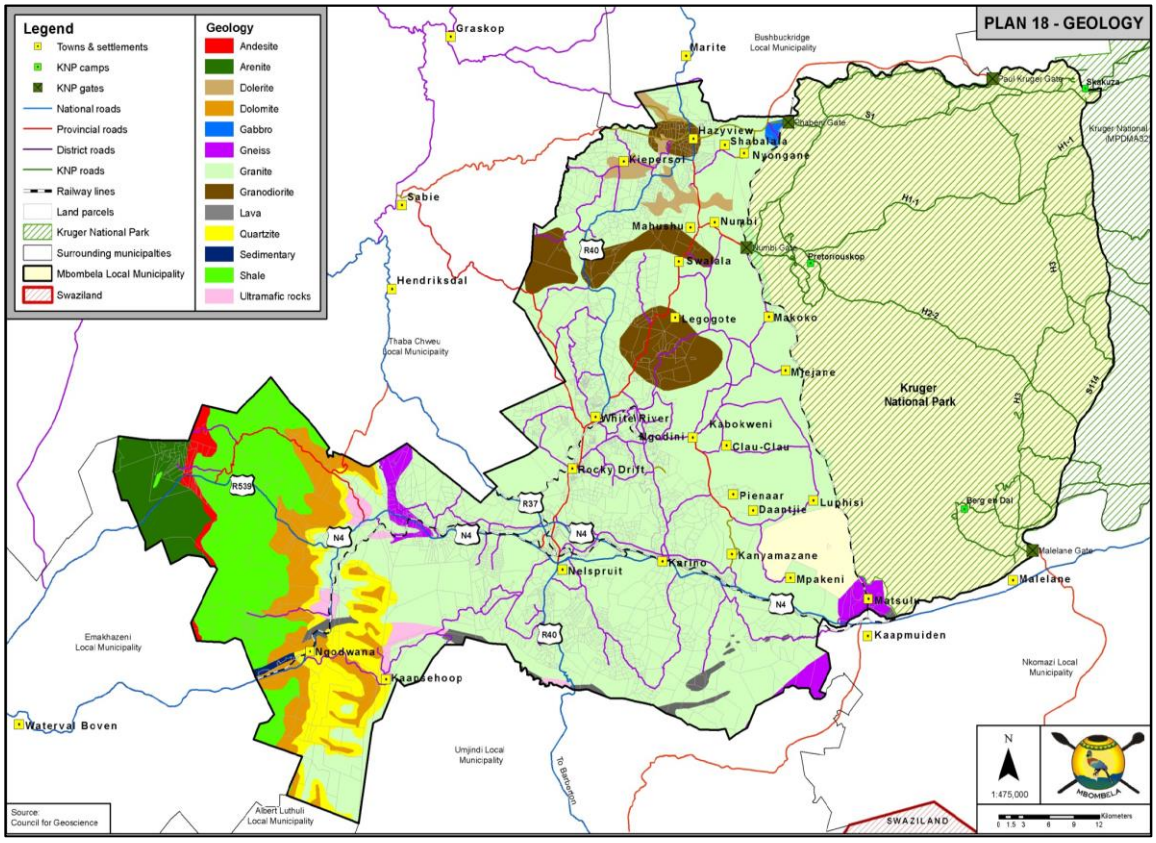

Figure 10.7-1 Mbombela geology map.

10.8 Socio-Economic setting

According to the City of Mbombela Local Municipality Spatial Development Framework (2011 -2030), Matsulu Township is fairly secluded, situated in the easternmost part of the municipality, approximately 45 km east of Nelspruit. Matsulu is wedged between the Kruger National Park, Mthethomusha Nature Reserve and the N4 highway and is bisected by the railway line to Phalaborwa. Matsulu consists of the formal townships of Matsulu A, B, C and Matsulu West. Proximity to the N4 makes it a rapid growing area with a high influx of people leading to informal settlement. According to the City of Mbombela's website, the Matsulu area falls under the Nelspruit B. Matsulu is divided into two different wards which are; Ward 13 and Ward 28. The area where the Matsulu Waste Transfer Station is proposed to be in is situated in Matsulu Ward 13 (Appendix 1).

Matsulu is predominantly residential and provides the necessary community and social facilities. Businesses prefer to settle along the main roads providing good access and visual exposure.

Other significant landmarks in Matsulu include the Matsulu Soccer Stadium, Nkululeko Circuit Office and Matsulu Cultural Centre. In 2010, it was reported to have a population of about 60 000 people.

Being the economic centre of the province of Mpumalanga as well as the region, Mbombela has experienced constant economic growth over the past few years. However, rural villages and townships showed an increase in poverty levels during the same period. Today, the majority of residents in areas such as kaNyamazane and

Matsulu are still highly dependent on Nelspruit and white-owned farms for employment opportunities. The establishment of Tekwane, between Nelspruit and kaNyamazane on the Maputo Corridor, a Provincial Housing Board residential development and industrial land for development, has been identified as a spatial and economic link between the historically white and black towns (Development Works, 1999). It is also envisaged that the expanding tourism industry would lead to more job creation as well as the emergence of Black entrepreneurs in the tourism industry.

It seems as if informal economic activities are vibrant throughout some of the townships. Although the average income level is low, there seem to be a significant diversity in income patterns. Residents in Matsulu have a higher proportion of households within the R1000.00 – R3000.00 income bracket than kaNyamazane because the majority of the former kaNgwane government officials reside in Matsulu and have now been incorporated into the Mpumalanga provincial government and the Nelspruit TLC, now the Mbombela Local Municipality (Development Works, 1999). Income levels seem lowest in the R188 (former homeland) areas. Residential costs are however also lower in R188 areas, compared to R293 areas.

In both kaNyamazane and certain extensions of Matsulu some residents have invested considerable sums of money in consolidating, extending or improving their dwellings (Development Works, 1999).

The Matsulu Township is in Mpumalanga under the Ehlanzeni District Municipality and Mbombela Local Municipality. From the Census webpage, in 2011 the population of Matsulu was 47306. In terms of the gender percentages, females had higher percentage with 52.24% and males had a slightly less percentage with 47.76%. The majority of the people of the Matsulu Township are Africans (99.47% of the population) while 0.57% is made of other races such as white (0.12%), Coloured (0.24%), Indian and Asians (0,07%) and the remaining consists of other races (0.09%). The ethnic groups were divided to the following percentages; 92.76% had IsiSwati as their first language, 2.48% had Xitsonga as their first language, 1.77% had English as their first language, 1.08% IsiZulu and the remaining percentage were split amongst other different ethnic groups.

According to the Final Draft Mbombela Spatial Development Framework 2011-2030 (2012) Mbombela Local Municipality has 62% of its population under the age of 29 years and 65% of the population within working age (15-64 years). In terms of income profiles of the Mbombela Local Municipality, at least there has been a decrease in the number of people without any sort of income (From 2001 to 2007) from 66% to 42%. 83% of the population earned below poverty lines income of R1600 and less per month. The economic sectors that employs many residents within the local municipality are; government services which employed 28.3% of the population, trade and accommodations which employed 24.7% of the population and finance and business which employed 25.1% of the population of Matsulu.

The Final Draft Mbombela Spatial Development Framework 2011-2030 (2012), states that the Mbombela youth needs to be catered for in terms of skills development programmes. These need to be matched with appropriate employment opportunities to minimise migration to the other parts of the country in search of tertiary education or better employment opportunities. In accordance to the Mbombela Annual Report 2010-2011 (2011) only 7.6% of the residents in the Mbombela Local Municipality had education levels higher than grade 12, while 24.8% of the population had no formal schooling. According to the Final Draft Mbombela Spatial Development Framework 2011-2030 (2012), the education levels in the Mbombela Local Municipality are generally low and this may be attributed to the socio-economic issues such as; poverty, lack of access to and poor quality of educational facilities.

10.9 Proximity of the proposed site to the Kruger National Park boundary

The proximity of the proposed site to the Kruger National Park is an area that could present high risk impacts due to the environmental sensitive nature of the KNP mission and vision.

Their goal to protect and conserve the biodiversity in its natural state is also guided by the number of international commitments and conventions signed to align their vision to global sustainable development principles and standards. As an international tourism destination, KNP must always adhere to their Environmental Best Practices and guidelines to ensure that all land use around the boundary of the Park also align to the same principles and guidelines.

10.9.1 Relationship between the Kruger National Park, surrounding communities and development along the boundaries.

According to the Kruger National Park Management Plan (2011:38), the Conservation Development Framework (CDF) provides guidelines for potential future development, rehabilitation and the management of land-use along the parks borders. However, the Kruger National Park Management National Plan (KNMP) further stated that the CDF was not completed in 2011 when the Management Plan was drafted.
According to the Kruger National Park Management Plan (2011:39) one component of the CDF is the park interface zones (zones where surrounding land use change could affect the park), which are classed into 3 different categories. The first category is Priority Natural Areas (PNA) (Figure 10.9.1-1), which are important for long-term persistence of biodiversity in and around the park. The PNAs include areas which may be earmarked for future park expansion. The second category is Catchment Protected Areas (CPA) which are the areas that are important for the hydrological processes to the park. The third category is the Viewshed Protected Area (VPA), which are the areas where development will affect the aesthetic experience of the visitors to the park. The Kruger National Park Management Plan (2011:39) further states that within these VPAs, any development proposal should be carefully screened to ensure that they do not impact excessively on the aesthetics of the park. The proposed area for the Matsulu Waste Transfer Station falls under the VPA category (Figure 10.9.1-1). The aesthetics of the proposed development has been included in the assessment of identified impacts in Section 12 and Table 14.1.

It is imperative that the proposed site also aligns their environmental management principles and management measures with those of KNP to ensure minimal disturbance to the environmentally sensitive ecosystem.

The KNP has an Integrated Environmental Management Plan that provides best practice guidelines for the management of the environment and biodiversity inside and outside the boundary of the park.

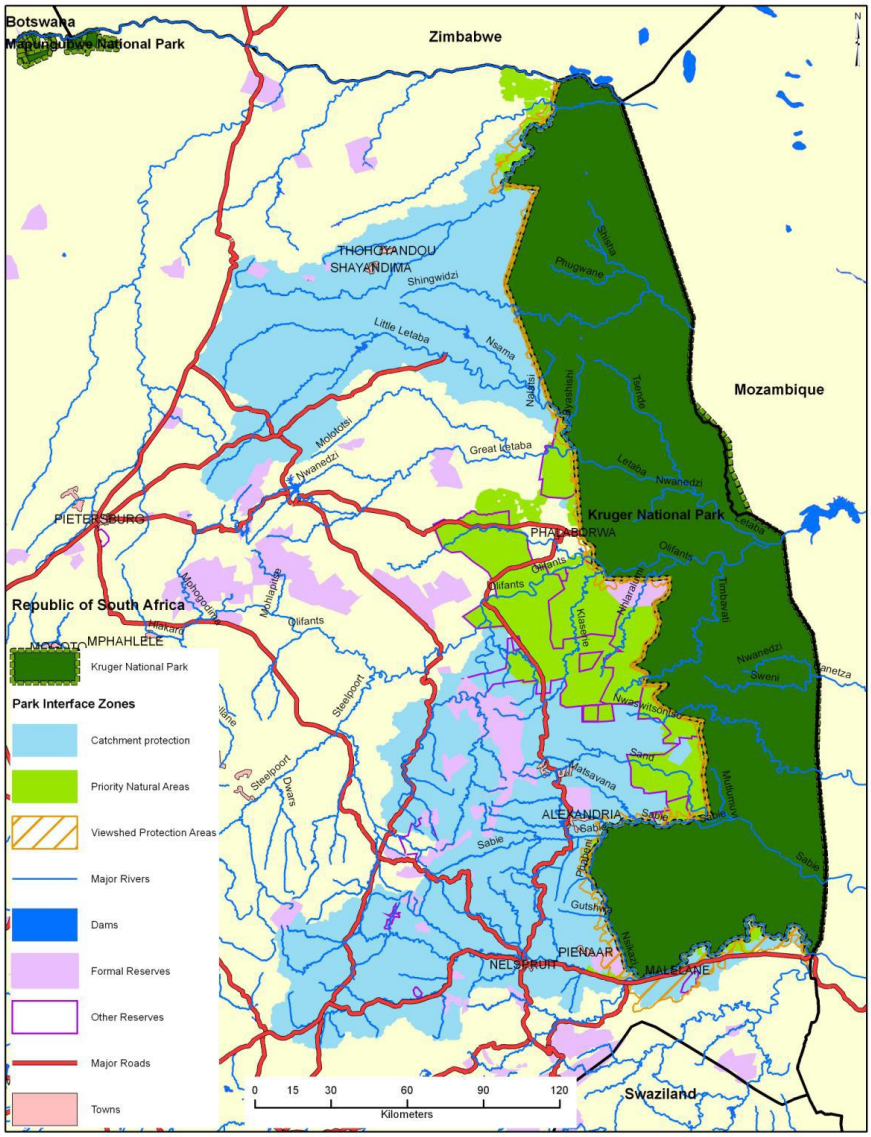

Figure 10.9-1 Map of the park interface zones close to the Kruger National Park. (Source: Kruger National Park Management Plan (2011)).

10.9.2 Communication with local communities

The Kruger National Park (KNP) communicates with the local communities around the park and communities away from the park that are influenced by activities in and around the park. The communities are divided in to seven community forums where the proposed site of development falls under the Lubambiswano Community Forum (Kruger National Park Management Plan, 2011:76).

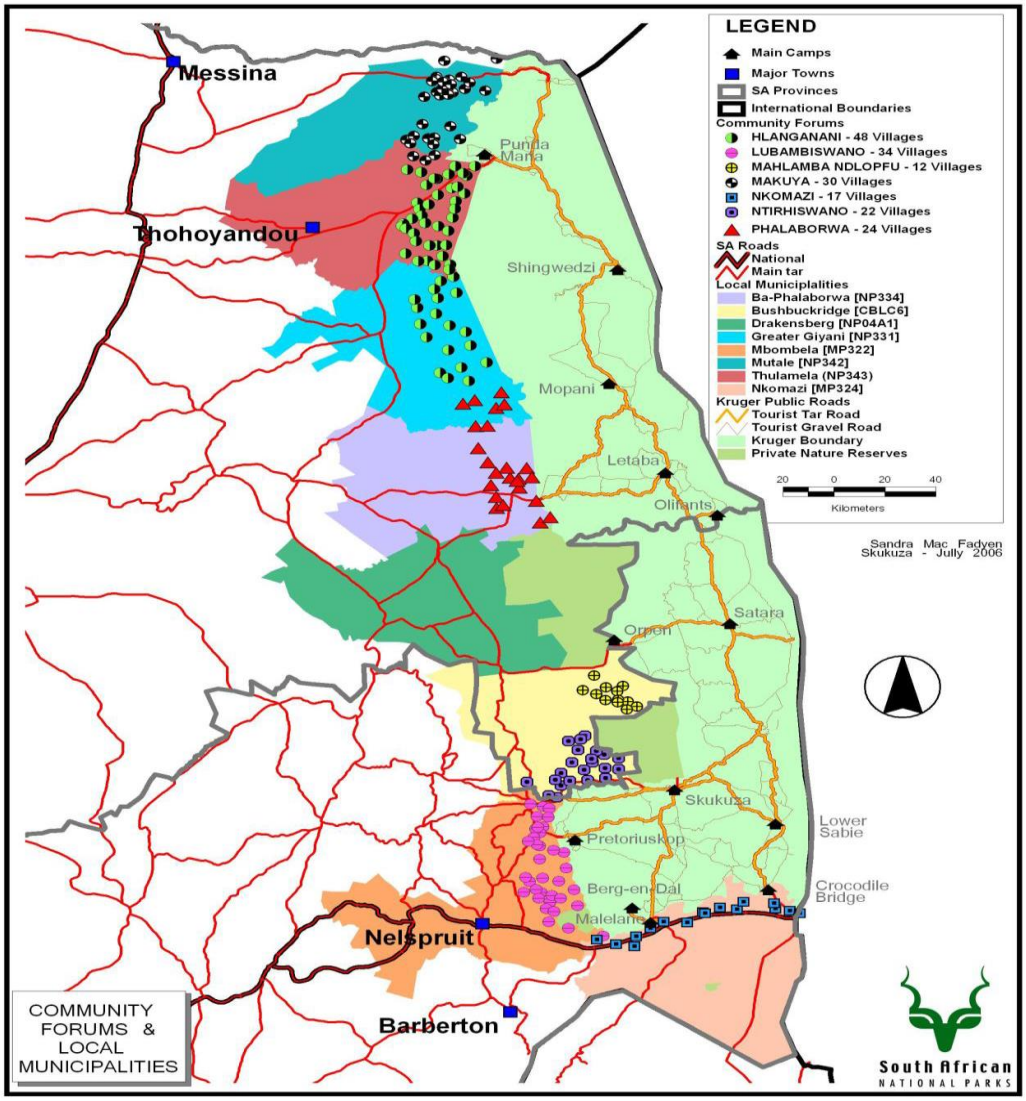

Figure 10.9-2 Map of community forums around the Kruger National Park. (Source: Kruger National Park Management Plan (2011))

10.9.3 Zoning

According to the Revised Zoning System of the Kruger National Park (2012) for SANParks to deliver on its vision of "Connecting to Society" and to supplement the provision for land claims, there are zones that were added in the KNP: A Peripheral Development Zone (PDZ) which extends 2 km into the Park and a Multiple Use Zone which extends 3km outside the boundary of the KNP and 5 km inside the boundary of the KNP. In these areas, the KNP management may agree on terms with communities for joint ventures. The PDZ provides an opportunity for socio-economic development opportunities within a 2 km buffer from the boundary of the park that would support job creation amongst communities. These development opportunities include park entrance gates, reception, ablution facilities, parking areas, interpretative centre and accommodation facilities such as rest camps, lodges, bush camps, picnic sites, view sites and rustic picnic site. The proposed site falls within the PDZ (Figure 10.9-3).

There are also traditional use management areas within the boundary of the park that were developed from the current traditional use of natural resources patterns in the KNP. Responsible and sustainable use of natural resources may take place in these traditional use management areas, which extend for 5 kms into the National Park as illustrated in Figure 10.9-3.

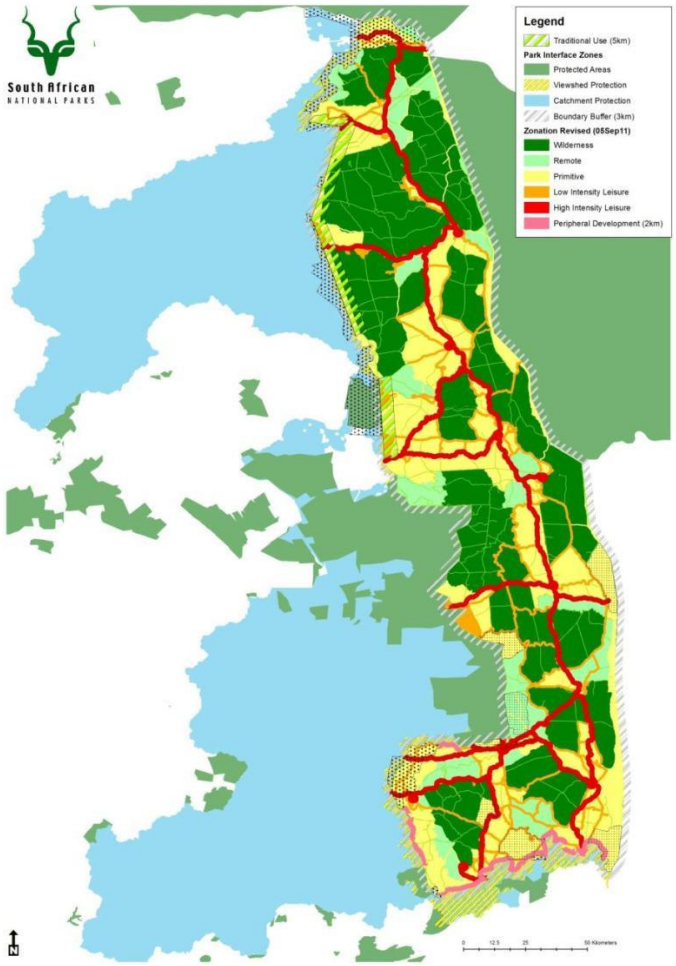

Figure 10.9-3 Map of the Kruger National Park showing different development zones and buffers (Source: Revised Kruger National Park Zonation (2012))

10.11 The impacts and risks identified for each alternative

Potential impacts for both site alternatives (Erf 312, originally pre-impact preferred site alternative and Erf 311, the least preferred site) including the Post-impact evaluation Proposed Site Erf 302 and the additional post-impact evaluation considered site alternative portion of Erf 311 and Erf 97 include but not limited to:

- Loss of viable agricultural land,
- Loss of biodiversity – Clearing of vegetation for construction of proposed site has direct impact on loss of faunal biodiversity and an indirect impact could result from use on non-biological pest control programme (for rodents) that could be ingested by the local fauna. The rodents ingest the chemicals from the site and the animals such as birds, dogs, cats are affected by ingesting the poisoned rodents,
- Increased influx of job seekers in the proposed area,
- Pollution – leachate,
- Soil erosion – lack of storm water management system,
- Soil pollution – windblown litter and contamination from oil leaks and spills,
- Surface water pollution – lack of proper storm water management infrastructure, slope management, lack of oil spills management system, lack of flood management strategy,
- Ground water pollution – lack of soil pollution management system,
- Human health wellbeing – existence of disease spreading vectors (rodents, flies, cockroaches),
- Odour – uncovered putrid waste stored for extended periods of time such as food waste and grass, presence of vermin nuisance such as flies, rodents and birds attracted by the smell from the site,
- Increased ambient noise level – construction machinery and equipment, labourers on site,,
- Increased traffic of trucks and vehicles bringing in waste at the public drop off facility,
- Visual aspects – dust from site establishment without dust suppression methods, emissions from extended use of trucks and equipment through the project life stages,
- Visual intrusion – infrastructure establishment that does not blend with the natural environment,
- Air Quality: dust,
- Land use
- Use of proposed site as Waste tratment opposed to tourism
- Attraction from animals from KNP especillay baboons.
- Socio-economic aspects – job creation, local economic development opportunities, local SMME development and empowerment, skills development, training opportunities, loss of fishing potential from the Crocodile River by the community.

The impacts and risks identified for the alternative site Erf 311 and the portion of Erf 311 and Erf 97 are identical to those in the preferred alternative except for the following:

- Air Quality: dust,
- Wind blowing litter into the Ntsikazi River and over the KNP fence,
- Surface water pollution and ground water pollution – proximity to the Ntsikazi River to the right of the site and the Crocodile River to the South- east of the site,
- Noise impact for the animals within the Park,
- Disturbance to biodiversity.

10.12 The methodology used in determining and ranking

An Impact Assessment Methodology for Assessing the Impact Significance of proposed activities is outlined below. The assessment of possible impacts during the project life cycle stages was done through the establishment of a standardised and internationally recognised methodology to assess the significance of the potential environmental impacts of the proposed waste recovery and recycling activities. The significance of the impacts was determined through the following:

Only those impacts that are specific to different alternatives are considered in Table 10.3-1.1

For each impact, the SEVERITY (size or degree), DURATION (time scale) and EXTENT (spatial scale) are used to determine the CONSEQUENCE of the impact.

The section below outlines the assessment methodologies utilised in the study.

10.12.1 Methodology for Assessing Heritage Site Significance

Table 10.12.1 : Ranking criteria for environmental impacts

SEVERITY/INTENSITY	H	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Irreplaceable loss of resources.
	M	Moderate/ measurable deterioration (discomfort). Recommended level will occasionally be violated. Noticeable loss of resources.
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Limited loss of resources.
DURATION	L	Quickly reversible. Less than the project life. Short term (< 15 years)
	M	Reversible over time. Life of the project. Medium term (> 20 years)
	H	Permanent. Beyond closure. Long term (Indefinite))
SPATIAL SCALE	L	Localised - Within the site boundary.
	M	Fairly widespread – Beyond the site boundary. Local
	H	Widespread – Far beyond site boundary. Regional/ national

Table 10.12.2: Determining the consequence

			SPATIAL SCALE		
SEVERITY	**DURATION**		**Site Specific (L)**	**Local (M)**	**Regional/ National (H)**
Low	**Long term**	**H**	Medium	Medium	Medium
	Medium term	**M**	Low	Low	Medium
	Short term	**L**	Low	Low	Medium
Medium	**Long term**	**H**	Medium	High	High
	Medium term	**M**	Medium	Medium	High
	Short term	**L**	Low	Medium	Medium
High	**Long term**	**H**	High	High	High
	Medium term	**M**	Medium	Medium	High
	Short term	**L**	Medium	Medium	High

The SIGNIFICANCE of an impact is then determined by multiplying the consequence of the impact by the probability of the impact occurring, as shown in Table 10.12.2 with interpretation of the impact significance outlined in Table 10.12.3.

Table 10.12.3: Determining the Significance Rating

CONSEQUENCE

PROBABILITY (of exposure to impacts)		**L**	**M**	**H**
Definite/ Continuous	**H**	Medium	Medium	High
Possible/ frequent	**M**	Medium	Medium	High
Unlikely/ seldom	**L**	Low	Low	Medium

Table 10.12.4: The interpretation of the impact significance

SIGNIFICANCE	**CRITERIA**
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

Table 10.12.5: The interpretation of the status of the impact

IMPACT STATUS	**CRITERIA**
Positive	The impact benefits the environment
Negative	The impact results in a cost to the environment
Neutral	The impact has no effect on the environment

Once the significance of an impact has been determined, the CONFIDENCE in the assessment of the significance rating is ascertained using the rating systems outlined in Table 10.12.6.

Table 10.12.6: Definition of confidence ratings

CONFIDENCE RATINGS*	**CRITERIA**
High	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact. Greater than 70% sure of impact prediction
Medium	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact. Between 35% and 70% sure of impact prediction.
Low	Limited useful information on and understanding of the environmental factors potentially influencing this impact. Less than 35% sure of impact prediction.

* The level of confidence in the prediction is based on specialist knowledge of that particular field and the reliability of data used to make the prediction.

The degree to which the impact can be reversed is estimated using the rating system shown in Table 10.12.7

Table 10.12.7: Definition of Reversibility Ratings

REVERSIBILITY RATINGS	**CRITERIA**
Irreversible	Where the impact is permanent.
Partially Reversible	Where the impact can be partially reversed.
Fully Reversible	Where the impact can be completely reversed.

The degree to which there will be a loss of resources, as shown in Table 10.12.8 refers to the degree to which a resource is permanently affected by the activity, i.e. the degree to which a resource is irreplaceable.

Table 10.12.8: Definition of loss of resources

LOSS OF RESOURCES	CRITERIA
Low	Where the activity results in a loss of a particular resource but where the natural, cultural and social functions and processes are not affected.
Medium	Where the loss of a resource occurs, but natural, cultural and social functions and processes continue, albeit in a modified way.
High	Where the activity results in an irreplaceable loss of a resource.

Lastly, the degree to which the impact can be mitigated or enhanced is shown in Table 10.12.9.

Table 10.12.9: Degree to which impact can be mitigated

DEGREE TO WHICH IMPACT CAN BE MITIGATED	CRITERIA
None	No change in impact after mitigation.
Very Low	Where the significance rating stays the same, but where mitigation will reduce the intensity of the impact.
Low	Where the significance rating drops by one level, after mitigation.
Medium	Where the significance rating drops by two to three levels, after mitigation.
High	Where the significance rating drops by more than three levels, after mitigation.

10.13 Positive and negative impacts that the proposed activity and alternatives

The environmental impacts to be presented by the proposed project will be divided into the project cycle stages or phases. Each potential impact identified in Table 10.13.1, has been further classified into three categories: Direct, Indirect and Cumulative Impacts in Table 10.13.2 The severity/nature of the impact will indicate whether the impact presents a negative or positive outcome to the receiving environment.

The site alternatives have been similar impacts and as such all their impacts are considered in Table 10.13.1.

Table 10.13.1: Positive and negative impacts identified for proposed site and alternatives.

Project Phase	Activity	Potential Impacts	Impact Status (positive or negative)
Planning and Design	1. Waste Licence Application and Environmental Authorisation (a) Submit applications for	11. No development 12. Development without 13. Environmental Authorisation and EMPr lead to Environmental degradation.	Negative

Project Phase	Activity	Potential Impacts	Impact Status (positive or negative)
	Environmental Authorisation and Waste licence. (b) Submit application for Wate use licence, if applicable.	14. Environmental Authorisation granted & Environmental protection	Positive
	2. Site Assessment, Selection and Establishment (a) Site selection (b) Site Assessment (c) Site preparation – Clearing of vegetation (d) Stripping of topsoil (e) Levelling, grading and compaction (f) Excavation for perimeter fencing (g) Installation of fence around site (h) Material stockpiling (i) Construction of access roads and entrance security gate and guardhouse. (j) Servicing and maintenance of machinery and equipment	• Loss of topsoil • Soil compaction; • Soil erosion from soil exposure and increased surface water run-off; • Trampling on vegetation; • Loss of biodiversity • Loss of vegetation • Disturbance to soil structure • Soil pollution from oil leaks and spillages	Negative
	3. Development of drawings (a) Site Layout plans (b) Construction plans (c) Consolidation of safety files and other regulatory operational manuals	• Properly designed infrastructure • EMPr and Best Practice guidelines including Site Management and Operational Plans • Poorly designed infrastructure • Environmental degradation	Positive Negative
	4. Removal of informal housing development encroaching the proposed waste drop-off and transfer site in consultation with community. (a) Social Plans	• Soil erosion • Bare and exposed soil • Dust from dismantling of infrastructure • Loss of shelter and sense of belonging (displacement) • Loss of life due to potential	Negative

Project Phase	Activity	Potential Impacts	Impact Status (positive or negative)
		flooding from the Crocodile River during high rainy season.	
	5. Site Safety and Access: (a) Excavation for fence; (b) Install fencing and security gate; 6. Delivery and stockpiling of construction material 7. Safety and site management, environmental induction, Source PPE safety equipment	• Damage to top soil; Siltation; Compaction of soil; • Dust from offloading of construction of material; • Theft of material & vandalisation of site infrastructure	Negative
	8. Site clearing: (a) Clearing of vegetation for construction 9. Site Infrastructure (a) Set mobile office facility (b) Install storage and ablution (c) facilities (d) Install waste disposal facilities (e.g waste bins) (e) Clearing of access points where necessary	• Loss of soil • Loss of vegetation, disturbance to flora and displacement of faunal species. • Increase in storm water velocity and soil erosion, • Sedimentation of watercourse from eroded soil.	Negative
	10. Auxiliary Services (a) Portable water supply and storage tanks (b) Diesel, petrol and HFO storage facility roads (c) Office buildings, training centre, emergency services and cafeteria (d) Workshops: electrical and mechanical (e) Security offices (f) Fire protection equipment	• Visual intrusion	Negative
	11. Machinery and Equipment delivery to site	• Soil pollution from oil and chemical leaks or spillages	Negative
	12. Recruitment of local site workers	(a) Improved economic and social status	Positive

Project Phase	Activity	Potential Impacts	Impact Status (positive or negative)
	13. Training of site workers: Skills development of employees in various skills such as finance, management, marketing, sales, stock etc. Socio-economic opportunities	• Improved skill levels • Exposure to new vocational training and opportunities	Positive
	14. Access road use by Trucks for site establishment material delivery at the site.	• Improved economic and social status • Improved skill levels	Negative
Construction	15. Construction Camp Management	• Increased traffic volumes • Public safety (motorists and pedestrians)	Negative
	16. Delivery of construction materials 17. Grading/ levelling of the landscape 18. Ripping/ loosening of soil	• (Dust • Noise	Negative
	19. Cutting of slope and levelling for site infrastructure construction	• Change in topography: • Change to the slope of the existing site; • Visual intrusion due to the stockpiling of material on site.	Negative
	20. Construction activities - debris, construction rubble and oil spills	• Soil erosion, increased erosion levels due to run-off of water. • Exposure of soil, • little precipitation and evaporation, loss of habitat life. • Soil pollution - waste illegal dumping • Water pollution – stormwater coming into contact with construction materials, oil spills and construction waste.	Negative
	21. Waste generation during construction	(a) An increase in the amount of litter being generated (b) Non-use of sanitation facilities. (c) Construction waste or rubble (d) Soil and Surface water	Negative

Project Phase	Activity	Potential Impacts	Impact Status (positive or negative)
		pollution due to wind blown litter.	
	22. Vehicular movement during construction: • Increase in dust and erosion from clearing of vegetation, earth moving activities, as a result of earthworks, demolition, as well as the delivery and mixing of construction materials. • Emissions from construction vehicles • and increase in vehicle traffic. • Uncovered stockpiled construction material on site • Traffic, congestion and potential for collisions during the construction phase.	• Air Quality: ➢ Dust ➢ Emissions ➢ Visibility ➢ Visual intrusion • Soil erosion ➢ Personnel Safety	Negative
	23. Environmental contamination from building rubble, chemical leaks, spills and emissions, human excrement and litter.	• Soil pollution • Surface water pollution • Ground water pollution	Negative
	24. Potential visual intrusion of construction/demoliti on activities on the views of sensitive visual receptors	• Visual impacts: ➢ Visual intrusion	Negative
	25. Use of construction equipment (for the construction of the proposed infrastructure and demolition of existing infrastructure).	(a) Noise impacts: • Level of noise generated on site from ➢ vehicular movement, construction personnel working and ➢ the use of equipment and machinery during construction work e.g. trucks offloading waste, compactor, loading of waste for haulage to disposal site.	Negative

Project Phase	Activity	Potential Impacts	Impact Status (positive or negative)
		Noise from demolition works.	
	26. Construction activities: Safety of personnel	• Safety impacts: ➢ <u>Safety and fire</u> - Potential impact on the safety of construction workers due to construction activities (such as welding, cutting, working at heights, lifting of heavy items etc.). – open excavations and movement of construction vehicles cause a safety risk to people using footpaths in the area. Risk of fire due to construction activities and unauthorised fires on site (during cooking for example). - Potential health injuries to construction personnel as a result of construction work (i.e. welding fumes).	Negative
	27. Construction activities: Disturbance of Heritage Resources from construction activities.	• Disturbance to heritage resources • Loss of heritage resources	Negative
Operational	28. Receive the waste 29. Separation into streams 30. Temporal Storage of waste streams at the site 31. Loading into "walk in floors" containers 32. Transportation for disposal	• Odours • Waste Spills • Potential oil spills and leaks during offloading, loading and transportation for disposal. • Vectors: ➢ Flies and Rats • Birds, cats and dogs	Negative
	31. Temporal storage of garden waste at site - unlined surface	• Water pollution/ contamination of water sources and ground water	Negative

Project Phase	Activity	Potential Impacts	Impact Status (positive or negative)
	32. Unlined surfaces for waste drop off, packaging and loading to trucks for disposal	• Ground water pollution • Soil pollution	Negative
	33. Flat and smooth surfaces around the site without proper storm water management system	• Storm water management	Negative
	34. Vehicular movement: Trucks offloading and loading waste	• Air Quality: ➢ Dust/Emissions	Negative
	35. Trucks and vehicle maintenance (General Operations and Maintenance)	• Soil pollution from oil and chemical spills during maintenance service	Negative
	36. Vehicular movement, construction personnel working and the use of equipment and machinery during operational phase e.g. trucks offloading waste, compaction of waste, loading of waste for haulage to disposal site. Possible chipping of garden waste before transportation to composting site.	• Noise impacts: ➢ Level of noise generated on site from trucks and vehicles in and out of the site ➢ Operation of machinery and equipment ➢ Loading waste and transportation for disposal.	Negative
	36. Socio-economic Impact	• Employment creation (approximately 10 -15 new jobs) • Skills development • Local economic development	Positive
Decommissioning /Rehabilitation	37. Rehabilitation of illegal dumping sites is Demolition of all infrastructure on the site	➢	Positive
		• Surface water pollution • Air pollution: ➢ Dust from the ripping and demolition of all infrastructure on site. • (Emissions from trucks hauling off the building rubble from the site.	Negative
		• Soil pollution ➢ Oil spills, waste spills etc. from demolition	Negative

Project Phase	Activity	Potential Impacts	Impact Status (positive or negative)
		and movement of trucks etc.	
		• Traffic ➢ Additional traffic of trucks removing demolition rubble to the landfill site for construction material.	Negative
		• Noise: ➢ Noise from the demolition process (machinery, trucks and equipment) to be used.	Negative
	38. Poor rehabilitation methods implementation	• Landscape scarring • Visual intrusion: ➢ Poorly rehabilitated site leads to unsightly area to surrounding communities.	Negative
	39. Decommissioning of site	• Socioeconomic impacts: ➢ Loss of employment and economic stability of community.	Negative

10.13.1 Health and Safety Impacts

The health and safety impacts are anticipated throughout the project life cycle stages and the implementation of the proposed mitigation measures are critical to the minimization of the identified impacts and their potential risks. There are a number of aspects involved in the planning and design of a waste disposal facility that may cause impacts during the operation of the facility. These include the determination of the capacity of the facility, access control, the locality of the drop-off areas in relation to compaction area, ablution and dining facilities, admin buildings etc. Public will only be allowed at the drop-off area and not in the recycling and compactor area for safety reasons.

The capacity of the facility to handle the daily waste deliveries, layout and design of the facility and the choice of equipment are all important factors that will determine the smooth and environmentally friendly operation of the facility. Noise, odour management and nuisances such as flies, rodents can all be controlled with the correctly chosen equipment and operation thereof.

Water management on the site is an important factor. Potentially contaminated waters (compactor area) will be directed to the sewer system. Concentrated storm water from the paved areas and water from the wash bays may cause surface water pollution. Safety of workers on site in relation to the possibility of escaped animals from the adjacent KNP will be addressed with the involvement of key stakeholders particularly from KNP Management and community representatives.

Operational procedures to deal with incidents and emergencies promptly will be readily available and the workers must be trained on health and safety procedures. Appointment of a Health and Safety officer is ideal.

With a lack of such planning and mitigation measures, the possible impacts are of high significance.

10.13.2 Cumulative Impacts

The overall positive cumulative impacts of the proposed activity will be improved and efficient waste management within the Mbombela Local Municipality. This activity will reduce the amount of waste illegally dumped in open areas and also the amount transported to landfill, thereby conserving landfill air space and prolonging the life span of the landfill site. The Public drop off facility is necessary in order to provide the community with an additional facility that will accept garden / green waste thereby preventing and minimising the illegal dumping of these materials, which accumulate (negative) over time.

The planned rehabilitation of the existing illegal dumping has cumulative positive benefits to the environment and the community.

The identified impacts and the proposed mitigation measures are summarized in Table10.13.2.1

Table 10.13.2.1: Impacts and Mitigation measures of the proposed Matsulu Waste Transfer Station

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
PHASE: PRE-CONSTRUTION (PLANNING & DESIGN PHASE)						
1. Waste License Application and Environmental Authorisation	(a) Submit Waste & Environmental Authorisation Application Form	Direct	No development of Waste Transfer Facility	Design and Planning	The impact of no environmental authorisation and the approved waste licence is high and could result in the Waste Drop-off Facility not being developed. The need for the facility within the area is key to the municipality waste management strategy to offer waste management services. The potential job opportunities and skills development to be created will be lost for the local community. The impact of environmental pollution for the operation of such a facility without proper authorisation would be significantly high. **Impact Status**: Negative **Severity**: High **Spatial scale and duration**: National –long term **Probability of occurrence**: High **Degree to which impact can be reversed**: Low **Degree to which impact may cause irreplaceable loss of resource**: High **Cumulative impact prior to mitigation**: Medium **Significance rating prior to mitigation**: Medium **Cumulative impact after mitigation**: Low **Significance rating after mitigation**: Low	• Ensure all Legislative and procedural requirements are met including specified timelines and protocols outlined within the BA Regulations before commencing with construction. • Application for Environmental Authorisation has been submitted (Ref No: 1/3/1/16/1E-118). • Application for a Waste Licence has been submitted (Ref no: 17//4/WL/MP322/17/01) • Communicate with relevant stakeholders on all project plans and progress. • Ensure transparency with project scope and implementation.

<table>
<tr><th>ACTIVITY</th><th>IMPACTS</th><th>TYPE OF IMPACT</th><th>ASPECTS AFFECTED</th><th>PHASE</th><th>SIGNIFICANCE RATING</th><th>MITIGATION MEASURES</th></tr>
<tr>
<td>2. Site Assessment & Establishment:
Site selection
Site Establishment & Preparation

3. Development of drawings
Construction plans
Consolidation of safety files and other regulatory operational manuals</td>
<td>(a) Soil compaction;
(b) Trampling on vegetation;</td>
<td>Direct</td>
<td>Land to be cleared of vegetation
Change of land use of identified site(s)</td>
<td>Design and Planning</td>
<td>The impact on the soil will be low as the proposed site area is already transformed and cultivated. The soil has been trampled and there are informal household development encroaching the site area. Mitigation measures to be adhered to.
<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Spatial scale and duration</td><td>Local -short term</td></tr>
<tr><td>Probability of occurrence</td><td>Medium</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Medium</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Low</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Low</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table>
</td>
<td>15. Careful consideration to reduce the footprint of the proposed activity not to increase impact to the environment.
16. Poor design & planning could result in highly significant environmental impacts.
17. Construction camp will be located on a previously disturbed area and should be located at least 100m from the watercourse.
18. Low noise machinery to be sourced.
19. Construction site and Environmental Management Plans (CEMP) will be implemented together with the EMPr.
20. Notification of community</td>
</tr>
</table>

<table>
<tr><th>ACTIVITY</th><th>IMPACTS</th><th>TYPE OF IMPACT</th><th>ASPECTS AFFECTED</th><th>PHASE</th><th>SIGNIFICANCE RATING</th><th>MITIGATION MEASURES</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>representatives about site development plans.</td></tr>
<tr><td>4. Removal of informal housing development encroaching the proposed waste drop-off and transfer site</td><td>(a) Soil erosion Bare and exposed soil
(c) Dust from dismantling of infrastructure
(d) Loss of shelter and sense of belonging (displacement)
(e) Loss of life due to potential flooding from the Crocodile river during wet rainy season.</td><td>Direct</td><td>Soil surface & composition

Air quality
Human health inhaling dust
Human life and security
Socio-economic aspects e.g job loss and loss of livelihood and economic benefits
Human and faunal life due to flooding from the Crocodile river</td><td></td><td>The impact of the topsoil removal will be low as the area already has informal housing development and cultivated areas. The socio-economic impacts will be high due to the displacement of the community and loss of sense of belonging and livelihood. The Social

<table><tr><td>Impact Status</td><td>Negative</td></tr><tr><td>Severity</td><td>High</td></tr></table>
Plan will be implemented.</td><td>21. Consultation with Municipality and Ward Councillors to address the matter with the informal residents within the site.
22. A Social Plan will be developed to address the removal and relocation of the illegal residents within the informal</td></tr>
</table>

<table>
<tr><th>ACTIVITY</th><th>IMPACTS</th><th>TYPE OF IMPACT</th><th>ASPECTS AFFECTED</th><th>PHASE</th><th>SIGNIFICANCE RATING</th><th>MITIGATION MEASURES</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td><table>
<tr><td>Spatial scale and duration</td><td>Local -long term</td></tr>
<tr><td>Probability of occurrence</td><td>High</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>Medium</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Medium</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table></td><td>housing development in consultation with the community.</td></tr>
<tr><td>Site Safety and Access:
5. Excavation for fence; Install fencing and security gate;

6. Delivery and stockpiling of construction material.

7. Safety and site management, environmental induction, Source PPE safety equipment</td><td>(a) Damage to top soil;
(b) Siltation; Compaction of soil;
(c) Dust from offloading of construction of material;
(d) Theft of material & vandalisation of site infrastructure</td><td>Direct/Cumulative</td><td>Site material safety
Personnel safety</td><td>Design and Planning</td><td>The impact on the soil will be low as the proposed site area is already transformed and cultivated. The soil has been trampled and there are informal household development encroaching the site area. Mitigation measures to be adhered to.<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Low</td></tr>
<tr><td>Spatial scale and duration</td><td>Low, Local -short term</td></tr>
<tr><td>Probability of occurrence</td><td>Low</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Negligible</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Low</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Low</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table></td><td>23. Material required for fencing will be stored at a clearly demarcated area within the contractor camp. The camp will be located close to the area earmarked for infrastructure like ablution facilities in order to centralize the impacted area.
24. All areas for material stockpiling will be demarcated and kept secured at all times.
25. Perimeter fence will be</td></tr>
</table>

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						checked regularly for damage and be fixed immediately. 26. Any suspicious movements around the site will be reported and investigated. 27. No mixing of stockpile material will be allowed. 28. All stockpile material will be covered (i.e top soil) to prevent soil erosion and potential water sources from surface water runoff. 29. Dust suppression methods will be implemented. 30. Site safety protocols will be adhered to.

<table>
<tr><th>ACTIVITY</th><th>IMPACTS</th><th>TYPE OF IMPACT</th><th>ASPECTS AFFECTED</th><th>PHASE</th><th>SIGNIFICANCE RATING</th><th>MITIGATION MEASURES</th></tr>
<tr>
<td>8. Site clearing:
clearing of vegetation for construction

9. Site Infrastructure
• Set mobile office facility
• Install storage and ablution
• facilities
• Install waste disposal facilities (e.g waste bins)
• Clearing of access points where necessary</td>
<td>(a) Loss of soil

(b) Loss of vegetation, disturbance to flora and displacement of faunal species.

(c) Increase in storm water velocity and soil erosion,

(d)Sedimentation of watercourse from eroded soil.</td>
<td>Direct</td>
<td>Soil structure
Biodiversity
Water sources</td>
<td>Design and Planning</td>
<td>The impact will be medium due to the loss of habitat for the local fauna and flora within the area, however there is already disturbance to the biodiversity from the illegal housing development and cultivated land. Site clearance and removal of vegetation leading to a loss of any recorded on unrecorded species of conservation significance such as ToPs, Red Data Listed species, protected species (nationally and/or provincially, plant species with medicinal or other cultural value. The recommendations within the Site Establishment Plan and the EMPr will be adhered to.
<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Spatial scale and duration</td><td>Local –long term</td></tr>
<tr><td>Probability of occurrence</td><td>High</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Medium</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table>
</td>
<td>31. All construction activities to be completed within the proposed footprint indicated in the layout drawings.
32. All natural areas outside the demarcated site area will be demarcated with barrier as no-go areas. The no-go areas must not be accessed by construction personnel or vehicles.
33. According to SANBI's Guidelines for Environmental Impact Assessments (http://redlist.sanbi.org/eiaguidelines.php), in situ conservation of species of conservation significance is</td>
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</table>

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						vital and is recommended as the only option for conserving species of conservation concern. Ex situ conservation, i.e. the removal of a subpopulation from its natural habitat to an artificial environment, a practice often termed "search and rescue", will result in the erosion of the inherent genetic diversity and characteristics of that species and increase its risk of extinction in the wild. Similarly, translocation of subpopulations is an unacceptable

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						conservation measure. Translocations are expensive and rarely successful. Even if they are successful, translocated individuals may harm other species within the receiving environment, the translocated individuals may transmit pathogens and/or parasites, and translocation may result in rapid changes in the species itself. 34. If possible, developments that jeopardize any large populations of species of conservation significance should be planned in such a way as

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						to avoid the populations and their habitat by the conservation of prescribed buffer zones. 35. Any specimens of protected plant species known to occur in the vicinity of or directly adjacent to the development footprint and may potentially be impacted by the development activities, are to be fenced off for the duration of the activity. If these species fall within the development footprint special authorization is to be obtained from relevant conservation authorities for

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						such species to be cut, disturbed, damaged or destroyed. Applications for such activities should be made to the responsible official within the provincial conservation department and/or SANBI. 36. An alien vegetation control plan has to be implemented in order to manage alien plant species occurring within the developed and surrounding area. 37. Removal of the alien invader and weed species encountered on the property must take place in order to

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						comply with existing legislation (amendments to the regulations under the Conservation of Agricultural Resources Act, 1983 and Section 28 of the National Environmental Management Act, 1998). Removal of species should take place throughout the construction, operational, closure/decommissioning and rehabilitation/ maintenance phases. Care should be taken with the choice of herbicides to ensure that no additional impact and loss of indigenous plant species occurs due to

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						the herbicides used. Proper training should be given to contractors/applicators to avoid spraying indigenous vegetation. 38. Landscaping with local indigenous species is preferable and should include forage and host plants required by pollinators. 39. After the construction phase reseeding of local indigenous plant species should be done in between the developed infrastructure and all affected areas to re-establish plant species diversity. These re-seeded areas should be well

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						maintained during the operational phase. 40. All construction activities, materials, equipment and personnel to be restricted to within the area specified. 41. Rehabilitation of areas disturbed during construction shall be undertaken through landscaping and planting of indigenous species. 42. A comprehensive alien vegetation eradication and control programme will be implemented during and after construction and continue

<table>
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<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>for the lifetime of the facility.
43. Provide mobile chemical toilets.</td></tr>
<tr><td>10. Auxiliary Services

• Portable water supply and storage tanks
• Diesel, petrol and HFO storage facility roads
• Office buildings, training centre, emergency services and cafeteria
• Workshops: electrical and mechanical
• Security offices
• Fire protection equipment</td><td>(a) Visual intrusion</td><td>Direct</td><td>Aesthetic value of the area</td><td>Design and Planning</td><td>There is potential for visual intrusion due to the establishment of structures and infrastructure, however this impact is considered low due to the area being transformed already therefore the site is not a pristine area.
<table><tr><td>Impact Status</td><td>Negative</td></tr><tr><td>Severity</td><td>Low</td></tr><tr><td>Spatial scale and duration</td><td>Local –long term</td></tr><tr><td>Probability of occurrence</td><td>Medium</td></tr><tr><td>Degree to which impact can be reversed</td><td>Medium</td></tr><tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Medium</td></tr><tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr><tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr><tr><td>Cumulative impact after mitigation</td><td>Low</td></tr><tr><td>Significance rating after mitigation</td><td>Low</td></tr></table></td><td>44. Construct the boundary wall in a manner in keeping with the area. Solid fencing and vegetative screening can improve the visual appearance of the drop-off and can provide a buffer to noise and dust.
45. Plant trees to soften the effect of the wall and</td></tr>
</table>

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						further screen the proposed structures (note: should there be sufficient Municipal/ project budget for such planting).
11. Machinery and Equipment delivery to site	(a) Soil pollution from oil and chemical leaks or spillages	Direct/Cumulative	Water sources Soil pollution Human life (Personnel and Communities)	Planning and Design	The impact on the soil will be low as the proposed site area is already disturbed and transformed through cultivation. The soil has been trampled and there are informal household development encroaching the site area. All machinery and equipment on site to be maintained regularly and checked daily for leaks before and after use. Mitigation measures within the EMPr to be adhered to.	46. Site Establishment and Management Specification and

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<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Spatial scale and duration</td><td>Local –long term</td></tr>
<tr><td>Probability of occurrence</td><td>High</td></tr>
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<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table></td><td>Procedures to be adhered to.
47. Reduce risk of incidents due to operation of vehicles and equipment during site clearing. Safety procedures will be adhered to.
48. Ensure adherence to the EMPr.</td></tr>
<tr><td>12. Recruitment of local site workers</td><td>(a) Improved economic and social status</td><td>Direct</td><td>Job creation</td><td>Design and Planning
Construction
Operational
Decommissioning and Rehabilitation</td><td>There will be creation of job opportunities during all the phases of the project. The impact will be positive and high for boosting the livelihood status of the households within the area and also local economic development for the local SMMEs.<table>
<tr><td>Impact Status</td><td>Positive</td></tr>
<tr><td>Severity</td><td>High</td></tr>
<tr><td>Spatial scale and duration</td><td>Local –long term</td></tr>
<tr><td>Probability of occurrence</td><td>High</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>Medium</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Negligible</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>High</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>High</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating after mitigation</td><td>Medium</td></tr>
</table></td><td>49. Local community personnel to be sourced/recruited for rehabilitation.
50. Local site workers to undergo extensive safety and environmental induction training on environmental and wetland rehabilitation requirements including worker behaviour on</td></tr>
</table>

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						site. 51. Ensure use of PPE at all times. 52. Odour management plan to be implemented. 53. Waste Management plan will be implemented. No waste will be stored for more than a day on site. 54. Noise Management plan will be implemented. Housekeeping rules to will be enforced. 55. Ensure that all illegal dumping sites on the vicinity of the site and its surrounding areas are cleared before construction and rehabilitated to reduce further impacts.

<table>
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<tr>
<td>13. Training of site workers:
Skills development of employees in various skills such as finance, management, marketing, sales, stock etc.</td>
<td>(a) Improved skill levels
(b) Exposure to new vocational training and opportunities .</td>
<td>Direct</td>
<td>Human
Skills level & empowerment</td>
<td>Planning & Design</td>
<td>The impact of the proposed project will entail the empowerment of local community workers due to the training programmes and skills development. The impact is rated high with a positive impact to the local community's empowerment and development. Engagement of local training SMMEs is encouraged as to increase local SMME development within the area.
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<tr><td>Cumulative impact after mitigation</td><td>High</td></tr>
<tr><td>Significance rating after mitigation</td><td>High</td></tr>
</table>
</td>
<td>56. Skill development in the local community will be promoted and encouraged.
57. Provision of opportunities for exposure to other vocational areas will be encouraged.
58. Empowerment of community through other educational programmes will be encouraged.
59. Site specific awareness programmes will be encouraged.
60. Provision of on-site accredited training will be encouraged.</td>
</tr>
</table>

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<tr><td rowspan="2">14. Access road use by Trucks for site establishment material delivery at the site.</td><td>(a) Increased traffic volumes

(b) Public safety (motorists and pedestrians)</td><td>Direct</td><td>Existing road infrastructure
Other road users
Pedestrians</td><td>Design and Planning</td><td>The impact of the delivery of site establishment will be medium due to the fact that there will be increase in traffic flow within the area of trucks. The delivery will de done during normal working hours (08h00 – 17h00) and thus will not create disturbance to community after hours. The number of trips and trucks will be kept to a minimum to reduce potential accidents to local public and pedestrians. Speed limit will be strictly enforced.
<table>
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<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Medium</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table></td><td>61. Ensure adherence to speed limit of 30km/hr before the entry to the site.
62. Installation of speed humps to enforce speed limit to be considered.
63. Safety monitors especially at the intersections will be placed to ensure safety of motorists and pedestrians.
64. Educate staff about the impacts of off-road driving.</td></tr>
<tr><td>(c) Dust
(d) Noise</td><td>Direct/Cumulative</td><td>Local communities
Other road users</td><td>Design and Planning, Construction, Operational, Decommission and Rehabilitation</td><td>Dust emissions are likely to occur due to vehicular movement as the roads leading to the proposed site are gravel. The severity of this impact is anticipated to be low, if mitigation measures such as dampening of the gravel road and adherence to speed limits are observed. Furthermore, the traffic volume is anticipated to be low during this phase of the project, in comparison with the Construction and Operational Phase. Air pollution from emanating from vehicular emissions is also anticipated to be low if the mitigation measures prescribed in this Environmental Management Plan are adhered to.
<table>
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</table></td><td>65. Ensure adherence to speed limit of 30km/hr before the entry to the site.
66. Installation of speed humps to enforce speed limit to</td></tr>
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<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
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</table></td><td>be considered.
67. Dust suppression methods will be implemented.
68. Investing in trucks with a lower ambient noise emission system will be considered.</td></tr>
<tr><td colspan="7">PHASE: CONSTRUCTION</td></tr>
<tr><td>15. Construction Camp Management</td><td>• Social disturbance:
➢ Noise
➢ Dust
➢ Safety
➢ Pollution
➢ (litter)</td><td>Direct/Cumulative</td><td>Environmental & human health</td><td>Design and Planning</td><td>The impact of the construction camp within the area will have a low impact to the neighbouring community. The presence and movement of site workers will be limited to the boundary of the site during normal working hours. The Site management protocols and procedures will be implemented as prescribed within the EMPr.
<table>
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</table></td><td>• Construction camp will be located on a previously disturbed area and should be located at least 100m from the watercourse.
• Construction camp & ablution facilities will be out of the sensitive zone areas and proper CEMP (Construction Site Environmental Management Plans) will be implemented together with the EMPr.
• Built structures will not break the horizon.
• Consideration of using screen planting to obstruct the view of construction camp and stockpile from road</td></tr>
</table>

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						users will be regarded. Use of only local indigenous vegetation will be ensured. 69. Disaster Management Plan and all Site Health and Safety Procedures will be implemented. 70. Dust suppression will be implemented within the site to minimise air quality and visibility impacts. 71. Fires will only be allowed in facilities or equipment specially constructed for this purpose. If required by applicable legislation, a firebreak will be cleared around the perimeter of the camp and office sites. 72. A designated place for food preparation and eating will be established at the construction site. 73. Dry chemical toilets will be made available at a ration of 1 toilet per 10 staff, within the campsite perimeter and will be cleaned and serviced as requested by the service provider. 74. Workers movements

<table>
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<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>will be limited to the construction area only and will be enforced in terms of the contracts of appointments.
75. Any complaints will be addressed accordingly and records will be kept thereof.
76. Residents will be notified 7 days in advance of disruptions to services (water, electricity and road closures).</td></tr>
<tr><td>16. Delivery of construction materials

17. Grading/ levelling of the landscape

18. Ripping/ loosening of soil</td><td>(a) Damage to top soil;
(b) Compaction of soil;
(c) Soil pollution due to oil leaks from machinery;
(d) Loss of vegetation;
(e) Increase in storm water velocity and soil erosion;
(f) Loss of biodiversity;
(g) Dust</td><td>Direct</td><td>Soil surface
Soil structure/ Soil composition</td><td>Construction</td><td>The impact is regarded as low as the area proposed for development is already transformed and cultivated. The implementation of mitigation measures outlined in the EMPr will ensure the impact is low.
<table>
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<tr><td>Cumulative impact prior to mitigation</td><td>Low</td></tr>
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</table></td><td>77. Bare surfaces will be managed as small as possible.
78. All personnel to use the construction environmental management programme guidelines to reduce machinery and personnel noise levels to</td></tr>
</table>

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
	generation; (h) Noise from machinery, equipment and personnel; (i) Degradation and/or destruction of sensitive habitats such as the adjacent Protected Area (KNP)				**Cumulative impact after mitigation**: Low **Significance rating after mitigation**: Low	low. 79. The Contractor must strip and stockpile all soil within the site for use at a later stage. 80. Topsoil removed will be stockpiled in a specified area. 81. Stockpiles will be placed outside of the retained wetland buffer. Stockpiles will be covered and protected from wind and rain with the use of tarpaulins where necessary. The Engineer must use discretion in this regard. 82. Sanitation facilities must not be located within 50m of any water resources or water drainage areas. Facilities will be regularly

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						checked and serviced regularly to reduce risk of soil pollution, surface water and groundwater pollution. 83. Vegetation clearing on the site should take place only immediately prior to construction in order to minimise the time the soil is bare, thus minimising soil erosion, dust and visual impacts. 84. During excavations, soil stockpiling should be as far as possible away from the edge of sensitive areas to avoid siltation of these areas from soil stock piles. 85. Construction

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						machinery and vehicles may not be allowed to enter sensitive areas. Strictly no re-fueling of vehicles or machinery should be allowed to take place in any construction area close to a river, riparian zone, wetland/drainage line or other sensitive area. 86. If constructed, the waste transfer station should be managed in such a way as to minimize pollution of sensitive areas by maintaining buffer zones adjacent to such areas. 87. An alien vegetation control plan has to be

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						implemented in order to manage alien plant species occurring within the developed and surrounding area. 88. Regarding the loss of vulnerable ecosystems and other sensitive habitats as well as CBA's and ESA's in and adjacent to the study area and the possibility of future degradation and loss of such areas the no-go option or viable alternatives may be considered.
19. Cutting of slope and levelling for site infrastructure construction	Change in topography: Change to the slope of the existing site; Visual intrusion	Direct	Cutting of slope and levelling of current site for construction and	Construction	The impact of slope cutting is considered medium due to the change in the topography of the area, however the area proposed for the development is already transformed and cultivated. Implementation of proposed mitigation measures within the EMPr will reduce the impact significantly low.	89. Ensure topography aligned to the building designs and minimises

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
	due to the stockpiling of material on site.		foundation establishment		**Impact Status**: Negative **Severity**: Medium **Spatial scale and duration**: Local -short term **Probability of occurrence**: High **Degree to which impact can be reversed**: High **Degree to which impact may cause irreplaceable loss of resource**: Negligible **Cumulative impact prior to mitigation**: Medium **Significance rating prior to mitigation**: Medium **Cumulative impact after mitigation**: Low **Significance rating after mitigation**: Low	impact to environment and human safety.
20. Construction activities - debris, construction rubble and oil spills	(a) Soil erosion, increased erosion levels due to run-off of water. (b) Exposure of soil, little precipitation and evaporation, loss of habitat life. (b) Soil pollution - waste illegal dumping (c) Water pollution – stormwater coming into contact with construction	Direct	Soil health Surface water resources health Ground water health	Construction	Impacts emanating from the construction activities such as offloading and stockpiling of construction material, movement of trucks and machinery will result in soil erosion, soil pollution and potential water pollution from spillage and seepage into water resources. These impacts are however considered to be low after the implementation of mitigation measures. Degradation of a portion of a vulnerable Protected Area (KNP) and other sensitive habitats directly adjacent to the study area as a result of pollution and other forms of habitat destruction. **Impact Status**: Negative **Severity**: Medium **Spatial scale and duration**: Local -short term **Probability of occurrence**: High **Degree to which impact can be reversed**: High **Degree to which impact may cause irreplaceable loss of resource**: Medium **Cumulative impact prior to mitigation**: Medium **Significance rating prior to mitigation**: Medium	90. Once earthworks are complete, disturbed areas are to be stabilised to prevent erosion. 91. All construction vehicles and machinery and equipment will be properly maintained to prevent leaks. 92. All bare surfaces to be re-vegetated or paved to reduce the impacts of soil

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<tr><td></td><td>materials, oil spills and construction waste.</td><td></td><td></td><td></td><td><table><tr><td>Cumulative impact after mitigation</td><td>Low</td></tr><tr><td>Significance rating after mitigation</td><td>Low</td></tr></table></td><td>erosion from increased surface water runoff and surface water pollution.
93. Clearance of all illegal dumping sites prior to construction.</td></tr>
<tr><td>21. Waste generation during construction</td><td>(a) An increase in the amount of litter being generated
(b) Non-use of sanitation facilities.
(c) Construction waste or rubble
(d) Soil and Surface water pollution due to wind blown litter.</td><td>Direct</td><td>Soil health
Site Aesthetic value</td><td>Construction
Decommissioning and Rehabilitation</td><td>There is potential for pollution of land, soil and water due to improper waste disposal such as littering, overflowing bins, and burning of waste on site. This impact is considered to be low after implementation of mitigation measures. The construction rubble will be removed and disposed appropriately.<table><tr><td>Impact Status</td><td>Negative</td></tr><tr><td>Severity</td><td>Medium</td></tr><tr><td>Spatial scale and duration</td><td>Local -short term</td></tr><tr><td>Probability of occurrence</td><td>Low</td></tr><tr><td>Degree to which impact can be reversed</td><td>High</td></tr><tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Low</td></tr><tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr><tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr><tr><td>Cumulative impact after mitigation</td><td>Low</td></tr><tr><td>Significance rating after mitigation</td><td>Low</td></tr></table></td><td>94. Environmental Awareness induction training will be conducted to address the general site and sanitation facilities management.
95. Site management procedures and guidelines will be implemented and all waste and rubble will be collected in appropriate waste</td></tr>
</table>

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<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>receptacles and disposed of at the nearest authorised landfill site.</td></tr>
<tr><td>22. Vehicular movement during construction:
Increase in dust and erosion from clearing of vegetation, earth moving activities, as a result of earthworks, demolition, as well as the delivery and mixing of construction materials.
Emissions from construction vehicles
and increase in vehicle traffic.
Uncovered stockpiled construction material on site
Traffic, congestion and potential for collisions during the construction phase.</td><td>(a) Air Quality:
Dust
Emissions
Visibility
Visual intrusion
Soil erosion
Personnel Safety</td><td>Direct</td><td>Air Quality
Human health (inhalation of dust and emissions from the site)
Human safety - potential collisions and incidents on site</td><td>Construction</td><td>Air quality impacts emanating from the construction activities such as increased dust result from the offloading and stockpiling of construction material, movement of trucks. There will also be soil erosion, soil pollution and potential water pollution from spillage and seepage into water resources. These impacts are however considered to be low after the implementation of mitigation measures.<table><tr><td>Impact Status</td><td>Negative</td></tr><tr><td>Severity</td><td>Medium</td></tr><tr><td>Spatial scale and duration</td><td>Local -short term</td></tr><tr><td>Probability of occurrence</td><td>Low</td></tr><tr><td>Degree to which impact can be reversed</td><td>High</td></tr><tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Low</td></tr><tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr><tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr><tr><td>Cumulative impact after mitigation</td><td>Low</td></tr><tr><td>Significance rating after mitigation</td><td>Low</td></tr></table></td><td>96. Dust suppression methods will be implemented.
97. Implement the site Health and Safety Plan.
98. Ensure that construction vehicles travelling on unpaved roads do not exceed a speed limit of 30 km/hour.
99. Limit vehicles, people and materials to the construction site.
100. Limit construction activities to day time hours (08h00 - 17h00)
101. Road barricading should be
102. undertaken</td></tr>
</table>

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<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>where required and road safety signs should be adequately installed at strategic points within the construction site.</td></tr>
<tr><td>23. Environmental contamination from building rubble, chemical leaks, spills and emissions, human excrement and litter.</td><td>(a) Soil pollution
(b) Surface water pollution
(c) Ground water pollution</td><td></td><td>Soil health
Water quality</td><td>Construction</td><td>Impacts emanating from the construction activities such as offloading and stockpiling of construction material, movement of trucks and machinery will result in soil erosion, soil pollution and potential water pollution from spillage and seepage into water resources. These impacts are however considered to be low after the implementation of mitigation measures.
<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Spatial scale and duration</td><td>Local -short term</td></tr>
<tr><td>Probability of occurrence</td><td>Low</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>High</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table></td><td>103. Regular check of the vehicles, machinery and equipment operating on site will be ensure
104. Should a hydrocarbon or other chemical spill occur, clean up procedures will be undertaken a.s.a.p., in line with best practice:
105. Spills on soil will be contained by using oil absorbents and/or peat sorbs to absorb the spill. This will</td></tr>
</table>

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						be cleaned and removed into adequate hazardous waste containers. 106. All contaminated soil will be removed and placed into hazardous waste bins 107. Spills on water will be addressed by personnel on site or by pollution control contractors, using oil absorbents or oil skimmers. 108. Oil contaminated absorbent material or skimmed-off chemicals need will be disposed of in hazardous waste bins or sealable drums. 109. No spilled products will

<table>
<tr><th>ACTIVITY</th><th>IMPACTS</th><th>TYPE OF IMPACT</th><th>ASPECTS AFFECTED</th><th>PHASE</th><th>SIGNIFICANCE RATING</th><th>MITIGATION MEASURES</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>be disposed of in sewers or storm water drains, or be deliberately ignited.
110. Gloves/PPE will be worn when handling spilled petroleum products.</td></tr>
<tr><td>24. Potential visual intrusion of construction/demoliti on activities on the views of sensitive visual receptors</td><td>Visual impacts: Visual intrusion</td><td>Direct</td><td>Visibility of neighbouring communities and road users</td><td>Construction Decommissioni ng and Rehabilitation</td><td>There is potential for visual intrusion due to the establishment of structures and infrastructure during construction and demolition during decommissioning, however this impact is considered low due to the existence of infrastructure on site therefore the site is not pristine area but has already been disturbed.
<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Spatial scale and duration</td><td>Local -short term</td></tr>
<tr><td>Probability of occurrence</td><td>High</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Low</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table></td><td>111. Dust suppression methods will be implemented.
112. Good housekeeping on site to avoid litter and minimise waste will be ensured.
113. Litter and rubble will be timeously removed from the construction site and disposed at a licenced waste disposal facility.
114. Additional mitigation measures</td></tr>
</table>

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						could include: 115. Construct the boundary wall in a manner in keeping with the area. Solid fencing and vegetative screening can improve the visual appearance of the drop-off and can provide a buffer to noise and dust. 116. Plant trees to soften the effect of the wall and further screen the proposed structures (note: should there be sufficient Municipal/ project budget for such planting).

<table>
<tr><th>ACTIVITY</th><th>IMPACTS</th><th>TYPE OF IMPACT</th><th>ASPECTS AFFECTED</th><th>PHASE</th><th>SIGNIFICANCE RATING</th><th>MITIGATION MEASURES</th></tr>
<tr>
<td>25. Use of construction equipment (for the construction of the proposed infrastructure and demolition of existing infrastructure).</td>
<td>(a) Noise impacts:
• Level of noise generated on site from
➢ vehicular movement, construction personnel working and
➢ the use of equipment and machinery during construction work e.g. trucks offloading waste, compactor, loading of waste for haulage to disposal site.
➢ Noise from demolition works.</td>
<td>Direct/Cumulative</td>
<td>Human health - too much noise affects the ear and hearing abilities of personnel and neighbouring community.</td>
<td>Construction and Decommissioning and Rehabilitation</td>
<td>The construction of the structures will only cause a temporal increase in ambient noise levels during construction and decommissioning phase. The noise will only be limited to construction activities. The expected noise caused by these construction vehicles is however, foreseen to be low, as the expected noise will be from the truck engines and generators. The noise will only be experienced during normal working hours and only during construction and operational phases. Therefore probability of excessive noise is medium and will have medium intensity. It is anticipated that the noise levels will increase during the Operational phase as the trucks offload the waste material and the compactor compresses the waste sorted waste before transportation to the landfill site.
<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>High</td></tr>
<tr><td>Spatial scale and duration</td><td>Local -short term</td></tr>
<tr><td>Probability of occurrence</td><td>High</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Negligible</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Low</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Low</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table>
</td>
<td>117. Limit construction activities to day time hours
118. Construction personnel will wear proper hearing protection, which should be specified as part of the Construction Phase Risk Assessment carried out by the Health and Safety officer.
119. Ensure construction personnel are provided with adequate Personal Protective Equipment (PPE), where appropriate</td>
</tr>
<tr>
<td>26. Construction activities: Safety of personnel</td>
<td>Health and Safety impacts:
<u>Safety and fire</u>
- Potential impact on the safety of construction workers due to construction activities (such</td>
<td>Direct</td>
<td>Human life
Human health</td>
<td>Construction</td>
<td>Due to the nature of the proposed project it is likely that heavy equipment and machinery will be utilised. The potential for accidents and injuries is likely, however the severity of the impact is considered to be medium.
<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Spatial scale and duration</td><td>Local -short term</td></tr>
<tr><td>Probability of occurrence</td><td>High</td></tr>
</table>
</td>
<td>120. Ensure that a skilled and competent Contractor is appointed during the construction phase. The Contractor will</td>
</tr>
</table>

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
	as welding, cutting, working at heights, lifting of heavy items etc.). – open excavations and movement of construction vehicles cause a safety risk to people using footpaths in the area. Risk of fire due to construction activities and unauthorised fires on site (during cooking for example). Potential health injuries to construction personnel as a result of construction work (i.e. welding fumes).				**Degree to which impact can be reversed**: High **Degree to which impact may cause irreplaceable loss of resource**: High **Cumulative impact prior to mitigation**: Medium **Significance rating prior to mitigation**: Medium **Cumulative impact after mitigation**: Low **Significance rating after mitigation**: Low	be evaluated during the tender/appointment process in terms of safety standards. 121. The Contractor must ensure that all construction personnel are provided with adequate PPE for use where appropriate. 122. The Contractor must undertake a Construction Phase Risk Assessment. 123. A Construction Site Manager or Safety Supervisor should be appointed, in conjunction with the project manager, to monitor all safety aspects during the construction phase. This could be the

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
						same person that is assigned to co-ordinate the construction traffic. 124. Ensure that roads are not closed during construction, which may restrict access for emergency services. 125. The Contractor must ensure that all construction personnel are provided with adequate PPE for use where appropriate. 126. Strict adherence to the Site Health and Safety Plan to be ensured.

ACTIVITY	IMPACTS	TYPE OF IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE RATING	MITIGATION MEASURES
27. Construction activities: Disturbance of Heritage Resources from construction activities.	Heritage resources	Direct	Heritage resources	Construction, Operational & Decommissioning/ Rehabilitation	**Impact Status**: Negative **Severity**: Medium **Spatial scale and duration**: Local -long term **Probability of occurrence**: Low **Degree to which impact can be reversed**: High **Degree to which impact may cause irreplaceable loss of resource**: Negligible **Cumulative impact prior to mitigation**: Low **Significance rating prior to mitigation**: Low **Cumulative impact after mitigation**: Low **Significance rating after mitigation**: Low	127. The Contractor will ensure that all personnel are aware of potential Heritage resources that might exist in the site and proper protocol of reporting and recording will be followed. 128. The relevant Heritage Authorities will be contacted upon discovery of any Heritage resources.

<table>
<tr><td colspan="7">PHASE: OPERATIONAL</td></tr>
<tr>
<td>28. Receive the waste

29. Separation into streams

30. Temporal Storage of waste streams at the site

31. Loading into “walk in floors” containers

32. Transportation for disposal</td>
<td>(a) Odours

(b) Waste Spills</td>
<td>Direct/ Cumulative</td>
<td>Human health</td>
<td>Operational</td>
<td>The impact of odours within the site during offloading, sorting and compaction is medium. The temporal storage of food waste has a high potential for odour. A poorly and inadequately designed facility and operational procedures will lead to odour being a nuisance to the neighbouring community. Proposed mitigation measures within the EMPr will be implemented to reduce the significance of the impact to low.
<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Spatial scale and duration</td><td>Local -short term</td></tr>
<tr><td>Probability of occurrence</td><td>Low</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Low</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Low</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Low</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table>
</td>
<td>129. Proper facility design and operational procedures will be considered reduce odour problems.
130. It will be ensured that the waste is sorted accordingly and stored in appropriate containers.
131. Waste material will not be stored for long periods, disposal of waste will be done daily.
132. The surface areas will be lined, cemented and impermeable.
133. Good housekeeping measures will be implemented including regular cleaning and disinfecting of surfaces and equipment that come into</td>
</tr>
</table>

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>contact with waste.
134. Protective clothing will be worn at all times.
135. Extra precaution will be taken for site worker working at the Garden/Green waste area.</td></tr>
<tr><td></td><td>(b) Potential oil spills and leaks during offloading, loading and transportation for disposal.</td><td>Direct/Cumulative</td><td>Soil health Surface and Ground water health</td><td>Operational</td><td>The impact of spills and leaks will be moderate before mitigation measures and significantly low with implementation of mitigation measures,
<table><tr><td>Nature of impact</td><td>Negative</td></tr><tr><td>Severity</td><td>Medium</td></tr><tr><td>Extent and duration</td><td>Local - long term</td></tr><tr><td>Probability of occurrence</td><td>Probable</td></tr><tr><td>Degree to which impact can be reversed</td><td>Low</td></tr><tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Negligible</td></tr><tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr><tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr><tr><td>Cumulative impact after mitigation</td><td>Low</td></tr><tr><td>Significance rating after mitigation</td><td>Low</td></tr></table></td><td>136. It will be ensured that trucks and vehicles are regularly checked and serviced.
137. Oil spills kits will be readily available.
138. Fire kits and fire extinguishers to be readily available around the site.
139. Health and Safety Protocols will be implemented and adhered to.</td></tr>
<tr><td></td><td>(c) Vectors:
Flies and Rats</td><td>Direct/Cumulative</td><td>Human health</td><td>Operational</td><td>The impact of the presence of rodents and flies on site is rated as medium. Rats and flies present a potential health concern at a waste transfer facility, which could easily spread to the neighbouring community and adjacent landowners. Site workers will take extra precaution on site to avoid potential</td><td>140. It wil l be ensured that the waste is temporarily stored, sorted</td></tr>
</table>

					health hazards presented by infections from rat bites and rat urine. **Impact Status** – Negative **Severity** – Medium **Spatial scale and duration** – Local -short term **Probability of occurrence** – Low **Degree to which impact can be reversed** – High **Degree to which impact may cause irreplaceable loss of resource** – Negligible **Cumulative impact prior to mitigation** – Medium **Significance rating prior to mitigation** – Medium **Cumulative impact after mitigation** – Low **Significance rating after mitigation** – Low	and disposed off as soon as possible to reduce the abundance of flies and rats within the site. 141. It be will ensured that the waste site perimeter is sealed and regularly checked for holes and cracks. 142. Daily cleaning of the site exterior and interior to be done. 143. Site manager will implement a pest control program at least once every quarter. 144. Good housekeeping measures will be implemented including regular cleaning and disinfecting of surfaces and equipment that come into contact with waste.

<table>
<tr>
<td></td>
<td>(d) Birds, cats and dogs</td>
<td>Direct/Cumulative</td>
<td>Human health
Animal health</td>
<td>Operational</td>
<td>The presence of food waste has a medium impact to the human health by presenting a nuisance of birds, cats and dogs roaming within the neighbouring community. The health of animals will be affected due to the ingesting of poisoned rats from non-biological pest control methods for rodent control programme.
<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Spatial scale and duration</td><td>Local -long term</td></tr>
<tr><td>Probability of occurrence</td><td>Low</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Low</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table>
</td>
<td>145. It will be ensured that the temporal waste stored on site is covered within the appropriate containers. No waste or litter will be exposed or on the floor.
146. Litter covers will be used on containers on site and on trucks during transportation to the landfill site.</td>
</tr>
<tr>
<td>31. Temporal storage of garden waste at site - unlined surface</td>
<td>(a) Water pollution/ contamination of water sources and ground water</td>
<td>Direct/Cumulative</td>
<td>Surface water and groundwater</td>
<td>Operational</td>
<td>The impact of temporal storage on unlined surfaces is considered medium due to potential of spillages of waste and chemicals and could lead to contamination of water sources and ground water. Proposed mitigation measures will be implemented and the impact will be low.
<table>
<tr><td>Nature of impact</td><td>Negative</td></tr>
<tr><td>Extent and duration</td><td>Local –long term</td></tr>
<tr><td>Probability of occurrence</td><td>Medium</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Medium</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table>
</td>
<td>It will be ensured that water use for the garden waste and dust suppression is dirty water.
147. No excess water will be wasted.
148. Excess water that could lead to soil erosion and water surface pollution of the nearby Crocodile River., will be prevented.</td>
</tr>
</table>

<table>
<tr>
<td>32. Unlined surfaces for waste drop off, packaging and loading to trucks for disposal</td>
<td>(a) Ground water pollution
(b) Soil pollution</td>
<td>Direct/Indirect</td>
<td>Ground water health
Water users dependent on ground water
Soil health</td>
<td>Operational</td>
<td>The impact of dropping off waste, packaging and loading for disposal will have a medium impact on unlined soil surfaces due to potential of spillages of waste and chemicals and could lead to contamination of soil including water sources and ground water. Proposed mitigation measures will be implemented and the impact will be low.
<table>
<tr><td>Nature of impact</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Extent and duration</td><td>Local –long term</td></tr>
<tr><td>Probability of occurrence</td><td>Medium</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Medium</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Low</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table>
</td>
<td>149. Line all surfaces and protect all bare surfaces within the site by planting indigenous plants to reduce soil erosion and ground water pollution.</td>
</tr>
<tr>
<td>33. Flat and smooth surfaces around the site without proper storm water management system</td>
<td>(a) Storm water management</td>
<td>Direct/Cumulative</td>
<td>Soil erosion</td>
<td>Operational</td>
<td>Impact considered medium due to the potential of increased runoff water from the flat and smooth surface onto bare soil leading to soil erosion. This may also lead to transportation of contaminated soils from oil and chemical spillages into water sources or ground water. Implementation of mitigation measures within the EMPr will reduce the impact to low risk.
<table>
<tr><td>Nature of impact</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Extent and duration</td><td>Local –short term</td></tr>
<tr><td>Probability of occurrence</td><td>Medium</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>Medium</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Negligible</td></tr>
</table>
</td>
<td>150. It will be ensuredthe site has proper functional storm water management system that is cleaned and maintained regularly.
151. Identified leaks will be repaired and issues of water wastage will be addressed as soon as</td>
</tr>
</table>

					Cumulative impact prior to mitigation: Medium **Significance rating prior to mitigation**: Medium **Cumulative impact after mitigation**: Low **Significance rating after mitigation**: Low	these are identified. 152. Installation of oil traps and proper disposal systems wil be implemented. 153. Over-wetting, saturation and unnecessary runoff during dust control activities and irrigation will be avoided. 154. All heavy vehicles and machinery will be kept in good working order and serviced regularly.
34. Vehicular movement: Trucks offloading and loading waste	(a) Air Quality: Dust/Emissions	Direct/Cumulative	Air Quality; Human Health	Operational	Air quality impacts emanating from the construction activities such as increased dust result from the offloading and stockpiling of construction material, movement of trucks. There will also be soil erosion, soil pollution and potential water pollution from spillage and seepage into water resources. These impacts are however considered to be low after the implementation of mitigation measures. **Nature of impact**: Negative **Extent**: Medium **Extent and duration**: Local –long term **Probability of occurrence**: High **Degree to which impact can be reversed**: High **Degree to which impact may cause irreplaceable loss of**	155. It will be ensured that trucks adhere to speed limits inside the site and outside the site. 156. It will be ensured that dust suppression methods are implemented as outlined in the EMPr.

					resource | **Cumulative impact prior to mitigation** | Medium **Significance rating prior to mitigation** | Medium **Cumulative impact after mitigation** | Low **Significance rating after mitigation** | Low	
35. Trucks and vehicle maintenance (General Operations and Maintenance)	(a) Soil pollution from oil and chemical spills during maintenance service	Direct/Cumulative	Soil health Surface and Ground water health	Operational	The impact of oil spills and leaks will have a medium impact on unlined soil surfaces due to potential of spillages of waste and chemicals and could lead to contamination of soil including water sources and ground water. Continued degradation of adjacent vulnerable ecosystems and other nearby sensitive habitats Proposed mitigation measures will be implemented and the impact will be low. **Nature of impact** | Negative **Severity** | Medium **Extent and duration** | Local – long term **Probability of occurrence** | Probable **Degree to which impact can be reversed** | Low **Degree to which impact may cause irreplaceable loss of resource** | Low **Cumulative impact prior to mitigation** | Medium **Significance rating prior to mitigation** | Medium **Cumulative impact after mitigation** | Low **Significance rating after mitigation** | Low	157. It will be ensured that the trucks and vehicles maintenance service is offsite or conducted in an appropriately designed and constructed workshop. 158. Safe storage and use of the hazardous and flammable chemicals and substances for the maintenance service will be done. 159. Refuelling of trucks will be done offsite as necessary.

<table>
<tr>
<td>36. Vehicular movement, construction personnel working and the use of equipment and machinery during operational phase e.g. trucks offloading waste, compaction of waste, loading of waste for haulage to disposal site. Possible chipping of garden waste before transportation to composting site.</td>
<td>(a) Noise impacts:
• Level of noise generated on site from trucks and vehicles in and out of the site
• Operation of machinery and equipment
• Loading waste and transportation for disposal.</td>
<td>Direct/Cumulative</td>
<td>Community hearing health
Site Workers</td>
<td>Construction, Operational & Decommissioning & Rehabilitation</td>
<td>There increase in ambient noise levels during operational phase will have a moderate impact. The noise will only be limited to operational hours (07h30 – 16h00). The noise will only be experienced during normal working hours and only during construction and operational phases. Therefore probability of excessive noise is medium and will have medium intensity. It is anticipated that the noise levels will increase during the Operational phase as the trucks offload the waste material and the compactor compresses the waste sorted waste before transportation to the landfill site.
<table>
<tr><td>Impact Status</td><td>Negative</td></tr>
<tr><td>Severity</td><td>Medium</td></tr>
<tr><td>Spatial scale and duration</td><td>Local - long term</td></tr>
<tr><td>Probability of occurrence</td><td>High</td></tr>
<tr><td>Degree to which impact can be reversed</td><td>High</td></tr>
<tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Negligible</td></tr>
<tr><td>Cumulative impact prior to mitigation</td><td>Medium</td></tr>
<tr><td>Significance rating prior to mitigation</td><td>Medium</td></tr>
<tr><td>Cumulative impact after mitigation</td><td>Low</td></tr>
<tr><td>Significance rating after mitigation</td><td>Low</td></tr>
</table>
</td>
<td>160. Limit construction activities will be to day time hours
161. Construction personnel must wear proper hearing protection, which should be specified as part of the Construction Phase Risk Assessment carried out by the Health and Safety officer.
162. It will be ensured that construction personnel are provided with adequate Personal Protective Equipment (PPE), where appropriate.</td>
</tr>
<tr>
<td>36. Socio-economic Impact</td>
<td>(a) Employment creation (approximately 10 - 15 new jobs)

(b) Skills development

(c) Local economic development</td>
<td>Direct/Cumulative</td>
<td>Community well being and food security
Local economic boost</td>
<td>Construction, Operational & Decommissioning & Rehabilitation</td>
<td>There will be creation of job opportunities during all the phases of the project. The impact will be positive and high for boosting the livelihood status of the households within the area and also local economic development for the local SMMEs.
<table>
<tr><td>Nature of impact</td><td>Positive</td></tr>
<tr><td>Extent and duration</td><td>Local - long term</td></tr>
<tr><td>Probability of occurrence</td><td>High</td></tr>
<tr><td>Degree to which impact can be</td><td>High</td></tr>
</table>
</td>
<td>163. The use of local labour and local skills as far as reasonably possible. will be enhanced.
164. Where the required skills do not occur locally, and</td>
</tr>
</table>

					reversed	
					Degree to which impact may cause irreplaceable loss of resource	Negligible
					Cumulative impact prior to mitigation	Low (+)
					Significance rating prior to mitigation	Low (+)
					Cumulative impact after mitigation	Medium
					Significance rating after mitigation	Medium
						where appropriate and applicable, ensure that relevant local individuals are trained. 165. I will be ensured that an equitable percentage allocation is provided for local labour employment as well as specify the use of small-to-medium enterprises and training specifications in the Contractors contract. 166. It will be ensured that goods and services are sourced from the local and regional economy as far as reasonably possible.
PHASE: DECOMMISSIONING/ REHABILITATION						
37. Demolition of all infrastructure on the site	(a) Surface water pollution	Direct/Cumulative	Crocodile river proximity, risk of sedimentation from the	Decommissioning/ Rehabilitation	The impact of demolition of all infrastructure is considered medium due to potential of demolition waste and debris could lead to contamination of water sources and ground water. Proposed mitigation measures will be implemented and the impact will be low.	167. Ensure that all required steps are taken as outlined in the Decommission

			contaminated surface water run off.		<table><tr><td>**Nature of impact**</td><td>Negative</td></tr><tr><td>**Extent and duration**</td><td>Local - short term</td></tr><tr><td>**Probability of occurrence**</td><td>High</td></tr><tr><td>**Degree to which impact can be reversed**</td><td>Medium</td></tr><tr><td>**Degree to which impact may cause irreplaceable loss of resource**</td><td>Negligible</td></tr><tr><td>**Cumulative impact prior to mitigation**</td><td>Low</td></tr><tr><td>**Significance rating prior to mitigation**</td><td>Low</td></tr><tr><td>**Cumulative impact after mitigation**</td><td>Low</td></tr><tr><td>**Significance rating after mitigation**</td><td>Low</td></tr></table>	ing and Rehabilitation Plan. 168. Working hours will be limit to working hours (07h30 – 16h00).
	Air pollution: (a) Dust from the ripping and demolition of all infrastructure on site. (b) Emissions from trucks hauling off the building rubble from the site.	Direct/Cumulative	Air Quality	Decommissioning/ Rehabilitation	Dust will be generated during the dismantling of structure and infrastructure. This impact is considered to be low after the implementation of mitigation measures. <table><tr><td>**Nature of impact**</td><td>Negative</td></tr><tr><td>**Severity**</td><td>Medium</td></tr><tr><td>**Extent and duration**</td><td>Local - short term</td></tr><tr><td>**Probability of occurrence**</td><td>High</td></tr><tr><td>**Degree to which impact can be reversed**</td><td>High</td></tr><tr><td>**Degree to which impact may cause irreplaceable loss of resource**</td><td>Low</td></tr><tr><td>**Cumulative impact prior to mitigation**</td><td>Medium</td></tr><tr><td>**Significance rating prior to mitigation**</td><td>Medium</td></tr><tr><td>**Cumulative impact after mitigation**</td><td>Low</td></tr><tr><td>**Significance rating after mitigation**</td><td>Low</td></tr></table>	It will be ensured that that all required steps are taken as outlined in the Decommissioning and Rehabilitation Plan. Dust suppression method to be implemented. • Limit work to working hours (07h30 – 16h00).
	Soil pollution (a) Oil spills, waste spills etc. from	Direct/Cumulative	Soil health	Decommissioning/ Rehabilitation	The impact on soil resources will be medium during the decommissioning phase due to the dismantling of structures and infrastructure and the ripping of the surface.	169. Ensure that the trucks and vehicles

demolition and movement of trucks etc.				**Nature of impact** Negative **Severity** Medium **Extent and duration** Local - long term **Probability of occurrence** Probable **Degree to which impact can be reversed** Medium **Degree to which impact may cause irreplaceable loss of resource** Low **Cumulative impact prior to mitigation** Medium **Significance rating prior to mitigation** Medium **Cumulative impact after mitigation** Low **Significance rating after mitigation** Low	maintenance service is offsite or conducted in an appropriately designed and constructed workshop. 170. It will be ensured that safe storage and use of all the hazardous and flammable chemicals and substances for the maintenance service. All Health and Safety Protocols and Procedures to be implemented and adhered to. **171.** Refuelling of trucks will be done offsite
Traffic (a) Additional traffic of trucks removing demolition rubble to the landfill site for construction material.		Road surface Other road users Pedestrians	Decommissioning/ Rehabilitation	During the decommissioning phase it is anticipated that the traffic volume generated by the movement of vehicles will have a medium impact on traffic flow in the area. **Nature of impact** Negative **Severity** Medium **Extent and duration** Local - short term **Probability of occurrence** High **Degree to which impact can be reversed** High	172. It will be ensured that all required steps are taken as outlined in the Decommissioning and Rehabilitation Plan. **173.** Work will be

					Degree to which impact may cause irreplaceable loss of resource | Low **Cumulative impact prior to mitigation** | Low **Significance rating prior to mitigation** | Medium **Cumulative impact after mitigation** | Low **Significance rating after mitigation** | Low	limited to to working hours (07h30 – 16h00)
	(a) Noise: Noise from the demolition process (machinery, trucks and equipment) to be used.		Site workers Neighbouring community	Decommissioning/ Rehabilitation	The impact of noise from the demolition and dismantling of the infrastructure on site in considered medium before the implementation of mitigation measures. The impact will be low after implementation of mitigation measures. **Nature of impact** | Negative **Severity** | Medium **Extent and duration** | Local - short term **Probability of occurrence** | High **Degree to which impact can be reversed** | Medium **Degree to which impact may cause irreplaceable loss of resource** | Negligible **Cumulative impact prior to mitigation** | Medium **Significance rating prior to mitigation** | Medium **Cumulative impact after mitigation** | Low **Significance rating after mitigation** | Low	174. Ensure that all required steps are taken as outlined in the Decommissioning and Rehabilitation Plan. 175. Work will be limited to working hours Limit construction activities to day time hours (07h30 – 16h00). 176. Construction personnel must wear proper hearing protection, which should be specified as part of the Construction Phase Risk Assessment carried out by

						the Health and Safety officer. • It will be ensured construction personnel are provided with adequate Personal Protective Equipment (PPE), where appropriate. • Consider use of trucks with muted levels of noise to cater for the proximity to the KNP and potential impact to the animals. • A buffer zone between the proposed site and the receptors (residential and animals)will be maintained. Noise control measures and noise screening methods such as planting of trees as wind and noise breaks will be implemented. • IAPs will be informed about the impending excessive noise and the duration. • Generators and other equipment will be housed in casings to reduce noise levels withn the site. • No loud music or excessive noise generated by employees will be

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>allowed on site.</td></tr>
<tr><td>38. Poor rehabilitation methods implementation</td><td>(a) Landscape scarring
(b) Visual intrusion: Poorly rehabilitated site leads to unsightly area to surrounding communities.</td><td>Direct/Cumulative</td><td>Landscape & Topography</td><td>Decommissioning/ Rehabilitation</td><td>Poorly designed Rehabilitation Plans will lead to ripping and scarring of the landscape. The impact is considered medium and with implementation of mitigation measures will be low Poorly rehabilitated site will lead to an unattractive landscape and affect the overall aesthetic value of the area. The impact is considered medium as the area is close to the KNP which as a tourist attraction area and a signatory to various international conventions and agreements must adhere to international standards. The poorly rehabilitated site due to its proximity to the park will affect the outlook of the area. The rehabilitated site must blend with the rest of the surrounding environment. The impact will be low after implementation of mitigation measures.

<table><tr><td>Nature of impact</td><td>Negative</td></tr><tr><td>Severity</td><td>Medium</td></tr><tr><td>Extent and duration</td><td>Local – long term</td></tr><tr><td>Probability of occurrence</td><td>Low</td></tr><tr><td>Degree to which impact can be reversed</td><td>High</td></tr><tr><td>Degree to which impact may cause irreplaceable loss of resource</td><td>Low</td></tr><tr><td>Cumulative impact prior to mitigation</td><td>Low</td></tr><tr><td>Significance rating prior to mitigation</td><td>Low</td></tr><tr><td>Cumulative impact after mitigation</td><td>Low</td></tr><tr><td>Significance rating after mitigation</td><td>Low</td></tr></table></td><td>177. It will be ensured that all required steps are taken as outlined in the Decommissioning and Rehabilitation Plan.</td></tr>
<tr><td>39. Decommissioning of site</td><td>Socioeconomic impacts:
(a) Loss of employment and economic stability of community.</td><td>Direct/ Cumulative</td><td>Community economic security
Food security</td><td>Decommissioning/ Rehabilitation</td><td>The impact of job losses due to the closure of the proposed site is considered medium as the personnel will have received training in other skills to cater for the exit strategy. Other opportunities of employment will be identified before the closure of the proposed site is finalised. The impact after implementation of mitigation measures will be low.

<table><tr><td>Nature of impact</td><td>Positive</td></tr><tr><td>Extent and duration</td><td>Local-short term</td></tr></table></td><td>• Skills development training to include skills that are outside the Waste management field.</td></tr>
</table>

					Probability of occurrence | High **Degree to which impact can be reversed** | High **Degree to which impact may cause irreplaceable loss of resource** | - **Cumulative impact prior to mitigation** | Low **Significance rating prior to mitigation** | Low **Cumulative impact after mitigation** | Medium **Significance rating after mitigation** | Medium	• Diversification of vocational skills to be encouraged. • Post-project programmes linked to IDP to be encouraged. • Redeploy to other running projects. • Business skills to be provided to all personnel on site. • Train the Trainer programmes to be encouraged for personnel at site to provide training programmes to other community members and other areas with newly established Waste Transfer Stations. • Establishment of Cooperatives by the personnel to

						be encouraged to sustain them even after the decommissioning of the current site.

Post impact assessment and consultation evaluation of the sites was done and the analysis is presented in Table 7.1.2.

10.14 Site and Technology Alternatives

10.14.1 Details of all the Site Alternative considered

10.14.1.1 Site Alternatives S1 (Erf 312) and S2 (Erf 311)

The Site and Technology alternatives are considered in detail in Section 7.2.

10.14.3 Site Selection Matrix

The following parameters and environmental components were considered for the selection of the site for the proposed activity:

1. Appropriate zoning
2. Land ownership
3. Topography
4. Location
5. Site Access
6. Environmental status
7. Proximity to the river
8. Proximity to the KNP boundary fence
9. Current land use including tourism potential
10. Community Preference
11. Technological
12. Economical (capital and operating costs)
13. Heritage

Table 10.14.3-1: Site Selection Matrix of parameters and environmental components

	1. Appropriate zoning	**2. Land ownership**	**3. Size of available area**	**4. Topography**	**5. Location**	**6. Site Access**	**7. Environmental status and Indigenous trees observed**	**8. Proximity to the river**	**9. Proximity to the KNP boundary fence**	**10. Current land use**	**11 Community Preference**	**12. Technological**	**13. Economical (capital and operating costs)**	**14. Heritage Resources**
Site Erf 312	Not appropriate, zoned as agricultural land, however, plans for rezoning to industrial zone in place.	Municipal	Bigger in size than Erf 311. All proposed infrastructure fits and there is still room left within the proposed site. (Appendix A1)	Relatively flat	Mandela Park, Matsulu	Road network established, site can be accessed through Triumph Road.	Land within the proposed area is already transformed and cultivated with some informal housing encroaching.	From the far left the proximity is 100m; and from far right the proximity is 87m from the structure boundaries to the river.	Not too close (+/- 300m) from KNP fence.	• Cultivation • Informal housing development • Recreational activities • Fishing	Yes, access to recreational activities and fishing in the Crocodile river by the community are further from this site and closer to Erf 311.	"Walk – in floors" containers to be used to store and transport waste to disposal site.	Much more economical with no extra budget for the development of access roads to the site.	Not Applicable. None discovered or recorded
Erf 302	Not appropriately zoned however, plans for rezoning to industrial zone in place.	Municipal	Smaller in size than Erf 312. All proposed infrastructure fits and there is still room left within the proposed site. (Appendix	Relativlely flat	Mandela Park, Matsulu Progressive Avenue	Road network established, site can be accessed through Progressive Avenue Triumph Road.	Land vacant .	From the far left the proximity is 500m; and from far right the proximity is more than 100 m from the structure boundaries	Vacant, Open Space.	Partial	Yes, access to recreational activities and fishing in the Crocodile river by the	"Walk – in floors" containers to be used to store and transport waste to disposal site.	Much more economical with no extra budget for the development of access roads to the site.	

			A1.2)					to the river			community are further from this site and closer to Erf 311.			
Site Erf 311	Not appropriate, zoned as agricultural, however, plans for rezoning to industrial zone in place.	Municipal	Smaller in size even though the planned infrastructure would fit but there is not much room as compared to Erf 312. (Appendix A2)	Relatively flat	Mandela Park, Matsulu	Road not well developed, site can be accessed through Capital Road that is within the residential area.	Land is cultivated and disturbed.	The alternative site the proximity is 101 m to the river bank from the right hand side of the proposed site.	Too close (+/-50m) from KNP fence	Cultivated land.	No, access points to recreational activities and fishing in the Crocodile river by the community are closer to this site.	"Walk – in floors" containers to be used to store and transport waste to disposal site.	More expensive with establishment of new access roads to be budgeted for and for authorisations to be applied for.	Not Applicable. None discovered or recorded.

The evaluation outlined above, the originally preferred site Erf 312 pre-impact assessment, as no longer considered viable as the preferred site and Erf 302 as the new proposed preferred site. The addition of another considered site alternative as a portion of Erf 311 and Erf 97.

10.15 A concluding statement indicating the preferred alternatives, including preferred location of the activity

This Basic Assessment Process provides an indication of likely/potential environmental impacts based on subjective criteria, the public consultation process, and maps of the site and nature of the receiving environment. The construction impacts are directly interrelated with normal waste transfer facility. It is therefore important that the Mbombela Local Municipality (the applicant) and Zethu Consulting Services (Pty) Ltd), ensure continual monitoring as a means to ensure environmental protection. It is also essential that the EMP and Operational Management Plan be updated in order to reflect actual impacts and the changing institutional and legal environment as appropriate.

This Environmental Impact Statement describes the Project, the expected environmental conditions on the Matsulu Waste Transfer Facility, and assesses the likely effects of the proposed project on the environment. The Environmental Impact Statement also includes an assessment of likely cumulative effects of the project in combination with other past, present or reasonably foreseeable projects, as required. It describes the effects for normal conditions and as a result of accidents and malfunctions.

The development of a public waste drop off facility would reduce any potential risks associated with illegal waste dumping within the area. The close proximity of the proposed site to the Crocodile River is an area with potential for surface water pollution and the existing Kruger National Park as a conservation area, presents an area of environmental sensitivity. This would require all precautions to be undertaken to maintain and protect the sensitive areas and adhere to the EMPr.

The proposed project would also add socio-economic benefits to the community through job creation and support local economic development.

The identified potential environmental impacts and their mitigation measures are outlined in detail in Table 6.1 and also within the EMPr (attached as Appendix F). With the implementation of the mitigation measures suggested in the EMPr, the significance of impacts on site can be reduced to Low.

From a biodiversity point of view the preferred site on Erf 302 should be perused for the proposed construction. It is furthest away from any sensitive areas and is totally transformed with the lowest population of protected trees. The site alternative of Erf 97/Erf311 is also viable from a biodiversity point of view as long as a buffer zone between the planned development and the sensitive area to the east (KNP) is maintained. The options on Erf 312 and its alternative on Erf 311 is least viable form a biodiversity point of view.

There are no serious objections against the proposed development activities, and as long as mitigation measures and recommendations are seriously considered and implemented, and as long as due diligence is practiced in terms of environmental legislation and other relevant policies and guidelines, the project may be favorably considered.

Alternative 1 (preferred alternative) – Portion Erf 311 and Erf 97

This alternative is preferred from an environmental perspective as the area proposed for the construction is within transformed and degraded vegetation and will result in insignificant environmental impacts. However the close proximity of the Crocodile River to the proposed site

is an area with potential for surface water pollution should the mitigation measures within the EMPr not be implemented or adhered to.

Alternative 2 (least preferred alternative) – Erf 311

This option is least preferred for the following reasons:

Site Erf 311

Althought the site is also a municipal property, its close proximity to the KNP fence presents a challenge both on a legal basis and the safety of both the animals within the park and the workers at the proposed facility. The noise levels from the site might have an impact to the wellbeing of the animals etc, specialists studies would have to be conducted on the sensitivity levels and threshold levels of noise the animals can tolerate. The equipment, machinery and processes within the proposed site would then need to be specialised not to exceed the provided threshold. The use of trucks and equipment of low noise levels could be considered to reduce the impact.

The access from this site is also not as easy as the preferred site. This site is also more close to the access point of the Crocodile river, where the community visit for recreational fishing and picnics.

11. A full description of the process undertaken to identify, assess and rank the impacts

11.1 Description of all environmental issues and risks that were identified

A preliminary background research was done to obtain an overview of the project context from an environmental, legal, policy and administrative, as well as institutional context. The baseline environmental assessment studies of the receiving environment that are likely to be affected by the proposed waste drop off facility were conducted. Impacts were identified through use of collected data from the literature review of the municipality and its related documents such as the State of the Environment Report (SoER), IDP, SDF, Waste Management Strategy, communication with the municipality officials, consultation with the authorities from the Competent Authority offices, research of information from SANBI and Windeed and professional expertise. Once the impacts were identified, they were assessed for significance, using the criteria and methodology provided in Section 14. The first stage of impact assessment was identification of environmental activities, aspects and impacts. This was supported by the identification of receptors and resources, which allowed for an understanding of the impact pathway and an assessment of the sensitivity to change.

11.2 An assessment of the significance of each issues and risk and an indication of the extent to which the issues and risk can be avoided or addressed by the adoption of mitigation measures.

The significance of the impact was then assessed by rating each variable according to defined criteria. The purpose of the rating was to develop a clear understanding of influences and processes associated with each impact.

Impact management objectives were then determined from previous knowledge of the EAP whilst undertaking similar studies, input from project team, IAPs and stakeholders, existing documents and reports. The significance of the impact also determined the impact management objectives to be utilised e.g. whether the impact will require on-going monitoring or if mitigation measures could be implemented to reduce the impact within a specific period of time. Existing regulations, guidelines and standards with regards to the different activities/impacts to be undertaken were also utilized to determine impact management objectives such as Norms and Standards for Storage of Waste, 2013 will be used to guide on waste management strategies.

Potential issues of concerns, gathered during meetings and scoping report review stages were assessed further by specialists, to identify the key aspects and the impacts resulting from those aspects. Interested and affected parties were identified and informed about the project. They were given an opportunity to raise any concerns they might have about the project as well as suggested solutions. The scoped issues will then be used to ascertain the aspects and associated impacts.

The identification, description, evaluation and comparison of alternatives are important for ensuring the objectivity of the assessment process.

The assessment of alternatives was, where possible, done in a way that feeds back into the planning or design of the activity, thereby optimizing the positive aspects and minimizing the negative aspects that were highlighted optimal formulation of alternatives. In instances where it

was clear that such an interactive and iterative process had been followed in the development of a preferred alternative, it was then appropriate to terminate the assessment of other alternatives, excluding the no-go alternative, that have been considered and assessed in such a process during the course of the assessment.

The assessment of alternatives as a minimum, included the following:

178. The consideration of the no-go alternatives as a baseline scenario (even in case where the no-go alternative is not a realistic alternative)
179. A comparison of the selected alternatives; and
180. The providing of reasons for the elimination of an alternative.

Where alternative locations or sites were identified as alternatives such as is the case with the slimes dam positions, the features of each location or site was assessed. The comparative assessment considered the following aspects:

- Capital and operating costs;
- Direct, indirect and cumulative impacts;
- Degree to which the impacts could be reversed by application of mitigation measures;
- Physical, legal or institutional constraints; and
- A No Go option should remain the default option and will always be included to provide the baseline for assessment of the impacts of other alternatives and also to illustrate the implications of not authorizing the activity.

The proposed method of assessing duration significance

The method of assessing the significance is provided under Section 14.

12. Assessment of each identified potentially significant impact and risk

The full description of the method used for the assessment of each identified potentially significant impact and risk has been discussed in detail in Section 11 above. The assessment of the significance rating is provided in Table 10.13.2.1.

12.1 Monitoring

From a floristic point of view, the following should be monitored during all phases of the proposed development:

- Floristic diversity of the non-affected areas of the development as well as areas directly adjacent – especially the area of the KNP directly adjacent to the proposed waste dumping and transfer site.
- Populations of threatened or protected species in the study area and on neighboring properties / areas must be assessed and monitored during all project phases.
- The removal of any threatened or protected plant species must be well monitored and managed. Authorization, through a provincial and/or national permitting system, is to be obtained from relevant conservation authorities for such species to be disturbed, damaged or destroyed.
- It is strongly advised that an ecological specialist is appointed during all phases prior to and after construction to monitor impacts and related mitigation measures regarding Red Listed and protected species as well as sensitive habitats. Any conservation recommendations and measures that aim to mitigate the impacts of this development must also be monitored by such a specialist during the operational phase of the development.
- The management of the KNP should be well informed of the proposed project and should allow monitoring of the section of the KNP neighboring the area to be properly inspected and monitored in terms of ecological status and possible negative impacts to biodiversity.

13. Summary of findings and impacts and impact management measures

Table 13.1: Planning and Design Phase Summary of Potential Impacts and assessment

	No Authorisation	**Soil loss, compaction and Trampling on vegetation**	**Soil erosion (removal of informal housing)**	**Surface Water pollution**	**Soil Pollution**	**Visual intrusion**	**Dust Pollution**	**Employment (improved economic and social status)**
Impact Status	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Positive
Severity	High	Medium	High	Medium	Medium	Low	Low	High
Extent and duration	National –long term	Local –short term	Local – long term	Local -short term	Local - long term	Local - long term	Local - long term	Local - long term
Probability of occurrence	High	Medium	High	High	Probable	High	High	High
Degree to which impact can be reversed	Low	High	Medium	Medium	Low	Low	High	Medium
Degree to which impact may cause irreplaceable loss of resource	High	Medium	Medium	Negligible	Negligible	Negligible	Medium	Low
Cumulative impact prior to mitigation	Medium	Low	Medium	Low	Medium	Medium	Medium	High
Significance rating prior to mitigation	Medium	Low	Medium	Low	Medium	Medium	Medium	High
Degree to which it can be mitigated	Low	High	High	High	High	Medium	High	High
Proposed mitigation	• Ensure all Legislative and procedural requirements are	181. Careful considera tion to reduce	• Munici pality and Ward	The river is about 100 m away from the proposed site. Strict adherence	Mitigation measures within the EMP to be implemented.	The drop-off site will be managed in such a way that it does not	Implement dust suppression methods and adhere to the	186. Local communit y personnel

	No Authorisation	Soil loss, compaction and Trampling on vegetation	Soil erosion (removal of informal housing)	Surface Water pollution	Soil Pollution	Visual intrusion	Dust Pollution	Employment (improved economic and social status)
	met including specified timelines and protocols outlined within the BA Regulations before commencing with construction. • Application for Environmental Authorisation has been submitted (Ref no: 17//4/WL/MP322/17/01) • Application for a Waste Licence has been submitted (Ref No: 1/3/16/1E-118). • Communicate with relevant stakeholders on all project plans and progress. Ensure transparency with project scope and implementation.	the footprint of the proposed activity not to increase impact to the environment. 182. Poor design & planning could result in highly significant environmental impacts. 183. Construction camp will be located on a previously disturbed area and should be	Councillors to address the matter with the informal residents within the site. • A Social Plan will be developed to address the removal and relocation of the illegal residents within the informal housing development in consultation with the community.	to the EMPr will be ensured. Flood year line studies critical to ensure safety from future flooding.	These include proper transportation procedures, covering of trucks when transporting waste etc. Keep to speed limit etc.	create visual intrusion. Vegetation screening etc. will be implemented as recommended in the EMP.	mitigation measures as recommended in the EMP.	to be sourced/recruited for rehabilitation. 187. Local site workers to undergo extensive safety and environmental induction training on environmental and wetland rehabilitation requirements including worker behaviour on site. 188. Ensure use of PPE at all times. 189. Odour management plan to be

	No Authorisation	Soil loss, compaction and Trampling on vegetation	Soil erosion (removal of informal housing)	Surface Water pollution	Soil Pollution	Visual intrusion	Dust Pollution	Employment (improved economic and social status)
		located at least 100 m from the watercourse. 184. Low noise machinery to be sourced. 185. Construction site and Environmental Management Plans (CEMP) will be implemented together with the EMPr. • Notification of community representatives about site development plans.						implemented. 190. Waste Management plan will be implemented. No waste will be stored for more than a day on site. 191. Noise Management plan will be implemented. Housekeeping rules to will be enforced. • Ensure that all illegal dumping sites on the vicinity of the site and its surrounding areas are cleared before construction and rehabilitated to reduce further

	No Authorisation	Soil loss, compaction and Trampling on vegetation	Soil erosion (removal of informal housing)	Surface Water pollution	Soil Pollution	Visual intrusion	Dust Pollution	Employment (improved economic and social status)
								impacts.
Cumulative impact post mitigation	Low	Low	Low	Low	Low	Low	Low	Medium
Significance rating after mitigation	Low	Low	Low	Low	Low	Low	Low	Medium

Table 13.2: Operational Phase Summary of Potential impacts and assessment

	Traffic	Job Creation	Noise	Surface Water pollution	Spillage of material	Visual intrusion	Dust Pollution
Impact Status	Negative	Positive	Negative	Negative	Negative	Negative	Negative
Severity							
Extent and duration	Local -short term	Local -short term	Local -short term	Local -short term	Local -long term	Local - long term	Local -short term
Probability of occurrence	High	High	High	High	Probable	High	High
Degree to which impact can be reversed	Medium	High	Medium	Medium	Low	Low	High
Degree to which impact may cause irreplaceable loss of resource	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Cumulative impact prior to mitigation	Low - Medium	Low	Medium	Low	Medium	Medium	Medium

Significance rating prior to mitigation	Medium	Low	Medium	Low	Medium	Medium	Medium
Degree to which it can be mitigated	High	High	High	High	High	Medium	High
Proposed mitigation	Traffic movement with normal working hours (07h30-16h00)	Employ & train local community members	Construction to be limited to standard working hours (07h30 - 16h00)	The river is.... away from the proposed site. The river will not be affected by the construction activities that will take place within the allocated site and the EMP is implemented.	Mitigation measures within the EMP to be implemented. These include proper transportation procedures, covering of trucks when transporting waste etc. Keep to speed limit etc.	The drop-off site will be managed in such a way that it does not create visual intrusion. Vegetation screening etc. will be implemented as recommended in the EMP.	Implement dust suppression methods and adhere to the mitigation measures as recommended in the EMP.
Cumulative impact post mitigation	Low	Low	Low	Low	Low	Low	Low
Significance rating after mitigation	Low	Low	Low	Low	Low	Low	Low

Table 13.3: Decommissioning Phase Summary of pre-impacts and post-impacts and assessment

	Traffic	**Job Creation**	**Noise**	**Dust Pollution**
Nature of impact	Negative	Positive	Negative	Negative
Extent and duration	Local -short term	Local -short term	Local -short term	Local -short term
Probability of occurrence	High	High	High	High
Degree to which impact can be reversed	Low	High	Medium	High
Degree to which impact may cause irreplaceable loss of resource	Negligible	Negligible	Negligible	Negligible
Cumulative impact prior to mitigation	Medium	Low	Medium	Medium
Significance rating prior to mitigation	Medium	Low	Medium	Medium
Degree to which it can be mitigated	High	High	High	High
Proposed mitigation	Adequate schedule of vehicle flow and maintenance.	Redeploy to other local projects as continuous provision of employment and skills development.	Decommissioning to be limited to standard working hours (07h30- 16h00)	Implement dust suppression methods.
Cumulative impact post mitigation	Low	Medium	Low	Low
Significance rating after mitigation	Low	Medium	Low	Low

14. Environmental Impact Statement

14.1 Summary of key findings of the environmental impact assessment

This Basic Assessment Process provides an indication of likely/potential environmental impacts based on subjective criteria, the public consultation process, and maps of the site and nature of the receiving environment. The construction impacts are directly interrelated with normal waste transfer facility. It is therefore important that the Mbombela Local Municipality (the applicant) and Zethu Consulting Services (Pty) Ltd), ensure continual monitoring as a means to ensure environmental protection. It is also essential that the EMP and Operational Management Plan be updated in order to reflect actual impacts and the changing institutional and legal environment as appropriate.

This Environmental Impact Statement describes the Project, the expected environmental conditions on the Matsulu Waste Transfer Facility, and assesses the likely effects of the proposed project on the environment. The Environmental Impact Statement also includes an assessment of likely cumulative effects of the project in combination with other past, present or reasonably foreseeable projects, as required. It describes the effects for normal conditions and as a result of accidents and malfunctions.

The development of a public waste drop off facility would reduce any potential risks associated with illegal waste dumping within the area. The close proximity of the proposed site to the Crocodile River is an area with potential for surface water pollution and the existing Kruger National Park as a conservation area, presents an area of environmental sensitivity. This would require all precautions to be undertaken to maintain and protect the sensitive areas and adhere to the EMPr. From the biodiversity point of view, although the propsoed area is within an environmentally sensitive area, it is considered to be highly transformed due to the informal cultivation of various crops such as peanuts, cassava etc. However, strict measures will be in place to ensure adherence to the mitigation measures in order to ensure the current ecological status does not deteriorate any further. Various site alternatives have been considered as originally preferred site Erf 312 and its alternative Erf 311 have since deemed not to be viable locations for the proposed project. Post impact evaluation has presented additional sites Erf 302 and a portion of Erf 311/Erf 97 as options for consideration. Erf 302 is considered as a better option for the proposed construction, even from an ecological point of view, it has a less number of protected species recorded (Figure 10.3.9-1).

The proposed project would also enhance socio-economic benefits to the local community through job creation, capacity building and support of local economic development. The KNP's Socio Economic Development Programmes also present opportunities for growth and empowerment of Matsulu community. The prevalent issue of illegal dumping sites will be addressed through the engagement of a Waste Management Service Provider and a Recyclable Material Recovery Contractor to work in close assoction with the Matsulu local community informal recyclable waste collectors. The proposed construction presents opportunities for the rehabilitaiton of the illegal dunping sites and a commitment from the municipality to provide a waste management collection service that will assist in curbing the current issue of illegal waste dumping.

The identified potential environmental impacts and their mitigation measures are outlined in detail in Table 6.1 and also within the EMPr (attached as Appendix F). With the implementation of the mitigation measures recommended in the EMPr, the significance of impacts on site can be reduced to Low.

Pre- impact evaluation Site Alternatives
Alternative S1 (originally preferred alternative)

Site Erf 312

This alternative was originally preferred from an environmental perspective as the area proposed for the construction is within transformed and degraded vegetation and will result in insignificant environmental impacts. However, the close proximity of the Crocodile River to the site is an area with potential for surface water pollution should the mitigation measures within the EMPr not be implemented or adhered to. Additional constraints to the site include the existence of formal houses constructed and the recorded protected trees on the site. For these reasons, Erf 312 is no longer viable as a preferred site.

Pre-impact evaluation Site Alternative S2 (least preferred alternative)

Site Erf 311

This option is least preferred for the following reasons:
Althought the site is also a municipal property, its close proximity to the KNP fence presents a challenge both on a legal basis and the safety of both the animals within the park and the workers at the proposed facility. The noise levels from the site might have an impact to the wellbeing of the animals etc, specialists studies would have to be conducted on the sensitivity levels and threshold levels of noise the animals can tolerate. The equipment, machinery and processes within the proposed site would then need to be specialised not to exceed the provided threshold.

Post-impact evaluation Site Alternative S3 (new preferred alternative)

Site Erf 302
Erf 302 is considered as a better option for the proposed construction, even from an ecological point of view, it has a less number of protected species recorded (Figure 10.3.9-1). The land is municipal and with most of the area fairly vacant.

Post-impact evaluation Site Alternative S4 (additional new considered site alternative)

Portion of Erf 311 and Erf 97
A portion of Erf 311 and Erf 97 could be considered for a site alternative, however the proximity to the KNP fence and Ntsikazi River presents the area as a highly sensitive in relation to the buffer to the conservation area, KNP. The number of recorded protected trees on site are higher than in Erf 302.

14.2 A map at an appropriate scale which superimposes the proposed activity

A site layout map and a topographic map has been attached as Appendix A1.

14.3 A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

ENVIRONMENTAL IMPACT SUMMARY

Table 14.3.1: Summary of the potential impacts at construction phase

A. Construction Phase

Potential Impact	Significance before mitigation	Significance after mitigation
Traffic	Low - Medium (negative)	Low (negative)
	Low (positive)	Medium (positive)
Dust Pollution	Low (negative)	Low (negative)
Noise increase	Low - Medium (negative)	Low (negative)

Table 14.3.2: Summary of the potential impacts at operational phase

B. Operational Phase

Potential Impact	Significance before mitigation	Significance after mitigation
Spillage of waste during transportation	Medium (negative)	Low (negative)
Job creation	Medium (positive)	High (positive)
Noise increase	High (negative)	Medium (negative)
Visual	Medium (negative)	Low (negative)
Traffic	Medium (negative)	Low (negative)
Dust and odours	Medium to High (negative)	Low (negative)
Vectors (mice, pests, flies etc)	Medium to High (negative)	Low (negative)
Wind blown litter	Medium (negative)	Low (negative)

Table 14.3.3: Summary of the potential impacts at decommissioning phase

C. Decommissioning Phase

Potential Impact	Significance before mitigation	Significance after mitigation
Traffic	Medium (negative)	Low (negative)
Job creation during decommission	Low (positive)	Medium (positive)
Dust Pollution	Medium (negative)	Low (negative)
Noise increase	Medium (negative)	Low (negative)

15. Impact management measure from Specialists reports AND THE EMPr

15.1 Specialist Studies Reports

A Biodiversity Specialist was engaged and appointed to undertake a Biodiversity Assessment Study. The summary of the findings of the study are outlined in Section 10.3 of this report and the full Biodiversity AssessmentReport is attached as Appendix D1. Impact management measures are detailed and outlined in the EMPr attached as Appendix F.

15.1.1 Surface Water and Ground Water Studies

The site is within 100 m from the Crocodile River. The proximity of the site to the Crocodile River might warrant such studies. The site activities do not entail trenching and holding of water that might seep into underground water resources. Ground water studies would be required if the project activities would have trenching and other processes associated with materials recovery.

- **Flood line Study**

The proximity of the proposed site to the Crocodile River and the alternative site to the Ntsikazi River, prompts for a need to conduct flood lines studies. The final layout that was produced by engineering's on 18 July 2017 indicate that the structures will be located at a distance of more or less around 100m from the water course. The final site layout is attached as Appendix A1.

15.1.2 Heritage Impact Assessment (HIA)

There is no need for the HIA since the site is already transformed and mostly cultivated. However, any archaeological remains that are found will be communicated with SAHRA.

15.1.3 Biodiversity Studies

The site is already transformed and the background data and site review was used to ascertain impacts. A Biodiversity Assessment study was undertaken from the 17 April 2018 and the Biodiversity Report is attached as Appendix D1. The mitigation measures as prescribed in Table 10.13.2.1 and in the EMPr will be adhered to.

15.2 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

The full EMPr is attached as Appendix F.

16. Aspects which were conditional to the finding of the assessment

- Flood year line studies
- Impact of proposed activities on site on animal behaviour unknown
- Biodiversity (faunal diversity) of the Crocodile River and Ntsikazi River not researched.

17. A description of any assumption, uncertainties, gaps in knowledge, which relate to the assessment and mitigation measures proposed.

Potential impact of the noise generated by the machinery and equipment at the site to the animals within the KNP.
As a mitigation measure the fencing at the site could include a Green Screening with water-wise indigenous trees to act as both wind and noise breaks. The green fence around the perimeter of the site would reduce the noise levels for both the neighbouring community and the animals within the KNP. All operations will adhere to normal working hours (07h30 – 16h00).

18. A reasoned opinion as to whether the proposed activity should or should not be authorised – recommendation from EAP

It is the opinion of the EAP that any potential negative impacts associated with the proposed general waste drop off facility can be mitigated so as to prevent any long – term degradation of the surrounding environment or nuisance to neighbours. Extra caution will be addressed towards the proximity of the Kruger National Park boundary fence and the Crocodile River and Ntsikazi River which situated approximately about 100 m from the originally proposed site Erf 312. Post impact evaluation proposed new preferred site Erf 302 is more viable for the proposed construction, with strict adherence to the recommended mitigation measures as outlined in the Biodiversity Assessment Report and the EMPr to be ensured. Flood management strategies and storm water management systems proposed will be adhered to as prescribed in the EMPr (Appendix F). Dependent on the outcomes and comments of the Competent Authority, specialists studies might be commissioned to ensure that aspects such as Surface Water and Ground Water Quality are investigated. The Flood lines study might also need to be considered. Budgetary requirements and arrangements for these studies to be undertaken would need to be considered by the Applicant.

This activity will assist with the effective management of general waste and garden waste within the area. It will also assist the municipality with addressing the problem of illegal dumping observed within the area. The post-impact evaluation public drop off facility is directly aligned with the objectives of the National Waste Management Strategy and the Mbombela Local Municipality Solid Waste Management Strategy (2013) and associated by-laws (2016).

The Environmental Management Programme (EMPr) has been developed for the proposed site and should be implemented in order to reduce any potential localised negative impacts associated with operating a waste drop off facility.

The pre-impact evaluation proposed site Erf 312, after the impact evaluation, the assessment indicated that this site would not be preferred due to the existence of households within the proposed site (Appendix A1.1), which will trigger a need for relocation of the settlements. The Biodiversity Assessment Study further supported this through the identificaiton of +/- 10 protected trees within the originally preferred site (Erf 312). Even though the occupants knew that the site was already delineate for use by the municipality, when they encroached it, the impact of relocation was re-considered and alternatives means alleviating this impact were devised.

Post impact evaluation on site Erf 312 confirmed the site as no longer preferred for the proposed development due to the additional information analysed that reflects the existence of households within the proposed site (Appendix A1.1) which would require a need for relocation of the of the settlement. This option is also not viable from a biodiversity perspective of the number of Marula trees recorded on the site.

The post-impact evaluation preferred site is Erf 302. The size can accommodate the proposed Site Layout Plan, it is not in close proximity to the KNP and the Crocodile River and Ntsikazi River, however it is also in close proximity to the households on Progressive Road. Strict adherence to proposed mitigation measures to reduce the significance of the identified impacts will be ensured.

19. Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised

Not Applicable. The Activity will include operational aspects within the site.

20. An undertaking under oath or affirmation by the EAP and applicant

20.1 An undertaking under oath or affirmation by the EAP

DECLARATIONS Signed Declaration Attached as Appendix G1

The independent Environmental Assessment Practitioner

I, Babalwa Fatyi of Myezo Environmental Management Services declare under oath that I –

- act as the independent environmental assessment practitioner in this application ;
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2006;
- have and will not have no vested interest in the proposed activity proceeding;
- have no, and will not engage in, conflicting interests in the undertaking of the activity;
- undertake to disclose, to the competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2006;
- will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- will keep a register of all interested and affected parties that participated in a public participation process; and
- will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.

Signed Declaration Attached as Appendix G1

Signature of the Environmental Assessment Practitioner:

Myezo Environmental Management Services (Pty) Ltd

Name of company:

Date:

Signature of the Commissioner of Oaths:

Date:

Designation:

20.2 An undertaking under oath or affirmation by the Applicant

The Applicant Signed Declaration Attached as Appendix G3

I, Mr Lesiba Maluleke of City of Mbombela Local Municipality _ declare under oath that I -

- Am, or represent, the applicant in this application;
- appointed the environmental assessment practitioner as indicated above to act as the independent environmental assessment practitioner for this application;
- will provide the environmental assessment practitioner and the competent authority with access to all information at my disposal that is relevant to the application;
- will be responsible for the costs incurred in complying with the Environmental Impact Assessment Regulations, 2010, including but not limited to –
- costs incurred in connection with the appointment of the environmental assessment practitioner or any person contracted by the environmental assessment practitioner;
- costs incurred in respect of the undertaking of any process required in terms of the regulations;
- costs in respect of any fee prescribed by the Minister in respect of the regulations;
- costs in respect of specialist reviews, if the competent authority decides to recover costs; and
- the provision of security to ensure compliance with conditions attached to an environmental authorisation, should it be required by the competent authority;
- will ensure that the environmental assessment practitioner is competent to comply with the requirements of these regulations;
- am responsible for complying with the conditions of any environmental authorisation issued by the competent authority;
- hereby indemnify, the government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which the applicant or environmental assessment practitioner is responsible in terms of these regulations; and
- will not hold the competent authority responsible for any costs that may be incurred by the applicant in proceeding with an activity prior to an appeal being decided in terms of these regulations.

Signed Declaration Attached as Appendix G3

Signature of Applicant

Name of company:
City of Mbombela Local Municipality

Date:

Signature of the Commissioner of Oaths:

Date:

Designation:

Official stamp (Above)

21. Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts

At this stage, the proposed activity is not operational and there is currently no financial provision provided for its rehabilitation as the facility still to be constructed (dependent on the outcome of the environmental authorisation) is envisaged to be operational for a long-term. The financial provision is for the construction of the Matsulu Waste Transfer station.

22. Any specific information that may be required by the competent authority

The outstanding Biodiversity Study required by the Competent Authority and the resubmission of the Revised Final BAR with comments from the IAPs have been considered. The Biodiversity Assessment Study is attached as Appendix D1 and has been emailed to the Competent Authority for review. A copy of the report is made available to the IAPs as Appendix D1 to the Revised Final BAR. A 30 day commenting period has been given for IAPs to forward their comments to update the FINAL BAR for resubmission to the Competent Authority.

23. Any other matters required in terms of section 24(4)(a) and (b) of the Act

None.

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APPENDICES:

Appendix A: Site Plan – Layout Plan

Appendix A1: Proposed Site Layout Plan

Appendix A1.1: Pre-impact evaluation Proposed Preferred Site Layout Plan (Site Erf 312)

Appendix A1.2: Post-impact evaluation Proposed Preferred Site Layout Plan (Site Erf 302)

Appendix A1.2.1: Aerial Photograph and site layout overlay for post impact evaluation proposed site (Erf 312)

Appendix A1.2.1: Aerial Photograph of the post–impact assessment of the pre-impact proposed sites (Erf 312) and (Erf 311). A human settlement is located on the pre-impact evaluation proposed Site (Erf 312)

Appendix A.1.3: Waypoints of the surrounding land use activities observed around the pre-impact evaluation

Appendix A1.4: Photographic Map with waypoints illustrated in Appendix A1.3 of the post–impact evaluation proposed sites (Erf 312) and (Erf 311).

Appendix A2: Alternative Site Layout Plan

Appendix A2.1: Pre-impact evaluation proposed Alternative Site Layout Plan (Site Erf 311)

Appendix A2.2: Post-impact evaluation proposed Alternative Site Layout Plan (Portion of Erf 311 and Erf 97)

Appendix A2.2: Site Layout Plan for the post-impact evaluation proposed alternative site.

Appendix 2.2.1:Aerial Photograph and site layout overlay for post –impact evaluation proposed alternative site (Portion Erf 311 and Erf 97)

Appendix A.3: Locality map showing contour lines for the pre-impact and post-impact evaluation proposed sites

Appendix B: Photographs

Appendix B2 Photographs

Appendix C: Facility Illustration(s)

Appendix D: Specialist Reports

Appendix D1: Biodiversity Report

Appendix E: Comments and Response Report

Appendix F: EMPr

Appendix G: Other Information

Appendix G1: Declaration by EAP

Appendix G2: CV for EAP

Appendix G3: Declaration by Applicant

Appendix G4: CV for Applicant Representative

Appendix H: Public Participation Process

Appendix H1: Authority Consultation

Appendix H1.1: Full Meeting Minutes + Agenda + Attendance Registers

Appendix H1.2: Letters

Appendix H1.2.1: Acknowledgement of Application Form

Appendix H1.2.2: Proof of draft BAR submission

Appendix H1.2.3: Acknowledgement of Draft BAR with Comments
Appendix H1.2.4: Response letter to acknowledge comments received

Appendix H1.2.5: Request Letter for Extension

Appendix H1.2.6: Letter of Extension

Appendix H1.3: Email communication

Appendix H1.3.1: DARDLEA Email Communication

Appendix H1.3.2: DAFF Email Communication

Appendix H2: Consultation with other stakeholders

Appendix H2.1: Communication and Correspondence

Appendix H2.1.1: Email communication with Applicant and other stakeholders

Appendix H2.1.1.1: City of Mbombela Local Municipality (Applicant)

Appendix H2.1.1.2: Ward Councillors

Appendix H2.1.1.3: Kruger National Park (KNP)/SANParks

Appendix H2.1.1.4: Matsulu Community Members and Matsulu Local Business Owners

Appendix H2.1.2: Letters and other Correspondence

Appendix H2.1.2.1: Record of Verbal Communication

Appendix H2.2: Full Meeting Minutes with Agenda + Attendance Registers

Appendix H3: Site notification and Photos

Appendix H3.1: Site notification

Appendix H3.2: Proof of Site Notification

Appendix H4: Identification of Interested and Affected Parties (IAPs)

Appendix H4.1: IAP Register

Appendix H4.2: Communication Records

Appendix H5: Newspaper Advert

Appendix H6: Comments and Response Report
Appendix H6.1: Received Comments (emails, fax, letters etc)

Appendix H7: Public Revision of the Draft BAR

Appendix H8: Final Consultation BAR

Appendix I: Any other Additional Relevant Information

Appendix I1: Engagement of Specialist Studies

Appendix I1.1: Terms of Reference for the Specialist Studies

Appendix I1.2: Correspondence sent and received from Specialists

Appendix I1.3: Quotations received from Specialists approached

Appendix A: Site Plan – Layout Plan

Appendix A1: Proposed Site Layout Plan

Appendix A2: Alternative Site Layout Plan

Appendix B: Photographs

Appendix C: Facility Illustration(s)

Appendix D: Specialist Reports

D1: Biodiversity Assessment Report

Appendix E: Comments and Response Report

Appendix F: Environmental Management Programme (Separate Volume 1 of 1)

Appendix G: Other Information

Appendix G1: Declaration by EAP

SECTION 9: DECLARATIONS

The independent Environmental Assessment Practitioner

I, Babalwa Fatyi of Myezo Environmental Management Services declare under oath that I –

- act as the independent environmental assessment practitioner in this application ;
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- have and will not have no vested interest in the proposed activity proceeding;
- have no, and will not engage in, conflicting interests in the undertaking of the activity;
- undertake to disclose, to the competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2006;
- will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- will keep a register of all interested and affected parties that participated in a public participation process; and
- will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.

BAMO

Signature of the Environmental Assessment Practitioner:

Myezo Environmental Management Services (Pty) Ltd

Name of company:

24 July 2017

Date:

Signature of the Commissioner of Oaths:

2017-07-24

Date:

Police Official

Designation:

SOUTH AFRICAN POLICE SERVICE
GARSFONTEIN
2017 -07- 24
COMMUNITY SERVICE CENTRE
SUID-AFRIKAANSE POLISIEDIENS

Official stamp (Above)

Appendix G2: CV for EAP

Appendix G3: Declaration by Applicant

The Applicant

I, Mr Lesiba Maluleke of City of Mbombela Local Municipality _ declare under oath that I -

- Am, or represent, the applicant in this application;
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- will provide the environmental assessment practitioner and the competent authority with access to all information at my disposal that is relevant to the application;
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- will not hold the competent authority responsible for any costs that may be incurred by the applicant in proceeding with an activity prior to an appeal being decided in terms of these regulations.

Signature of Applicant

Name of company:
City of Mbombela Local Municipality

Date:
2017/07/31

Signature of the Commissioner of Oaths:

Date:
2017/07/31

Designation:

Official stamp (Above)

Certified true copy of the original document
COMMISSIONER OF OATHS
EX OFFICIO
SIPHO HENRY SIBUYI
MANAGER: HUMAN RESOURCES
CITY OF MBOMBELA
CIVIC CENTRE NEL STREET
MBOMBELA 1200

CITY OF MBOMBELA
THE ULTIMATE DESTINATION
2017 -07- 31
HR MANAGER
HUMAN RESOURCES

Appendix G4: CV for Applicant Representative:

Appendix H: Public Participation Process Appendices

Appendix H1: Authority Consultation – All correspondence (email, letters etc)

Appendix H1.1: Minutes of Meetings + Agenda + Attendance Registers

Appendix H1.2: Acknowledgement letter (re-application forms)

Appendix H2: Consultation with other stakeholders

Appendix H2.1: Communication & correspondence

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