Proposed increase in slaughtering capacity at Barberton Abattoir, Barberton, City of Mbombela, Mpumalanga Province

Draft Basic Assessment Report

21 January 2021

CORE Environmental Services

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EXECUTIVE SUMMARY

Barnel Investments (Pty) Ltd (Trading and referred to as Barberton Abattoir) is proposing to increase its slaughtering capacity from the current 150 units per day to 200 units per day. The abattoir increased the slaughtering capacity from 130 to 150 units per day in 2020. The abattoir received the environmental authorisation on the 24 of August 2020.The abattoir is proposing to increase the slaughtering capacity from 150 to 200 units during festive seasons as the demand increases during the festive seasons. The abattoir constructed a cold storage area within the existing footprint of the abattoir and by changing the internal layout of the slaughtering area, the slaughtering capacity of the abattoir can be increased to accommodate the additional capacity.

In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), an Environmental Authorisation (EA) is required when the slaughtering capacity is increased by more than 6 units of red meat per day.

Barberton Abattoir subsequently appointed **Core Environmental Services** to apply for the EA by means of conducting a Basic Environmental Authorisation process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

As the Barberton Abattoir has been operational for more than 25 years, the impact associated with the increase in slaughtering capacity during the operational phase are listed below and discussed thereafter:

- *Water resources;*
- *Odour;*
- *Waste classification, storage and disposal;*
- *Health and Safety;*
- *Socio-economic impact.*

The table below summarises the impacts identified and assessed for the establishment and operational phases of the project:

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Operational Phase Impacts		
Impact on water resources	Low	Very Low
Odour	Low	Very Low
Waste Classification, Storage and Disposal	Low	Very Low
Health and Safety	Low	Very Low
Socio-Economic	Neutral	High (+)

The assessment of the possible impacts associated with increasing the slaughtering capacity during the festive season, concluded that the impact on the surrounding environment is of **low significance**. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. Recommendations for the mitigation of impacts are included within Section 6 and also the Draft Environmental Management Plan attached.

The significance of the potential environmental (biophysical and social) impacts associated with the proposed project are discussed in detail under **Section 7**.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

APPENDICES

ABBREVIATIONS

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
EA	Environmental Authorisation
GNR	General Notice Regulation
I&AP	Interested and Affected Party
MDARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Administration
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
PPP	Public Participation Process

1. OVERVIEW OF THE PROJECT

1.1 Introduction

Barnel Investments (Pty) Ltd (Trading and referred to as Barberton Abattoir) is proposing to increase its slaughtering capacity from the current 150 units per day to 200 units per day. The abattoir increased its slaughtering capacity from 130 to 150 units per day in 2020 after following the Environmental Impact Assessment process. The abattoir received their Environmental Authorisation on the 24 of August 2020. After Environmental Authorisation was received, the abattoir realised that the demand is higher during the festive season and therefore another application is made to increase the slaughtering capacity from 150 to 200 units during the festive seasons. The abattoir constructed a cold storage area within the existing footprint of the abattoir and by changing the internal layout of the slaughtering area, the slaughtering capacity of the abattoir can be increased to accommodate the additional capacity. In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), an Environmental Authorisation (EA) is required when the slaughtering capacity is increased by more than 6 units of red meat per day.

Barberton Abattoir subsequently appointed **Core Environmental Services** to apply for the EA by means of conducting a Basic Environmental Authorisation process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

1.2 Location

The proposed site is located on portion 14 of the farm Barberton Townlands 369-JU, Barberton, City of Mbombela, Mpumalanga Province.
Coordinates:
25° 45'51.11"S
31° 1'47.57"E
Surveyor General Code: T0JU00000000036900014

Please refer to the locality map below, Figure 1 below.

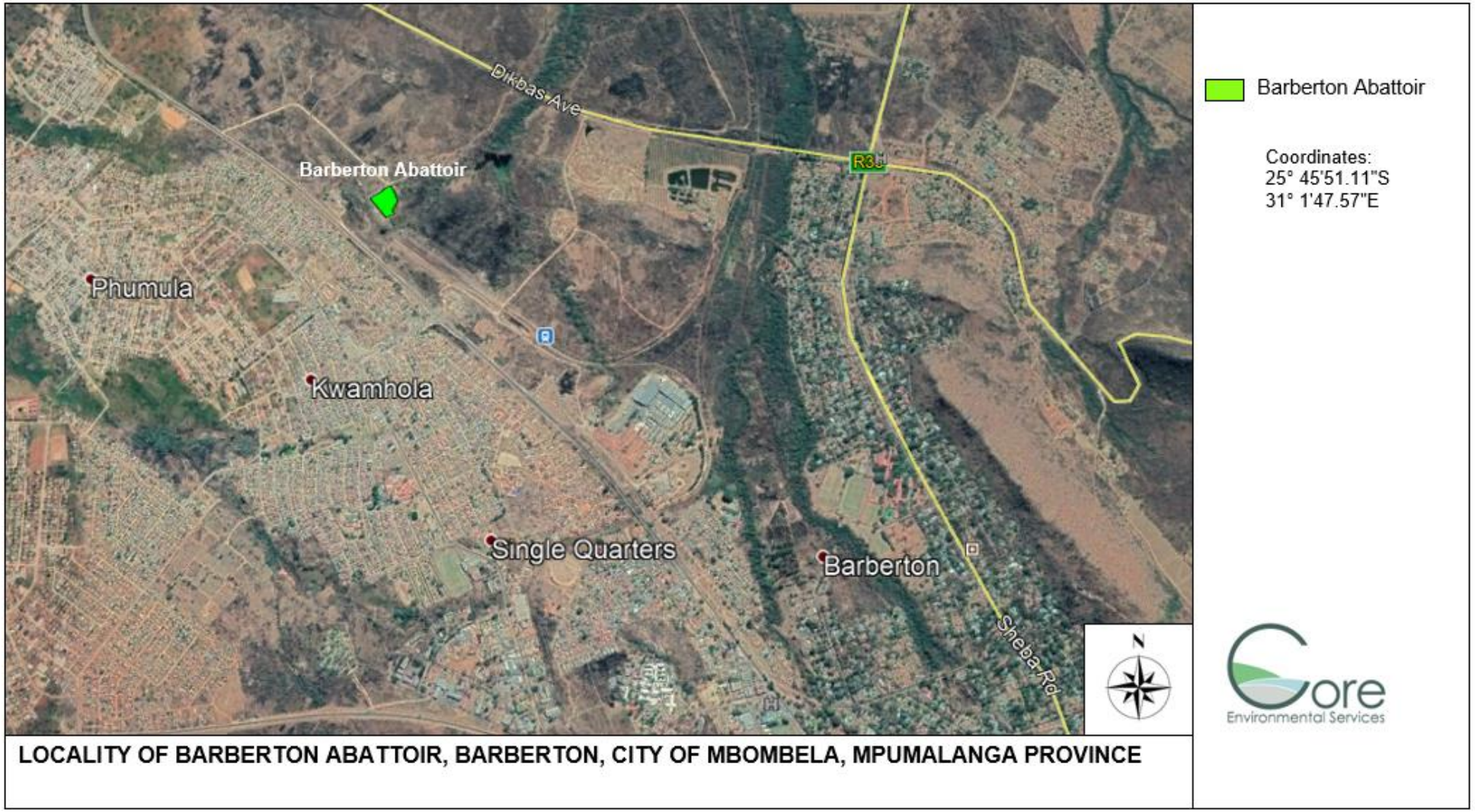

FIGURE 1: LOCALITY MAP – BARBERTON ABATTOIR, CITY OF MBOMBELA, MPUMALANGA PROVINCE

1.3 Details of the EAP

Ms. Anne-Mari White, is an Environmental Specialist, who started her studies at the North-West University (NWU) and completed her Bachelor of Science: Environmental Management at the University of South Africa (UNISA) in 2007. Ms. White is registered with the South African Council for Natural Scientific Professionals as a Certificated Natural Scientist (Reg. No 300067/15). In addition to her qualification, she completed short courses in soil classification and wetland delineations (Terrasoil Science), Geographic Information Systems (University of KwaZulu-Natal), and Environmental Impact Assessments (NWU).

1.4 Policy, Legal and Administrative Framework

TABLE 1: LEGISLATION APPLICABLE TO THE PROJECT

Applicable legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments considered	Project application and type (permit / licence / authorisation / comment)
The Constitution of South Africa, Act No. 108 of 1996	Barberton Abattoir will be required to adhere to the Environmental Management Programme (EMPr) requirements to ensure that social and environmental management considerations are considered and implemented. As per Section 25 the Constitution, a public participation process (PPP) was and will continue to be undertaken, as this is considered to be an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.
National Environmental Management Act, 1998 (Act No. 107 of 1998)	Environmental Authorisation will subsequently be applied for by means of conducting a Basic Environmental Authorisation process as regulated within GNR982 of 2014 (as amended in 2017).
Occupational Health and Safety Act, 1998 (Act No. 85 of 1998)	The Act provides for the health and safety of people at work and for the health and safety of people using plant and machinery. During establishment and operation, work must be conducted with strict adherence to the Occupational Health and Safety Act 85 of 1998.
National Environmental Management: Waste Act, No. 59 of 2008	Schedule 3 of the NEM: WA classifies the non-infectious portion of animal waste as general waste: "Category B1 Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing (b) wastes from the preparation and processing of meat, fish

	and other foods of animal origin." Blood is included under this definition. Non-infectious condemned animal waste is viewed as waste and is classified as general waste. Infection waste is viewed as hazardous waste and must also be dealt with accordingly. Waste storage and disposal must be conducted in accordance with the NEM:WA 59, 2008
National Norms and Standards for the Disposal of Waste to Landfill (August 2013, GG No. 36784 GN No. 636)	Waste is evaluated in terms of the Norms and Standards for the Assessment of Waste for Landfill Disposal set in terms of Section 7(1) of the NEM: WA. According to Section 4 (2) (iii): non-infectious animal carcasses may only be disposed of at a Class B waste disposal facility or at one designed in accordance with the requirements for a G:L:B+ waste disposal facility, as specified in the Department of Water Affairs and Forestry (DWAF) Minimum Requirements for Waste Disposal by Landfill (2nd Edition, 1998). Section 5 (1) u: indicates that infectious animal carcasses and animal waste are prohibited and/or restricted from landfills with immediate effect, implying that treatment is needed before disposal at Class B.
Red Meat Regulations, No 1072, September 2004	Part VIII describes the process of treating condemned material. Section 119 deals specifically with the disposal of condemned material as follows: 119. Any condemned material must be disposed of by – a) total incineration; b) denaturing and burial of condemned material at a secure site, approved by the provincial executive officer and local government, by – 1. Slashing and then spraying with, or immersion in, an obnoxious colorant approved for the purpose; and; 2. Burial and immediate covering to a depth of at least 60 cm and not less than 100m from the abattoir, providing such material may not deleteriously affect the hygiene of the abattoir; or c) processing at a registered sterilizing plant.
National Environmental Management: Air Quality Act 39, 2004	NEM: AQA, Section 35(2) imposes an obligation on the occupier of any premises to take all reasonable steps to prevent the emission of any offensive odour caused by any activity on such premises. 'Offensive odour' means any smell which is considered to be malodorous or a nuisance to a reasonable person.
Animal Diseases Act 1984 (Act. No 35 of 1984)	Provides for the control of animal diseases and parasites, for measures to promote animal health and for matters connected with this.

City of Mbombela Integrated Development Plan (IDP) (2017 - 2022)	The primary objectives of the IDP is to foster economic growth that creates jobs and improve infrastructure within the Province. More job opportunities will be created by the increasing the slaughtering capacity of the existing Barberton Abattoir facility.

1.5 National Environmental Management Act 107 of 1998

In accordance with the National Environmental Management Act 107, of 1998, the following listed activity will be triggered by the proposed activity and will require approval prior to commencement:

GNR 983, Activity 37, 2014 (as amended in 2017):
The expansion and related operation of facilities for the slaughter of animals where the daily throughput will be increased by more than –

(i) 50 Poultry;
(ii) 6 Units of reptiles, red meat and game;
(iii) 20 000kg wet weight per annum of fish, crustaceans or amphibians.

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The Barberton Abattoir recently constructed the cold storage area within the existing footprint of the abattoir and is proposing to increase its current red meat slaughtering capacity from 150 units per day to 200 units per day during the festive season. The slaughtering capacity of the abattoir will therefore be increase by more than 6 units per day during the festive season and for this reason, Environmental Authorisation is required.

1.6 Description of the project

Barberton Abattoir has been operating for over 25 years and is slaughtering approximately 150 animals per day (Cows, pigs, and sheep).

The operational process can be explained as follows:

Animals are transported to the holding pen of the abattoir via trucks and contained within a demarcated area. After the delivery, trucks are washed at the dedicated wash bay. Water draining from the wash bay, is diverted to the municipal sewage system for treatment.

The abattoir is divided into two different areas namely the dirty and clean area. Within the dirty area, the slaughtering takes place and all blood within this area is collected and transported of site. The blood is sold to a third-party contractor for the manufacturing of fertilizer. Within the clean area, the animal hides, heads, stomach etc., are removed and water used to clean this area is also diverted to the municipal sewage treatment system. Carcasses are stored in refrigerators until being transported and sold to butcheries.

Some animal waste has no use and can therefore not be sold. Such contents are disposed of within deep, narrow trenches on an adjacent farm. Animal waste is dumped on a daily basis and then covered with a layer of EM (Effective Microorganisms) and a layer of soil.

The Barberton Abattoir recently constructed the cold storage area within the existing footprint of the abattoir. By means of changing the internal layout of the existing abattoir, the slaughtering capacity of the abattoir can be increased to 200 red meat units per day.

Water for the daily operation at the abattoir is abstracted from a borehole located on the property. A Water Use License was obtained for the abstraction and use of the ground water.

1.7 Need and Desirability

According to the recently released Organisation for Economic Development (OECD) Agricultural Outlook 2019-2028, meat production is expected to continue to grow as it is expected that by 2050, more than 25% of the world population will live on the African continent. The food market in East and Southern Africa will more than triple by 2040.

In order for the abattoir to accommodate the current and expected growth and also ensure that the abattoir remains financially viable, it is imperative for the abattoir to increase their capacity to accommodate the growing demand.

2 PUBLIC PARTICIPATION PROCESS

The purpose of this chapter is to provide an outline of the public participation process (PPP) to date and the way forward with respect to the Basic Assessment process.

Consultation with the public forms an integral component of the EA process. This process enables Interested and Affected Parties (I&APs) (e.g. directly affected landowners, national-, provincial- and local authorities, and local communities etc.) to raise their issues and concerns regarding the proposed activities, which they feel should be addressed in the BA process. The PPP has thus been structured such as to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide input through the review of documents/reports, and to voice any issues or concerns at various stages throughout the BA process.

I&APs were identified during the public participation phase of the project. All the parties identified as an I&AP (surrounding landowners, relevant departments, stakeholders, local and district authorities) have automatically been registered in the I&APs database for the project. The registered I&AP list is attached as **Annexure C.1.**

In effort to engage potential stakeholders, different communication methods were used to inform them about the project and how to get involved in the BA process. These methods include:

- Distributing English Background Information Documents (BIDs) to all registered I&APs, proof of which is attached in **Annexure C.2**;
- Placement of media advert in a local newspaper (The Lowvelder) on 10 December 2021 (see **Annexure C.3**).
- Placing of a notice at the proposed site took place on 9 December 2021 (see **Annexure C.4**);

The draft Basic Assessment Report will be made available for public review during January and February 2021

To date, no comment has yet been received from any Stakeholder or Interested and Affected Party.

3 CONSIDERATION OF ALTERNATIVES

The EIA process requires the developer to identify and investigate/assess feasible and reasonable alternatives. The project alternatives range from the location where the activity is proposed, type of activity to be undertaken, design the of activity, technology to be used in the activity to the option of not implementing the activity (No-Go Alternative).

The assessment of the alternatives is a complicated and multi-faceted issue, which is essential to the success of this application and ultimately to the proper, responsible and sustainable operation of the proposed project.

3.1 Alternative Selection

3.1.1 Layout alternatives

By making a few internal layout changes within the abattoir/slaughtering area, the applicant is able to increase its slaughtering capacity to 200 units per day. The applicant will therefore make small adjustments within the facility that would best improve the work flow to accommodate the increased slaughtering capacity.

3.1.3 No-Go alternative

The no-go alternative would be to not authorise the application for increasing the slaughtering capacity of the abattoir, however, no impact was identified to be so severe in order for the no-go alternative to be further investigated.

4 DESCRIPTION OF THE AFFECTED ENVIRONMENT

The description of the affected environment below draws on existing knowledge from published data, previous studies, specialist investigations, site visits to the area and is used to understand the possible effects of the proposed project on the environment.

4.1 Topography

The topography of the proposed project area, is approximately 740m above mean sea level and is relatively flat sloping slightly north-east towards the lower laying area into the Suid-Kaap River.

4.2 Climate

Mpumalanga is a province where the climate varies due to is topography. Barberton is located on the Lowveld Region and has a tropical climate with warm sub-tropical temperatures and experiences high summer rainfalls.

The study area experiences a humid and hot weather during summer seasons. The climatic trends of the area suggest summer season precipitation and dryer periods during winter. The area receives a total of about 800-1000 mm of rain over 12 months.

4.3 Ecology

On a National level, the larger study area can be classified as Lowveld (A10), according to Acocks (1988) and Sour Lowveld Bushveld according to Low & Rebelo (1998). Classified on a regional scale and according to a more detailed system the study area comprises several distinct vegetation units (Mucina & Rutherford, 2006):

As mentioned, the project area has however been completely transformed as the abattoir has been operating for over 25 years.

4.4 Surface and Groundwater

Primary aquifers are not common within the investigation area, but rather the site is characterised by secondary aquifer features related to fractures, joints, intrusions and weathering. This is a common feature for crystalline igneous rocks underlying the site. Rocks and all forms of geological material can transmit water/fluids. This property is recorded as the hydraulic conductivity (K) property of the geological media. Brassington (1998) and Lekete (2011) have documented the property of several geological materials and their ability to conduct water.

At Barberton Abattoir, the static groundwater level is recorded to be at **5.72 m** below the ground level i.e. **~734 m** above mean sea level. With the consideration stated above, the groundwater within the region will flow towards the northern direction, following the surface topography towards the lower laying area into the Suidkaap River. The annual recharge in the water management area varies from 100 to 150 mm.

A channeled valley bottom wetland is also located approximately 200m north-east of the existing abattoir.

4.5 Land use

The abattoir has been operating at the same location for over 25 years. Barberton town is located approximately 1km south-east of the abattoir while Emjimdini Township is located only 150m south-west of the abattoir. The Transnet railway line is separating the Barberton water purification plant located west of the abattoir while the municipal landfill site is located approximately 750m north-east of the abattoir.

4.6 Geology and Soils

According to the published 1:250 000 geological map sheet 2530 Barberton, the project area is regionally underlain by Kaap Valley Granite rocks of the Swazian Era. The Kaap Valley Granites are predominantly honblende - Biotite Granites. A series of diabase dykes / linear intrusions are mapped at regional scale with a northwest southeast striking direction. The site is structurally characterised by regionally intrusive dolerite dyke and sills structures (1: 250 000 geological map sheet 2530 Barberton). The intrusive dolerite occurs across the site area creating potential groundwater flow paths.

4.7 Socio-Economic Environment

Barberton is located within the City of Mbombela. The larger portion of the 695 913 individuals within the Mbombela Local Municipality, lives in peri-urban and rural areas. Approximately 75% of the people live within communal areas on the eastern axis of the City which is far from the city.

The City of Mbombela currently has an unemployment rate of 28% with 50% of the people living below the poverty line. The levels of skill and qualifications of the population is also fairly low which is problematic for future economic development. The socio-economic context of the surrounding environment can therefore be described as a community with a low percentage of education and high unemployment rate.

5 SPECIALIST ASSESSMENT REQUIREMENTS AS IDENTIFIED IN THE SCREENING REPORT

The following specialist assessments were identified within the Department of Environmental Affairs Screening Report to be conducted as part of the Basic Environmental Impact Assessment:

- Visual Impact Assessment

The site has been operating as an abattoir for more than 25 years and therefore from a visual perspective, there would be no additional impact on any surrounding visual receptors. In addition to this, it must be noted that there are no visual receptors as the abattoir is surrounded by vegetation which acts as a buffer between the abattoir and surrounding land users. For this reason, no visual impact assessment was conducted.

- Heritage and Paleontological Impact Assessment

The project area has already been transformed and therefore no Heritage or Paleontological Assessment would be required.

- Terrestrial Biodiversity Assessment / Plant and Animal Species Assessment

The Screening Report indicated that the Terrestrial Biodiversity Theme is of high significance, however, the entire project area has been operating as an abattoir for over 25 years and the increase in slaughtering capacity will not have an impact on the terrestrial biodiversity. For this reason, no Biodiversity Assessment was conducted.

- Hydrological Assessment

As noted within the project description, water for use during operation is abstracted from a borehole located on the property. A Water Use License Application is currently being processed.

The nearest watercourse is located approximately 100m north-east of the abattoir. All effluent and waste water is diverted to the municipal sewer system and no effluent is discharged into the surrounding environment. Increasing the slaughtering capacity will have no impact on the hydrology of the surrounding environment and for this reason no hydrological assessment was conducted.

- Traffic Impact Assessment

Increasing the slaughtering capacity from 130 units to 150 units per day, will not have such a significant impact on the traffic entering and exiting the abattoir site that it would justify the need for a Traffic Impact Assessment to be conducted. The impact on traffic would be minimal and therefore no Traffic Impact Assessment was conducted as part of the Basic Assessment Process.

- Socio-economic Assessment

The proposed project will not have any negative impact on the socio-economic environment. Contrary to this, additional job opportunities will be created during the operational phase of the project, which will impact the surrounding community positively.

As no negative socio-economic impact is expected with the proposed project, it is the opinion of the EAP that no Socio-Economic Impact Assessment is required.

6 METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS

This section outlines the method used for assessing the significance of the potential environmental impacts during the construction/establishment, operational and decommissioning phases.

For each impact, the EXTENT (spatial scale), MAGNITUDE and DURATION (time scale) would be described, as shown in **Table 2**. These criteria are then used to determine the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the Report represents the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.

The following tables show the scale used to assess these variables and defines each of the rating categories.

TABLE 2: ASSESSMENT CRITERIA FOR THE EVALUATION OF IMPACTS

Criteria	Category	Description
Extent or spatial influence of impact	**Regional**	Beyond a 30km radius of the candidate site.
	Local	Within a 30km radius of the candidate site.
	Site-specific	On site or within 100 m of the candidate site.
Magnitude of impact (at the indicated spatial scale)	**High**	Natural and/ or social functions and/ or processes are *severely* altered
	Medium	Natural and/ or social functions and/ or processes are *notably* altered
	Low	Natural and/ or social functions and/ or processes are *slightly* altered
	Very low	Natural and/ or social functions and/ or processes are *negligibly* altered
	Zero	Natural and/ or social functions and/ or processes remain *unaltered*
Duration of impact	**Long-term**	More than 10 years after construction
	Medium-term	Up to 5 years after construction
	Construction-term	Up to 3 years

The SIGNIFICANCE of an impact is derived by taking into account magnitude, duration and extent of each impact. The criteria employed in arriving at the different significance ratings is shown in Table 3.

TABLE 3: DEFINITION OF SIGNIFICANCE RATINGS

Significance ratings	Level of criteria required
High	• High magnitude with a regional extent and long-term duration • High magnitude with either a regional extent and medium-term duration or a local extent and long-term duration • Medium magnitude with a regional extent and long-term duration
Medium	• High magnitude with a local extent and medium-term duration • High magnitude with a regional extent and construction period or a site-specific extent and long-term duration • High magnitude with either a local extent and construction period duration or a site-specific extent and medium-term duration • Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term • Low magnitude with a regional extent and long-term duration
Low	• High magnitude with a site-specific extent and construction period duration • Medium magnitude with a site-specific extent and construction period duration • Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term • Very low magnitude with a regional extent and long-term duration
Very low	• Low magnitude with a site-specific extent and construction period duration • Very low magnitude with any combination of extent and duration except regional and long term
Neutral	• Zero magnitude with any combination of extent and duration

Once the significance of an impact has been determined, the **PROBABILITY** and **CONFIDENCE** of this impact are determined using the rating systems outlined in **Table 4** and **Table 5.** The significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the **REVERSIBILITY** of the impact is estimated using the rating system outlined in **Table 6.**

TABLE 4: DEFINITION OF PROBABILITY RATINGS

Probability ratings	Criteria
Definite	Estimated greater than 95 % chance of the impact occurring.
Probable	Estimated 5 to 95 % chance of the impact occurring.
Unlikely	Estimated less than 5 % chance of the impact occurring.

TABLE 5: DEFINITION OF CONFIDENCE RATINGS

Confidence ratings	Criteria
Certain	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.

TABLE 6: DEFINITION OF REVERSIBILITY RATINGS

Reversibility ratings	Criteria
Irreversible	The activity will lead to an impact that is in all practical terms permanent.
Reversible	The impact is reversible within 2 years after the cause of the impact is removed.

7 ENVIRONMENTAL IMPACT ASSESSMENT

As the Barberton Abattoir has been operational for more than 25 years, the impact associated with the increase in slaughtering capacity during the operational phase, is investigated and described as seen below:

7.1 Impacts associated with the increase in slaughtering capacity

The following aspects must be addressed when the increase in slaughtering capacity is assessed:

- *Water resources;*
- *Odour;*
- *Waste classification, storage and disposal;*
- *Health and Safety;*
- *Socio-economic impact.*

7.1.1. Impact on water resources

Description of the potential impact

As indicated in Section 4.4 above, the nearest surface water resource is located approximately 100m north and east of the existing abattoir. Ground water is abstracted from a borehole located on the property and the water abstracted is used daily during operation. The use of water is essential for the Barberton Abattoir, as its operational components depend on it. The abattoir cannot fulfil its responsibilities in terms of the health and safety requirements if no water is used to clean the abattoir daily.

The liquid waste is usually composed of dissolved solids, blood, fat, gut contents, urine and water. All waste water is diverted to a sump where the solids are trapped before the liquid waste enters the bulk sewer system. The liquid waste is diverted to the municipal wastewater treatment works for treatment.

Significance of the impacts

At present, the abattoir is abstracting approximately 200 m^3 of water from the borehole on a daily basis for cleaning purposes. According to the Geo-Hydrological Assessment conducted as part of the Water Use Licensing process, the borehole was tested and can sustain a yield of 17 l/s which equals 220 020m^3 of water per month. Currently, the abattoir is abstracting approximately 6000 m^3 of water per month. The Geo-Hydrologist indicated that the borehole is underutilised and although the increase in slaughtering capacity will have a slight increase in the water used on a daily basis, the results of the borehole indicated that there is sufficient water available for the proposed increase in slaughtering capacity.

In terms of waste water, all waste water flows through the sump before it enters the municipal bulk sewer system. No effluent is therefore discharged into the surrounding environment or water resources and therefore the increase in slaughtering capacity will not have any impact on the water quality of surrounding water resources.

The impact on water resources is therefore rated to be of low significance.

TABLE 7: SIGNIFICANCE ON WATER RESOURCES

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on water resources [NEGATIVE]	**Low**	**Unlikely**	**Sure**	**Reversible**	**Low**	**Very Low**

Mitigation measures

- Although sufficient water is available, the applicant must take cognisance of the fact that water is a scarce resource and abstraction of the water from the groundwater resource must be managed in accordance with the Water Use License.
- The applicant must ensure that no waste water is discharged into the surrounding environment.
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the operational phase of the project.

7.1.2. Odour

Description of the potential impact

Unwanted odours emanating from Barberton Abattoir could include odours from urine and manure in holding pens, blood residues, or disposal of animal waste. Animal waste which cannot be used or sold as a by-product, is currently buried in deep narrow trenches on the adjacent farm property and improper management of such disposal could cause bad odours resulting in bad air quality.

Significance of the impact

The holding pens and abattoir surfaces are washed continuously and therefore the odours emanating from the holding pens or the abattoir is minimal.

The animal waste buried in trenches does however result in bad odours if not managed appropriately. Increasing the slaughtering capacity of the abattoir will result to an increase of abattoir waste to be buried on a daily basis, which has an impact on the odour emanating from the site. The area where the waste is currently buried is far from residents and also located next to the municipal landfill site. The current impact is therefore mitigated by the fact that the nearest residents are located 500m from the area where the waste is buried. The applicant have adjusted the procedure for the burial of waste to minimise the odour emanating from the site. These measures include the following:

- Digging deep narrow trenches instead of large shallow holes. This eases the covering of such waste material with a soil layer after disposal;
- It is important for the decomposition of biological waste to be completed as quickly as possible so that the formation of odour producing compounds is limited. Micronutrient additives

cultivate bacteria that breakdown organic material in an odourless process. Micronutrient additives (EM) is therefore added to all biological waste disposed of before it is covered with a layer of soil.

The abattoir is also proposing to install a Multi-Processor for the disposal of waste when the slaughtering capacity is increased. The impact of odour emanating from the site will be further mitigated by the use of this machine to process animal waste. The Multi-Processor is discussed in more detail under the waste management section below.

TABLE 8: ODOUR

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Odour [NEGATIVE]	**Medium**	**Probable**	**Sure**	**Reversible**	**Low**	**Very Low**

Mitigation measures

- Holding pen and abattoir surfaces must be cleaned continuously to avoid any odours from emanating from the abattoir;
- The Multi-Processor to be installed and used for effective animal waste disposal, must be used according to specification.

7.1.3 Waste classification, Storage and Disposal

Description of the potential impact

The different sources of waste in red meat abattoirs that can impact the environment includes waste from:

- Animal holding pens;
  Manure and urine in holding pens are cleaned on a daily basis. At Barberton Abattoir, the holding pen is washed with water and the effluent is diverted to the municipal sewer system.
- Bleeding and stunning;
  All blood is collected into drums or tanks so it can be further rendered into blood meal and fertilizer. Depending on the amount of blood gathered, these drums are collected by a third party on either a daily basis or every second day.
- Carcass processing, offal and by-product processing including condemned waste;
  Waste from carcasses which cannot be used of sold as a by-product, are currently buried in narrow trenches whereby the waste is immediately covered with Effective Microorganisms (EM) and a layer of soil of 500mm thick. In future, the Barberton Abattoir will however be making use of a Multi-Processor System which applies an

alkaline hydrolysis solution to process animal by-products. The Multi-Processor process animal by-products as follows:

- The tissue (by-products) is loaded into the processor;
- A chemical catalyst is added;
- Water is added to the processor and it is sealed;
- The hydrolysis takes between 12- 24 hours for Hydrolyses Protein Liquid (HPL) to be discharged from the Processor. HPL is characterised by a dark brown colour and contains micro and macro nutrients that are beneficial to plants and compost processes;
- The HPL is then transferred to a heat tolerant tank from where it can be used as a fertiliser.

- Waste water contaminating the sub-surface water;
  All water used to clean the abattoir surfaces are diverted to the sump where solids and fats are caught before the liquid waste water enters the municipal sewage system. The solids and fat trapped are collected from the sump daily and disposed with the other animal by-products.

The risk associated with the disposal of condemned/infectious waste is accounted to the spread of diseases such as Anthrax and Brucellosis from animals to humans. Condemned waste is therefore treated as hazardous waste and must also be disposed of accordingly.

Significance of the impact

Improper disposal of abattoir waste will have a significant impact on the surrounding environment as it could have the following impacts:

- Increase the health risk;
- Contaminate ground water resources; and
- Cause landfill airspace shortages

Although the abattoir waste is currently being buried in deep narrow trenches, the Multi-Processor will be used to treat abattoir waste when the slaughtering capacity is increased. The advantages of anaerobic digestion are listed as follows:

- The process sterilises pathogens and are removed from the waste;
- Process helps minimise the odour being released;
- Waste is used as a resource. Value is recovered from the waste as a fertiliser is produced.

It must be noted that this application entails only the increase in slaughtering capacity during the festive season and subsequently the increase in waste is of temporary nature. All waste water is also diverted to the municipal sewer system and solid waste is proposed to be treated by means of the Multi-Processor as described above. For this reason, the impacts associated with the disposal of abattoir waste, is of low significance.

TABLE 9: WASTE DISPOSAL

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Waste disposal [NEGATIVE]	**Medium**	**Unlikely**	**Sure**	**Reversible**	**Low**	**Very Low**

Mitigation measures

- Solid traps must be installed in all drains to collect waste products before in enters the municipal sewer system.
- Waste management improvement must include minimisation of waste generated at the source, including maximising the recovery of useful materials;
- The Multi-Processor must be maintained to ensure that the system is working optimally;
- General waste generated at the abattoir must be transported and disposed of at a licensed municipal waste disposal site;

7.1.4 Health and Safety

Description of the potential impact

A licensed abattoir facility must adhere to specific hygiene and sanitary conditions in accordance with the Meat Safety Act (Act 40 of 2000), Red Meat Regulations, No. 1072, 2004 as well as the Animal Diseases Act of 1984, in order to ensure the effective processing, preservation and safe storage of meat products for human consumption. Areas within abattoirs to be sanitized include, infrastructure and facilities contained therein, equipment, surrounding areas, abattoir workers and visitors.

Inadequate facilities and hygiene at slaughterhouses can result in contamination of meat and occupational hazards to workers. Condemned products not disposed of properly, are consumed by scavengers or people living off refuse sites and this could have a significant impact on the health and safety of humans and other life forms.

Significance of the impact

Barberton Abattoir has been operating within the same facilities for over 25 years and since operation, they have implemented all measures to ensure that conditions relating to the above-mentioned Acts and Regulations, are adhered to.

The increase in slaughtering capacity will have no impact on the health and safety aspects of the abattoir and for this reason the impact is of low significance.

TABLE 10: HEALTH AND SAFETY

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Unhygienic conditions at the abattoir [NEGATIVE]	**Medium**	**Unlikely**	**Sure**	**Reversible**	**Low**	**Very Low**

Mitigation measures

- All conditions included with the Meat Safety Act (Act 40 of 2000), Red Meat Regulations, No. 1072, 2004 as well as the Animal Diseases Act of 1984, must be adhered to in order to ensure products are safe for human consumption.

7.1.5 Socio-economic Impact

Description of the potential impact

Increasing the daily slaughtering capacity at the Barberton Abattoir during the festive season, will also result to the expansion of the work force within the abattoir during the busy season which ensures temporary job opportunities are created.

Significance of the impacts

Based on the methodology detailed in **Section 5**, the following ratings have been assigned to the employment opportunities associated with the increase in slaughtering capacity.

TABLE 11: SOCIO-ECONOMIC IMPACT

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Job opportunities [POSITIVE]	**High**	**Definite**	**Sure**	**Reversible**	**Neutral**	**High (+)**

Mitigation measures

The Barberton Abattoir must ensure that local residents receive preference for job opportunities where local labour might be required.

7.2 Environmental Impact Statement

The table below summarises the impacts identified and assessed for increasing the slaughtering capacity at Barberton Abattoir:

TABLE 12: ENVIRONMENTAL IMPACT STATEMENT

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Operational Phase Impacts		
Impact on water resources	Low	Very Low
Odour	Low	Very Low
Waste Classification, Storage and Disposal	Low	Very Low
Health and Safety	Low	Very Low
Socio-Economic	Neutral	High (+)

8 CONCLUSION AND WAY FORWARD

8.1 Assumptions and Limitations

In undertaking this investigation and compiling the Draft Basic Assessment Report, the following has been assumed:

- The information provided by the proponent is accurate and unbiased, and no information that could change the outcome of the Environmental Authorisation process has been withheld.
- The scope of this investigation is limited to assessing the environmental impacts associated with increasing the slaughtering capacity of Barberton Abattoir.
- The conclusion and recommendations proposed are based solely on the information, scope of works as agreed with the proponent.

8.2 Conclusion

The essence of all environmental assessment processes is aimed at ensuring informed decision-making and environmental accountability. Furthermore, it assists in achieving environmentally sound and sustainable development. The impact assessment for this project has been undertaken in line with the requirements prescribed in the NEMA regulations.

The assessment of the possible impacts associated with increasing the slaughtering capacity during the festive season, concluded that the impact on the surrounding environment is of **low significance**. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. Recommendations for the mitigation of impacts are included within Section 6 and also the Draft Environmental Management Plan attached.

The significance of the potential environmental (biophysical and social) impacts associated with the proposed project are discussed in detail under **Section 7**.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

8.2 Way Forward

The next steps for the Basic Assessment process will be to distribute the Draft Basic Assessment Report and make it available to the public (including the registered I&APs) and Organs of State for a period of 30 days, during which the Competent Authority (DARDLEA) will also be given the opportunity to provide comments on the report. After the 30-day comment period, all comments will be addressed by the EAP and incorporated within the Final Basic Assessment Report to be submitted to the DARDLEA for decision making. All registered I&APs will be notified of the decision and will be given an opportunity to appeal as per the NEMA requirements.

9 REFERENCES

National Environmental Management Act 107 of 1998 (NEMA 107, 1998)

General Notice Regulation 982, 983, 984 and 985 of 2014 (as amended in 2017)

Mpumalanga Biodiversity Conservation Plan, 2014

Meat Safety Act (Act 40 of 2000)

Red Meat Regulations, No. 1072, 2004

Animal Diseases Act of 1984

The mini guide to the Management of Abattoir Waste, Western Cape Government, Environmental Affairs and Development Planning